Curriculum Vitae

Andreas Uhl

Department of Computer Sciences
University of Salzburg
Jakob-Haringerstr. 2
A-5020 Salzburg
Austria

e-mail: uhl@cosy.sbg.ac.at
URL: www.wavelab.at
Tel.: 0662 8044 6303
Fax: 0662 8044 172

Date: 29.11. 2023

Contents

1 Personal Data

Name: Univ.-Prof. Mag.Dr.rer.nat. Andreas Uhl
Date and place of birth: 11. 08. 1968, Braunau/Inn
Nationality: Austrian
Private address: Söllheimerbachweg 5, A-5023 Salzburg, Tel.: 0662 884211
Maritial status: Married to DI Dr. Jutta Hämmerle-Uhl, three children (Benjamin W. Vecsei, * 12.2.1993, Esther Uhl, * 14.3.1999, and Elias Uhl, * 4.1.2002).

2 Education and Scientific Career

Education:

1973-1977 VS Braunau/Inn
1977-1986 BG Braunau/Inn (English, Latin, French)
Juni 1986 Matura (passed with distinction).

University Studies:

WS 86/87 - WS 92/93 Mathematics and secondary school teacher in Mathematics and Philosophy, Psychology, and Educational Theory at the University of Salzburg. Mathematics passed with distinction.
Finished: December 1992.

WS 90/91 - SS 92 Two year curriculum in Computer Science (secondary school teacher) at the University of Innsbruck

SS 93 - SS 96 Doctoral program at the University of Salzburg.

Dissertation: Wavelets: Adaptive and Parallel Methods in Image Coding and Signal Processing. (Final examination in April 1996).
Graduation (*"sub auspiciis", i.e. summa cum laude - in the presence of the Austrian president*): April 1997.

Scientific Career:

Habilitation for Computer Science in March 2000, title Ao.Univ.-Prof. (tenured Associate Professor at Salzburg University) awarded on October 1st, 2000.

Guest Professor for Computer Science in 2002/2003 at the Johannes Kepler University of Linz (Institute for Pervasive Computing) and in winter term 2003/2004 at Klagenfurt University (Department of Information Technology).

Lecturer at the Salzburg (ongoing) and Carinthian (until 2011) Universities of Applied Sciences since 2007 and 1999, respectively.

Promoted to full Univ.-Prof. on January 1st, 2012.

3 Research and Scientific Interests

All current information on these topics can also be found at the homepage of my group: `www.wavelab.at`.

3.1 Main Research Topics

My main research interest is at the intersection of visual data processing and security, in particular in:

- Multimedia security and forensics (image and video encryption, tampering detection, camera identification, image source attribution, synthetic data generation and detection, watermarking, robust visual hashes)
- Biometrics (vein recognition, iris recognition, fingerprint recognition, face recognition, biometrics security, robustness, and privacy)
- Medical image analysis and classification, computer-aided decision support and diagnosis systems
- Multimedia data transfer and storage (image and video coding, teleradiology)
- Transdisciplinary topics like visual computing in digital humanities, individualised aquaculture and sustainable wood industry

3.2 Awards

Please note that best paper awards are listed in a separate section later-on.

- Kurt-Zopf award 2022 of the Paris Lodron University of Salzburg for excellence in scientific publication
- Most Remarkable IWBF 2020 Oral presentation "Security Assessment of Partially Encrypted Visual Data: Using Iris Recognition as Generic Measure"
- Kurt-Zopf award 2017 of the Paris Lodron University of Salzburg for excellence in scientific publication
- Shortlisted for Ars Docendi award 2016 (Austrian national prize for excellence in academic teaching)
- Best Reviewer Award (EURASIP European Conference on Signal Processing EUSIPCO 2014)
- Business Creation Center Salzburg (BCCS) Business Award 2009 (2nd prize) for work from the academic environment with potential to transfer to innovative business solutions.

- Christian Doppler Award (Mathematics) of the Salzburg state government (2004).
- Award of the Upper Austrian state government for gifted young scientists (2002).
- Heinz Zemanek Award of the Austrian Computer Society for distinguished contributions in computer science (2002).
- Sackler-Award of the Salzburg University for medically relevant basic research - telemedicine (1997).
- PhD graduation with distinction summa cum laude in presence of the Austrian president ("Promotion sub auspiciis praesidentae"(1997)).
- Award of the Austrain ministry for education, science, and research for distinct studies (1996).

3.3 Research Projects

During my different appointments I have been leader, subproject leader, and co-worker of several national and international research projects described as follows. Since 2006, I have raised more than 4 million EUR fundings for my research work.

- Project leader
  - WISS2025 Salzburg State Government project: Artificial Intelligence in BioMedical Image Analysis (April 2023 - March 2026, joint project with the Salzburg University of Applied Sciences and Life Science associate cooperation partners from the Salzburg University Hospital (SALK), the Paracelsus Medical University (PMU), and from the Department of Biosciences and Medical Biology at the University of Salzburg (PLUS)).
  - WISS2025 Salzburg State Government project: Artificial Intelligence in Industrial Vision Salzburg (May 2021 - April 2023, joint project with industrial partners Authentic Vision, Dental Manufacturing Unit, e-Mundo, Skidata and TECAN)
  - Austrian Science Fund (FWF) project I4272: Tools for the Generation of Synthetic Biometric Sample Data (October 2019 - September 2022, joint international project with Jana Dittmann from Magdeburg University)
  - Austrian Science Fund (FWF) / Salzburg State Government project 32201: Advanced Methods and Applications for Fingervein Recognition (September 2019 - August 2022)

- Austrian Research Promotion Agency (FFG) KIRAS project Tools for the Generation of Synthetic Biometric Sample Data (December 2017 - May 2020, joint project with PSA, Diebold Nixdorf, and IFES / IFES Feld)
- Austrian Science Fund (FWF) project 27776: Metrics for Assessing Visual Security of Image and Video Encryption Schemes (Mai 2015 - April 2018)
- Austrian Science Fund (FWF) project 26630: Biometric Sensor Forensics (March 2013 - December 2017)
- Austrian Science Fund (FWF) project 24366: Endoscope Distortion Correction in (Texture Classification-based) Automated Diagnosis Support Systems (February 2012 - January 2015)
- Austrian Research Promotion Agency (FFG) Bridge 1 project no. 832082 (joint project with Commend International and the Salzburg University of Applied Sciences): Privacy-protected Video Surveillance on Scalable Bitstreams (January 2012 - December 2014)
- Austrian Research Promotion Agency (FFG) Bridge 1 project no. 834165 (joint project with SONY DADC Austria): Structure-Preserving State-of-The-Art Video Watermarking (September 2011 - January 2013)
- Austrian Science Fund (FWF) Translational Research project TRP206: Computer Assisted Mucosal Lesion Analysis in High Definition Digital Chromoendoscopic Colon Images Using Wavelet Techniques (June 2011 - December 2013, joint project with M. Häfner, St. Elisabeth Hospital, Vienna)
- Austrian Research Promotion Agency (FFG) Bridge 2 project no. 822682 (joint project with EMCOTest Prüfmaschinen G.m.b.H): Automated Hardness Testing using Image Processing and Computer Vision Methods (October 2009 - September 2012).
- FIT-IT Trust in IT-Systmes Dissertation Grant: BioSurveillance: Single-sensor Biometric Surveillance Combining Iris and Face (March 2009 - May 2012).
- Austrian Science Fund (FWF) Translational Research project L554: Sample Data Compression and Encryption in Biometric Systems (Jan 2009 - Dec 2011).
- Austrian Science Fund (FWF) project P19159: Adaptive Streaming of Secure Scalable Wavelet-based Video (ASSSV) (March 2007 - December 2010, joint project with H. Hellwagner, Klagenfurt University)
- Austrian Science Fund (FWF) Translational Research Project L366: Computer Assisted Pit-Pattern Classification of Magnifying Endoscopic Colon Images Using Wavelet Techniques (March 2007 - December 2010, joint project with M. Häfner, Medical University of Vienna)

  - Innovation Cheques (Austrian Research Promotion Agency FFG funding programme designed to help SMEs in Austria to start ongoing research and innovation activities) with EMCOTest Prüfmaschinen G.m.b.H, SBS Software G.m.b.H, and e-Mundo G.m.b.H. (in 2008 and 2009).
  - FIT-IT Embedded Systmes Dissertation Grant: Embedded JPEG 2000 based Inter-Frame Video Codec (March 2005 - January 2007)
  - Austrian Science Fund (FWF) project 15170: Adaptive Security Techniques for Visual Data in Wavelet-based Representation (January 2002 - June 2006)
  - Austrian Science Fund (FWF) project 13903: Parallel Algorithms for Wavelet-based Video Coding (March 2000 - February 2004)
  - Industry funded project with Dallmeier Electronic GmbH (Rosenheim, Germany) and DGK (Traunstein, Germany): Wavelet Compression for Video Surveillance Applications (October 1999 - September 2001)
  - Project 6900 of the "Jubiläumsfonds" of the Oesterreichische Nationalbank: Fast block-matching algorithms for multimedia applications (April 1998 - October 2000)
  - ParWave: Project 11745 of the High Performance Computing Center Stuttgart HLRS (1999 - 2004)
  - Paderborn Center for Parallel Computing: Parallel Wavelet/Fractal Compression (1999 - 2004)
  - NIC Jülich: Parallel Algorithms for Wavelet-based Video Compression (2000 - 2001)

- Subproject leader[1] or Project coordinator[2] (proposal writing, coordination, executive project leader)
  - Digitalisation in the Humanities, Social and Cultural Sciences (HSC) Salzburg State Government project: How Material Came into the Picture (October 2022 - September 2024, led by Isabella Nicka from the Interdisciplinary Research Center for the Medieval and Early Modern Period - IMAREAL)
  - Digitalisation in the Humanities, Social and Cultural Sciences (HSC) Salzburg State Government project: Wenceslas-bible digital edition and analysis (October 2022 - September 2024, led by Manfred Kern from the Department of German Language and Literature)
  - Austrian Science Fund (FWF) project I 3653: Biometric fingerprints of trees: log tracing from forest to sawmill and early estimation of wood quality[1] (February 2018 - June 2021, joint international project led by the Salzburg University of Applied Sciences (School of Forest Products Technology) and together with two French partners)
  - EU Horizon 2020 Pervasive and UseR Focused BiomeTrics BordEr ProjeCT[1] (PROTECT, coordinated by Univ. of Reading, grant no. 700259) (September 2016 - August 2019)

- EU RISE Horizon 2020 Computer Vision Enabled Multimedia Forensics and People Identification[1] (IDENTITY, coordinated by the Univ. of Warwick) (January 2016 - December 2019)
- Austrian Science Fund (FWF) KLIF Project 429[1] (joint project with the St. Anna Children's hospital, Vienna): Towards Improved Celiac Disease Diagnosis (January 2015 - December 2017)
- Austrian Science Fund (FWF) Translational Research Project 254[1] (joint project with the Salzburg University of Applied Sciences): Traceability of logs by means of digital images (September 2012 - August 2015)
- Austrian Science Fund (FWF) project KLI 00012[1] (joint project with the SALK Department of Neurology): Physiological Markers for the Prognosis of Memory Decline (November 2011 - October 2016)
- Austrian Energy and Climate Fund / Austrian Research Promotion Agency FFG project 825624[1] (joint project with Embedded Software and Systems Center at Salzburg University, Wels University of Applied Science, Siemens AG Austria, Stern & Hafferl Verkehrsgesellschaft m.b.H., in cooperation with the Department of Measurement and Control (MRT) at Karlsruhe Institute of Technology (KIT)): Autonomous driving on railroads (autoBahn, January 2010 - December 2011).
- Austrian National Bank Jubiläumsfonds project no. 12991[1] (subcontractor of the St. Anna Children's Hospital Vienna): Computer-assisted evaluation of endoscopic pictures of the duodenal mucosa of children with positive celiac serology (Jan 2009 - Jul 2010).
- Austrian National Bank Jubiläumsfonds project no. 12514[1] (subcontractor of the Medical University of Vienna): Computer-assisted Pit Pattern Analysis of Colonic Lesion (June 2007 - December 2010).
- Austrian Grid Project II[1] (March 2007 - April 2010, joint project with various Austrian partners, led by the University of Linz)
- PitClass: Automatized Pit Pattern Classification of Colon Endoscopic Images[1] (March 2005 - June 2006, joint project with Medical University of Vienna, funded by the Vienna Major Fund for Medical Research)
- FIT-IT Embedded Systmes Project: SPECTACLES – Autonomous Wearable Displays[1] (March 2005 - February 2007, joint project with the University of Linz)
- ECRYPT - IST European Network of Excellence in Cryptology[1]: together with the Technical University of Munich, Magdeburg University and Dresden University as "GAUSS - German-Austrian Multimedia Security Channel" partner in WaviLab (February 2004 - July 2008)
- Austrian Grid Project[1] (October 2004 - October 2006, joint project with various Austrian partners, led by the University of Linz)

  - Austrian Science Fund (FWF) project 13732[2]: Object-based image and video compression with Wavelets (July 1999 - October 2003)
  - Austrian Science Fund (FWF) project 11045[2]: Adaptive, Parallel and Hybrid Wavelet Image Coding (Februar 1996 - Juni 1999)

- Project coworker
  - COOPERATE: Austrian ministry for education, science, and research funded project on "Distrubuted and Cooperative Working Environments"
  - VROEIG: Austrian ministry for education, science, and research funded project on "Virtual Reality and the Austrian Information Society"
  - PARAGRAPH (Parallel Graphics): Austrian ministry for education, science, and research funded project on parallel computer graphics in the framework of the Austrian Center for Parallel Computation (ACPC).
  - CEI-PACT Project (Programming Environments, Algorithms, Applications, Compilers and Tools for Parallel Computation): Austrian ministry for education, science, and research funded project on parallel processing in the framework of the Central European Initiative (CEI).
  - EERP-Project "Wavelet transform of Rough Surfaces": Project on the analysis of clean room particle counts and chip surfaces, funded by DEC CEC-Vienna.

Additionally, I have been Management Committee Member of the ICT COST Action IC1106: Integrating Biometrics and Forensics for the Digital Age (2012 - 2016) and ICT COST Action IC1206: De-identification for privacy protection in multimedia content (2013 - 2017).

3.4 Service: Journal Editing, (Project) Reviewing, Professional Organisation Activities

I have been working as an editor/associate editor for the following journals:

- ACM Transactions on Multimedia Computing, Communications and Applications (ACM TOMM)
- IET Biometrics
- Signal Processing
- Signal Processing: Image Communication (Elsevier)
- Journal of Visual Communication and Image Representation (Elsevier)

- EURASIP International Journal of Image and Video Processing (Springer)
- EURASIP International Journal of Information Security (Springer, ending in 2020)
- International Journal of Image and Graphics (IJIG, World Scientific)
- ETRI Journal
- Advances in Multimedia (Hindawi Publishing)
- Journal of Mobile Multimedia (Rinton Press, ending 2013)
- Journal of Computing and Information Technology (CIT, ending 2012)

I have been acting occasionally as a referee for the following journals: IEEE Transactions on Biometrics and Identity Science, IET Biometrics, International Journal on Computer Vision, IEEE Transactions on Multimedia, ACM Multimedia Systems Journal, IEEE Transactions on Circuits and Systems for Video Technology, IEEE Signal Processing Letters, IEEE Transactions on Image Processing, IEEE Transactions on Signal Processing, IEEE Transactions on Information Forensics and Security, EURASIP Journal of Applied Signal Processing (JASP), EURASIP Journal on Information Security, Pattern Recognition, IET Computer Vision, Multimedia Tools and Applications, IEEE Transactions on Evolutionary Computation, Journal of Mathematical Imaging and Vision, Signal Processing, Signal Processing: Image Communication, International Journal of Computer Mathematics, IEEE Transactions on Information Technology in BioMedicine, IEEE Transactions on Biomechanical Engineering, IEEE Transactions on Parallel and Distributed Systems, Parallel Computing, Parallel Processing Letters, Journal of Parallel and Distributed Computing, Image and Vision Computing, Informatica, ETRI Journal, Journal of Visual Languages and Computing, International Journal of Integrated Computer-Aided Engineering, Pattern Recognition Letters, Computer Methods and Programs in Biomedicine, IEE Proceedings on Vision, Image and Signal Processing, Optical Engineering, Journal of Systems Architecture, IASTED International Journal of Computers and Applications, and Journal of Computing and Information Technology. Additionally I have been acting as a referee for Springer monographs and the Springer series Lecture Notes on Computer Science and Lecture Notes in Statistics and of course, for numerous conferences.

I have been Signal Processing panel member for Finland Academy of Sciences in the context of project evaluations in 2016 and 2017. Furthermore, I have been a project reviewer for the US National Science Foundation (NSF), for the Canada Foundation for Innovation (CFI), for the Swedish Research Council, for the Netherlands Organization for Scientific Research (NWO), for the Swiss National Science Foundation (SNSF), for the Institute for the Promotion of Innovation by Science and Technology in Flanders (IWT, Belgium), and for the Science & Engineering Research Council (SERC) in Singapore. For the German Carl-Zeiss Foundation, I have been reviewer for professorship applications.

I have been acting in the following roles with professional organisations:

- Vice-chair of the EURASIP Technical Area Committee on Biometrics, Data Forensics, and Security 2018 - 2020
- Chair of the IEEE Biometrics Council Technical Committee on Security and Privacy 2020 -

3.5 Conference Organization

- General chair or co-Chair
  - 12th International Conference on Image Processing Theory, Tools and Applications (IPTA'23)
  - 11th International Conference on Image Processing Theory, Tools and Applications (IPTA'22)
  - 10th IEEE International Workshop on Biometrics and Forensics (IWBF'22)
  - 39th Annual Workshop of the Austrian Association for Pattern Recognition (OAGM'15)
  - 2nd ACM Workshop on Information Hiding and Multimedia Security (ACM IH&MMSec'14)
  - 9th IFIP Conference on Communications and Multimedia Security (CMS'05)
  - 3rd IMACS Seminar on Monte Carlo Methods (MCM 2001)
- Program chair or Program co-Chair, Area Chair
  - Area chair for vascular and other biometrics, International Joint Conference on Biometrics (IJCB'22)
  - Program chair for 8th International Workshop on Biometrics and Forensics (IWBF'20)
  - Program chair for International Conference of the Biometrics Special Interest Group (BIOSIG 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, and 2023)
  - Area chair for ocular biometrics, International Conference on Biomentrics (ICB'16)
  - Program chair for 3rd International Workshop on Biometrics and Forensics (IWBF'15)
  - Program chair for 12th IFIP Communications and Multimedia Security Conference (CMS 2011)
  - Program chair for 6th International Symposium on Image and Signal Processing and Analysis (ISPA'09)
  - Program chair for 9th IFIP Conference on Communications and Multimedia Security (CMS'05)
- Further Conference Service

- Doctoral Consortium Chair @ IWBF 2018 (together with Arun Ross)
- Special Session Chair @ EUSIPCO 2018 (together with Paulo Lobato Correia)

I have been organzing a ECRYPT summerschool on "Multimedia Security" at Salzburg University in September 2005. I was Co-chair of the Workshop/Special Session "Parallel and Distributed Image Processing, Video Processing, and Multimedia" (formerly annualy held as workshop in the framework of IPDPS – PDIVM 2000 in Cancun, PDIVM 2001 in San Francisco, PDIVM 2002 in Fort Lauderdale, and 2003 in Nice – and then held as special session in the framework of Euromicro PDP – PDIVM 2006 in Montbeliard-Sochaux and PDIVM 2007 in Naples).

Furthermore, I have been (co-)organiser or (co-)chair of the following Special Sessions (or Tracks / Workshops if denoted accordingly):

- "Trends and Challenges in Biometrics and Forensics" @ the IEEE International Workshop on Information Forensics and Security (WIFS'23), Nuremberg, Germany.
- "Synthetic Data in Biometrics" @ the Internation Joint Conference on Biometrics (IJCB'23), Ljubljana, Slovenia.
- "Synthetic Data in Biometrics" @ the Internation Joint Conference on Biometrics (IJCB'22), Abu Dabhi, UAE.
- "Visual Computing in Digital Humanities" @ the International Conference on Image Processing Theory, Tools and Applications (IPTA 2022), Salzburg, Austria.
- "Biological and Medical Image Analysis" @ the International Conference on Image Processing Theory, Tools and Applications (IPTA 2022), Salzburg, Austria.
- "4th International Workshop on Computer Assisted and Robotic Endoscopy (CARE 2017)" @ the International Conference on Medical Image Computing and Computer Assisted Interventions (MICCAI 2017), Quebec, Canada.
- "Linking Biometrics with Forensic Science" @ the International Joint Conference on Biometrics (IJCB 2017), Denver, USA.
- "Biometrics and Privacy Protection" @ the 25th European Signal Processing Conference (EUSIPCO 2017), Kos, Greece.
- "Media Encryption" @ the 1st ACM Information Hiding and Multimedia Security Workshop (IH&MMSEC 2013), Montpellier, France.
- "Endoscopic Image Processing and Analysis" @ the 26th International Symposium on Computer-Based Medical Systems (CBMS 2013) in Porto, Portugal.

- "Multimedia Security and Privacy Track" @ the IEEE International Conference on Multimedia and Expo (ICME 2012) in Melbourne, Australia.
- "Endoscopic Image Processing and Analysis" @ the 25th International Symposium on Computer-Based Medical Systems (CBMS 2012) in Rome, Italy.
- "Multimedia" topic at the EuroPar conference series 2000 - 2004.
- "Parallel Computing in Image Processing, Video Processing, and Multimedia" @ 4th International ACPC Conference (ACPC 1999) in Salzburg, Austria.

I have been member of the program committee (reviewer committee for large meetings) of the following conferences:

- from 2018 onwards: ICIP, ICPR, ICME, IH&MMSec, WIFS, IWDW, IJCB, IWBF, BIOSIG, Multimedia Systems, CBMS, OAGM, EUSIPCO, ICIAR, etc.
- "IEEE International Workshop on Privacy Issues in Multimedia (PIM'2018)" (TPC: Pradeep Atrayy, Samsung Cheung, Frederic Dufaux, Andrea Cavallaro, San Diego, USA)
- "IEEE International Conference on Image Processing (ICIP'17)" (TPC: Jiebo Luo, Wenjun Zeng, Yu-Jin Zhang, Beijing, China, 2017)
- "14th International Conference on Image Analysis and Recognition (ICIAR 2017)" (GC: Fakhri Karray, Aurelio Campilho, Farida Cheriet, Montreal, Canada, 2017)
- "OAGM & ARW Joint Workshop 2017 on Vision, Automation & Robotics" (GC: Markus Vincze, Vienna, Austria, 2017)
- "ACM Multimedia Systems 2017" (TPC: Pablo Cesar, Cheng-hsin Hsu, Taipei, Taiwan, 2017)
- "2nd International Workshop on Biometrics in the Wild 2017" (OC: Bir Bhanu, Abdenour Hadid, Qiang Ji, Mark Nixon, Vitomir Struc, Washington DC, USA, 2017)
- "30th IEEE International Symposium on Computer-Based Medical Systems (CBMS 2017)" (TPC: Constantinos S. Pattichis, Alan Tucker, Dimitris Koutsouris, Thessaloniki, Greece, 2017)
- "IEEE International Conference on Multimedia and ExPo (ICME 2017)" (TPC: Thomas Sikora, Qian Zhang, Prabha Balakrishnan, Winston Hsu, Yonggang Wen, Ce Zhu, Hong Kong, China, 2017)
- "42nd IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP 2017)" (TPC: Tulay Adalim Eli Saber, New Orleans, USA, 2017)

- "3rd International Workshop on Computer-Assisted Robotic Endoscopy (CARE 2016)" (OC: Terry Peters, Xiongbiao Luo, Jonathan McLeod, Athens, Greece, 2016)
- "International Conference on Image Analysis and Recognition (ICIAR 2016)" (GC: Aurelio Campilho, Fakhri Karray, Pvoa de Varzim, Portugal, 2016)
- "IEEE International Workshop on "Privacy Issues in Multimedia (PIM'16)" (TPC: Pradeep Atrey, 'Samson' Cheung, Frederic Dufaux, Andrea Cavallaro, Seatle, USA, 2016)
- "4th ACM Workshop on Information Hiding and Multimedia Security (IHMMSEC 2016)" (TPC: Tanya Ignatenko, Francois Cayre, Vigo, Spain, 2016)
- "International Symposium on Biomedical Imaging: From Nano to Macro (ISBI 2016)" (TPC: Boudewijn Lelieveldt, Karl Rohr, Prague, Czech Republic, 2016)
- "IEEE 29th International Symposium on Computer-Based Medical Systems (CBMS 2016) " (TPC: Jaako Hollmen, Myra Spiliopoulou, Belfast, UK, 2016)
- "19th International Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI 2016)" (TPC: William (Sandy) Wells, Athens, Greece, 2016)
- "IEEE International Conference on Image Processing (ICIP 2016)", (TPC: Fernando Pereira, Gaurav Sharma, Phoenix, USA, 2016)
- "IEEE International Conference on Multimedia and Expo (ICME 2016)" (TPC: Philip Chou, Anthony Vetro, Lap-Pui Chau, Jenq-Neng Hwang, Yung-Hsiang Lu, Max Mühlhäuser, Seatle, USA, 2016)
- "13th International Conference on Signal Processing and Multimedia Applications (SIGMAP 2016)" (TPC: Enrique Cabello, Lisbon, Portugal, 2016)
- "The Eighth International Conference on Advances in Multimedia (MMEDIA 2016) (Lisbon, Portugal, 2016)
- "International Workshop on Biometrics and Forensics (IWBF'16) (TPC: Paulo Lobato Correia, Limassol, Cyprus, 2016)
- "13th International Conference on Advances in Mobile Computing & Multimedia (MoMM2015)" (TPC: Liming (Luke) Chen, Brussels, Belgium, 2015)
- "11th International Symposium on Visual Computing (ISVC 2015)" (Computer Vision Chairs: Pavlidis Ioannis, Feris Rogerio, Las Vegas, USA, 2015)

- "12th International Conference on Signal Processing and Multimedia Applications (SIGMAP 2015)" (TPC: Enrique Cabello, Colmar, France, 2015)
- "7th IEEE International Workshop on Information Forensics and Security (WIFS 2015)" (TPC: Fernando Prez-Gonzlez, Slava Voloshynovskiy, Rome, Italy, 2015)
- "12th International Conference on Image Analysis and Recognition (ICIAR 2015)" (TPC: , Niagara Falls, Canada, 2015)
- "3rd ACM Workshop on Information Hiding and Multimedia Security (IH&MMSec 2015)" (TPC: Jessica Fridrich, Ned Smith, Pedro Comesana Alfaro, Portland, USA, 2015)
- "9th International Symposium on Image and Signal Processing and Analysis (ISPA 2015)" (TPC: , Edinburgh, UK, 2015)
- "23rd European Signal Processing Conference (EUSIPCO 2015)" (TPC: Marc Antonini, Nicholas Evans, Cedric Richard, Nice, France, 2015)
- "IEEE International Conference on Image Processing (ICIP 2015)" (TPC: Jean-Philippe Thiran, Fabrice Labeau, Quebec City, Canada, 2015)
- "28th IEEE International Symposium on Computer-Based Medical Systems (CBMS 2015)" (TPChair: Caetano Traina, Pedro Pereira Rodrigues, Sao Paulo, Brazil, 2015)
- "22nd ACM International Conference on Multimedia (ACM MM 2014)" (TPChairs: A. Hanjalic, A. Natsev, W. Zhu, Orlando, USA, 2014)
- "11th International Conference on Image Analysis and Recognition (ICIAR 2014)" (TPChairs: N.N., Vilamoura, Portugal, 2014)
- "22nd European Signal Processing Conference (EUSIPCO 2014)" (TPChairs: M. Figueiredo, A. Rodrigues, Lisbon, Portugal, 2014)
- "12th International Conference on Advances in Mobile Computing & Multimedia (MoMM2014)" (TPChairs: Luke Chen, Chung-Nan Lee, Yu-Hui Tao, Kaohsiung, Taiwan, 2014)
- "10th International Symposium on Visual Computing ISVC14" (Computer Vision Chairs: K. Chandra, E.C. Maha, Las Vegas, USA, 2014)
- "IEEE International Conference on Image Processing (ICIP 2014)" (TPChairs: P. Frossard, M. Antonini, Paris, France, 2014)
- "Doctoral Symposium @ ACM Multimedia" (TPChairs: L. Bszrmenyi, C. Breiteneder, O. Marques, Orlando, USA, 2014)
- "15th Joint IFIP TC6 and TC11 Conference on Communications and Multimedia Security (CMS 2014)" (PC-Chair: B. De Decker, A. Zuquete, Aveiro, Portugal, 2014)

- "11th International Conference on Signal Processing and Multimedia Applications (SIGMAP 2014)", (TPChairs: E. Cabellou, Vienna, Austria, 2014)
- "27th IEEE International Symposium on Computer-Based Medical Systems (CBMS 2014)" (TPChair: P. McCormick, New York (USA), 2014)
- "11th International Conference on Advances in Mobile Computing & Multimedia (MoMM2013)" (TPChairs: R. Mayrhofer, L. Chen, Vienna (Austria), 2013)
- "8th International Symposium on Image and Signal Processing and Analysis (ISPA 2013)" (TPChairs: A. Carini, K. Egiazarian, Trieste (Italy), 2013)
- "26th IEEE International Symposium on Computer-Based Medical Systems (CBMS 2013)" (TPChairs: R.C. Correia, J. Liu, A. Traina, Porto (Portugal), 2013)
- "21st European Signal Processing Conference (EUSIPCO 2013)" (TPChairs: D. Aboutajdine, M. Moonen, A. Swami, Marrakech (Morocco), 2013)
- "BIOSIG 2013" (PC-Chair: Ch. Busch, A. Brömme, Darmstadt, Germany)
- "14th Joint IFIP TC6 and TC11 Conference on Communications and Multimedia Security (CMS 2013)" (PC-Chair: B. De Decker, J. Dittmann, C. Vielhauer, Magdeburg, Germany, 2013)
- "9th International Symposium on Visual Computing ISVC13" (Computer Vision Chairs: L. Baoxin, P. Fatih, Crete, (Greece), 2013)
- "1st ACM Workshop on Information Hiding and Multimedia Security 2013" (Chair: William Puech, Montpellier, France, 2013)
- "International Conference on Signal Processing and Multimedia Applications (SIGMAP 2013)", (TPChairs: E. Cabello, M. Virvou, Reykjavik, Iceland, 2013)
- "10th IASTED International Conference on Signal Processing, Pattern Recognition, and Applications SPPRA 2013" (Chair: M. Kampel, Innsbruck (Austria), 2013)
- "6th Iberian Conference on Pattern Recognition and Image Analysis (IbPRIA 2013)" (Chairs: J.M. Saches, L. Mico, Madeira (Portugal), 2013)
- "The 10th International Conference on Advances in Mobile Computing & Multimedia (MoMM2012)" (Chair: David Taniar, Bali, Indonesia, 2012)
- "13th Joint IFIP TC6 and TC11 Conference on Communications and Multimedia Security (CMS 2012)" (PC-Chair: D. Chadwick, B. De Decker, Canterbury (UK) 2012)

- "20th European Signal Processing Conference (EUSIPCO 2012)" (TPC-Chairs: PL. Dragotti, V. Stankovic, Bucharest (Romania), 2012)
- "8th International Symposium on Visual Computing ISVC12" (Computer Vision Chairs: F. Charless, W. Sen, Crete, (Greece), 2012)
- "International Conference on Signal Processing and Multimedia Applications (SIGMAP 2012)", (TPChairs: Enrique Cabello, Maria Virvou, Rome (Italy), 2012)
- "9th IASTED International Conference on Signal Processing, Pattern Recognition, and Applications SPPRA 2012" (Crete (Greece), 2012)
- "The Fourth International Conferences on Advances in Multimedia (MMEDIA 2012)" (Chamonix, France, 2011)
- "18th International Conference on MultiMedia Modeling (MMM 2012)" (Program Chairs: C.-W. Ngo, Y. Andreopoulos, C. Breiteneder, Klagenfurt, Austria, 2012)
- "7th International Conference on Signal Image Technology & Internet Based Systems (SITIS 2011, Internet-Based Computing and Systems track)" (Program Chairs: D. Laurent and R. ElHajj, Dijon, France, 2011)
- "International Conference on Hand-based Biometrics (ICHB 2011)" (Program Chairs: V. Govindaraju, L. Zhang, D. Maltoni, Hong Kong, China, 2011)
- "7th Int'l Symposium on Image and Signal Processing and Analysis (ISPA 2011)" (Program Chairs: G. Ramponi and D. Sersic, Dubrovnik, Crotia, 2011)
- "7th International Symposium on Visual Computing ISVC11" (Computer Vision Chairs: W. Song and K. Kyungnam, Las Vegas, USA)
- "International Conference on Signal Processing and Multimedia Applications (SIGMAP 2011)", (TPChairs: Alejandro Linares Barranco, George Tsihrintzis, Seville, Spain, 2011)
- "19th European Signal Processing Conference (EUSIPCO 2011)" (TPC-Chairs: Xavier Mestre, Javier Hernando, and Montse Pards, Barcelona, Spain, 2011)
- "Special Track on Applied Biometrics of ACM SAC 2011" (TaiChung, Taiwan, 2011)
- "The Third International Conferences on Advances in Multimedia 2011" (Budapest, Hungary, 2011)
- "8th IASTED International Conference on Signal Processing, Pattern Recognition, and Applications SPPRA 2011" (Innbruck, Austria)

- '18th European Signal Processing Conference (EUSIPCO 2010)" (TPC-Chairs: Bastiaan Kleijn & Jan Larsen, Aalborg, Denmark, 2010)
- "Computer Games, Multimedia and Allied Technology (CGAT) 2010" (Chair: Peter Comninos, Singapur 2010)
- "The Eight International Conference on Advances in Mobile Computing & Multimedia (MoMM2010)" (Chair: Eric Pardede, Paris, France, 2010)
- "11th Joint IFIP TC6 and TC11 Conference on Communications and Multimedia Security" (PC-Chair: Bart De Decker, Linz, Austria, 2010)
- "6th International Symposium on Visual Computing ISVC10" (Computer Vision Chairs: R. Chung and R. Hammoud, Las Vegas, USA)
- "The Second International Conferences on Advances in Multimedia 2010" (Athens, Greece, 2010)
- "IASTED Internet and Multimedia Systems and Applications 2010" (Sharm El Sheikh, Egypt, 2010)
- "3rd Austrian Grid Symposium" (PC-chairs: Thomas Fahringer and Wolfgang Schreiner, Linz, Austria, 2009)
- "Fifth International Conference on Signal-Image Technology & Internet-Based Systems SITIS 2009 (Information Management and Retrieval Technologies Track IMRT'09)" (PC-IMRT-Chair: R. Chbeir, Marrakech, 2009)
- "The Seventh International Conference on Advances in Mobile Computing & Multimedia (MoMM2009)" (TPChairs: David Taniar and Eric Pardede)
- "17th European Signal Processing Conference (EUSIPCO 2009)" (TPC-Chairs: Stephan Weiss and Patrick Naylor)
- "5th International Symposium on Visual Computing ISVC09" (Computer Vision Chairs: K. Yoshinori and W. Junxian, Las Vegas, USA)
- ""13th IASTED International Conference on Internet and Multimedia Systems and Applications (IMSA 2009)" (Chair: S. Panchanathan, Honololu, USA, 2009)
- "First International Conference on Advances in Multimedia (MMEDIA 2009)" (Chair: Pascal Lorenz, Colmar, France, 2009)
- "6th International Conference on Advances in Mobile Computing & Multimedia 2008 (MoMM 2008)" (Chair: G. Kotsis, Linz, 2008)
- "4th International Symposium on Visual Computing ISVC08" (Computer Vision Chairs: R. Paolo, P. Fatih, Las Vegas, USA)

- "Fourth International Conference on Signal-Image Technology & Internet-Based Systems SITIS 2008 (Information Management and Retrieval Technologies Track IMRT'08)" (PC-IMRT-Chairs: V. Oria, D. Kerami, Bali, 2008)
- "International Conference on Computer Gaming, Animation, Virtual Reality and Allied Technology" (Chair: Stephen Martin, Singapore, 2008)
- "International Conference on Systems and Networks Communications ICSNC'08 (MCSYS Track)" (Chairs: D. Davcev, J. Kohlenberg, Malta, 2008)
- "32nd Annual Workshop of the Austrian Association for Pattern Recognition 2008 (AAPR/ÖAGM)" (Chair: A. Kuijper, Linz, 2008)
- "12th IASTED International Conference on Internet and Multimedia Systems and Applications (IMSA 2008)" (Chair: M. Mandal, Kailua-Kona, USA, 2008)
- "9th International Workshop on Image Analysis for Multimedia Interactive Services WIAMIS 2008" (PC-Chairs: H. Hellwagner, F. Pereira, S. Kollias, Klagenfurt, 2008)
- "International Conference on Signal-Image Technology & Internet-Based Systems SITIS 2007 (Information Management and Retrieval Technologies Track IMRT'07)" (PC-Chairs: L. Chen, H. Ishikawa, L. Jianzhong, Shanghai, 2007)
- "Third NoE ECRYPT Wavila Challenge (WaCha'07)" (St. Malo, 2007)
- "International Conference on Advances in Mobile Computing & Multimedia 2007 (MoMM 2007)" (Chair: G. Kotsis, Jakarta, 2007)
- "5th Int'l Symposium on Image and Signal Processing and Analysis (ISPA 2007)" (Chairs: Aytul Ercil, Sven Loncaric, Istanbul, 2007)
- "2007 International Conference on High Performance Computing & Simulation (HPCS'07)" (Program Chair: Waleed Smari, Prague, 2007)
- "11th IASTED International Conference on Internet and Multimedia Systems and Applications (IMSA 2007)" (Chair: A. Hac, Honolulu, USA, 2007)
- "31st Annual Workshop of the Austrian Association for Pattern Recognition 2007 (AAPR/ÖAGM)" (Chair: W. Ponweiser, Krumbach, 2007)
- "2nd Austrian Grid Symposium" (Chair: Jens Volkert, Innsbruck, 2006)
- "International Conference on Systems and Networks Communications ICSNC'06 (MCSYS 2006 Track)" (PC-Chair: P. Castillo, Tahiti, French Polynesia, 2006)

- "International Conference on Signal-Image Technology & Internet-Based Systems SITIS 2006 (Information Management and Retrieval Technologies Track)" (PC-Chairs: H. Kosch, V. Oria, Hammamet, 2006)
- "IFIP International Conference on Communications and Multimedia Security (CMS) 2006" (PC-Chairs: H. Leitold, E. Markatos, Crete, 2006)
- "International Conference on Advances in Mobile Multimedia 2006" (Chair: G. Kotsis, Yogyakarta, 2006)
- "2nd International Conference on High Performance Computing and Communications (HPCC-06)" (Chair: Michael Gerndt, Munich, 2006)
- "The 2006 High Performance Computing & Simulation (HPCS'06) Conference" (Chair: Waleed S. Smari, Bonn, 2006)
- "Annual Workshop of the Austrian Association for Pattern Recognition 2006 (OEAGM)" (Chair: O. Scherzer, Obergurgl, 2006)
- "1st Austrian Grid Symposium" (Chair: Jens Volkert, Hagenberg, 2005)
- "Joint Hungarian-Austrian Conference on Image Processing and Pattern Recognition 2005" (Chairs: D. Chetverikov, M. Vincze, Veszprem, 2005)
- "The 2005 High Performance Computing & Simulation (HPC&S) Conference" (Chair: Helen Karatza, Riga, 2005)
- "4th Int'l Symposium on Image and Signal Processing and Analysis (ISPA 2005)" (Chairs: Hrvoje Babic, Maurice Bellanger, Zagreb, 2005)
- "International Conference on Advances in Mobile Multimedia 2005" (Chair: G. Kotsis, Kuala Lumpur, 2005)
- "International Conference on Multimedia Communications Systems ICMCS 2005" (Chair: Petre Dini, Montreal, 2005)
- "Parallel and Distributed Computing Systems PDCS 2004" (Chair: Waleed S. Smari, San Francisco, 2004)
- "Digital Imaging in Media and Education (28th annual workshop of the Austrian Association for Pattern Recognition (OAGM/AAPR))" (Chair: W. Burger, J. Scharinger, Linz, 2004)
- "Workshop on OpenMP Applications and Tools 2004" (Chair: B. Chapman, Houston, 2004)
- "International Conference on Advances in Mobile Multimedia 2004" (Chair: G. Kotsis, Bali, 2004)
- "Third International Conference on Image and Graphics 2004" (Chairs: Y. Pan, C.-K. Poon, N. Thalmann, H. Shum, Hong Kong, 2004)

- "IEEE R8-EURASIP Symposium on Image and Signal Processing and Analysis" (Chair: A. Neri, H. Babic, Rome, 2003)
- "International Conference on Parallel Processing 2003" (Chair: Ming T. Liu, Jer-Nan Juang, Jhing-Fa Wang, Kaohsiung, 2003)
- "International Conference on Advances in Mobile Multimedia 2003" (Chair: G. Kotsis, Jakarta, 2003)
- "IEEE International Conference on Electronics, Circuits and Systems ICECS 2002" (Chair: Adrijan Baric, Dubrovnik, 2002)
- "Parallel and Distributed Computing Systems PDCS 2002" (Chair: Ghulam Chaudhry, Louisville, 2002)
- "IEEE R8-EURASIP Symposium on Image and Signal Processing and Analysis" (Chair: S. Loncaric, H. Babic, Pula, 2001)
- "IEEE Conference on Intelligent Systems" (Chair: E. Pissaloux, Paris, 2001)
- "9th Euromicro Workshop on Parallel and Distributed Processing" (Chair: Konrad Klöckner, Mantua, 2001)
- "Multimedia Hardware Architectures" (Chair: S. Pachanathan, San Jose, 2000)
- "International Symposium on Computational Intelligence" (Chair: V. Kvasnicka, Kosice, September 2000)

Additionally, I have been session chair at numerous international conferences, and have been organizing chair of ACPC'99.

3.6 Invited Talks

Besides invited talks at several Austrian university departments (e.g. GUP at Linz University, NUHAG at Vienna University etc.), I have given the following invited talks:

- Temporal Image Forensics: What do we actually learn in data driven approaches ? (@ 22nd International Workshops on Digital Forensics and Watermarking (IWDW'23), November 2023)
- Temporal Image Forensics: What do we actually learn in data driven approaches ? (@ EURASIP Journal on Image and Video Processing Webinar Series, October 2023)
- Impact of Deep Learning on Facial Data Security (@ French Cybersecurity Days (Journes Nationales 2023 du GDR Scurit Informatique), June 2023)

- Evaluation and improvement of eu-LISA synthetic biometric datasets - Fingerprints (@ 11th meeting of the eu-LISA Biometric Working Group, June 2022)
- Be Recognised by the Layout of Your Blood Vessels ! (@ Austrian Computer Science Day (ACSD'21, June 2021)
- NFIQ2 for Synthetic Data (@ EAB Workshop on Fingerprint Image Quality, June 2021)
- Vascular Recognition (@ EAB Biometrics Training Event, September 2020)
- State-of-the-Art in Vascular Biometrics: Upcoming Modalities and Challenges in Image Processing (@ International Conference on Image Processing Theory, Tools and Applications (IPTA'19), November 2019)
- Visual Analysis of Biological Objects (@ Max-Planck-Institute of Colloids and Interfaces, Potsdam, July 2019)
- State-of-the-Art In Finger- and Handvein Recognition (@ G+D Biometric ThinkTank, Munich, January 2018)
- How does Human Ageing affect Biometric Recognition ? (@ 15th International Conference on Advances in Mobile Computing & Multimedia (MoMM2017), Salzburg, December 2017)
- Beware of Chaos-based Image Encryption ! (@ ROSE-Lab Seminar Talks, NTU Singapore, November 2017)
- Does Biometric Template Ageing affect Biometric Recognition Accuracy ? (@ ROSE-Lab Seminar Talks, NTU Singapore, November 2017)
- Biometric Recognition suffers from Time-span induced Accuracy Degradation (@ Information Security Summit (IS2), Prague, May 2017)
- Weaknesses in Security Considerations related to Chaos-based (Medical) Image Encryption (@ GDR ISIS Workshop on Medical images processing and secure communication, University of Evry Val d'Essonne, March, 2017)
- Ageing Effects in Fingerprint Recognition (@ Security Seminar, Masaryk University, Brno, April 2016)
- Can you trust your content based retrieval system ? (@ 12th International Workshop on Content-based Multimedia Indexing CBMI'14, Klagenfurt, June 2014)
- Multimedia Security Matured - Biometrics, Watermarking, and Video Encryption in Real Life (@ Austrian Computer Science Day 2013, IST Klosterneuburg, May 2013).

- Identity mapping by Fuzzy Extraction and Quantization (@ European Microwave Week - Workshop on Future RF Fingerprinting and On-Chip Security, Nuremberg, October 2013; workshop cancelled one week before the date due to illness of the organiser).
- Watermarking in Biometrics (@ SantaCrypt Workshop, Prague, November 2012).
- Watermarking in Biometrics (@ Workshop of the Multimedia Distributed Pervasive Secure Systems Doctoral College (MDPS), Passau, June 2010).
- Multimedia Security (@ SatNEx-II Summerschool 2009, Salzburg, August 2009).
- Scalable Encryption of Visual Data: JPEG2000 as an Example (@ Falkultät for Computer Science, University of Passau, Passau, June 2007).
- Multimedia Security (@ SatNEx-II Summerschool 2006, Salzburg, August 2006).
- Media Encryption (@ ECRYPT Summerschool on Multimedia Security, Salzburg, September 2005).
- Parallel and Distributed Processing of Visual Content: Traditional Views and New Directions (@ 13th Euromicro Conference on Parallel, Distributed and Network-based Processing, Lugano, February 2005).
- Invitation to give a Tutorial on Multimedia Security at MMNS 2004, the 7th International Conference on Management of Multimedia Networks and Services (declined due to unacceptable financial conditions).
- Wavelet Image and Video Compression on Parallel Architectures. (@ IEEE R8-EURASIP Symposium on Image and Signal Processing and Analysis, Pula, June 2001).
- Parallel Matching Pursuit Algorithms (@ 1st International AURORA Conference (IAC 2000), Vienna, January 2000).
- Parallel Algorithms for Wavelet-Transformation (@ Workshop on Modelling and Analysis, Munich, October 1999).
- Image and Video Compression: Current and Future Standards, Alternatives, and High Performance Computing (@ International Workshop on Advanced Graphics and Multimedia Systems, Naples, November 1998).
- Wavelets: Hybride Image Compression and Parallel Algorithms (@ Colloquium, Technical University of Munich, June 1997).

3.7 Best Paper Awards

- IEEE Biometrics Council Best Paper Award (together with Ulrich Scherhag, Luca Debiasi, Christian Rathgeb, and Christoph Busch): "Detection of Face Morphing Attacks based on PRNU Analysis". IEEE Transactions on Biometrics, Behavior, and Identity Science (TBIOM) 1:4, pp. 302-317, 2019.

- Shortlisted best paper at IWBF'20 (together with Sanjay Shekhawat, Heinz Hofbauer and Bernhard Prommegger): "Efficient Fingervein Sample Image Encryption".

- Best Reviewed Papers Session at International Conference on Biometrics: Tools, Applications, Systems (BTAS 2019) (together with Simon Kirchgasser, Yen-Lung Lai, Jin Zhe): "Finger-Vein Template Protection based on Alignment-Free Hashing".

- Best Paper Award at the International Conference on Vision, Image and Signal Processing (ICVISP 2017) (together with Veronika Haaf, Martin Neukamp, Jutta Hämmerle-Uhl): "Real-World Non-NIR Illumination and Wavelength-Specific Acquisition Variants in Iris Recognition".

- Best Paper Session at the 5th International Workshop on Biometrics and Forensics (IWBF'17) (together with A. P. S. Bhogal, D. Söllinger, P. Trung): "Non-reference image quality assessment for biometric presentation attack detection".

- Best Reviewed Papers Session at the International Conference on Image Processing Theory, Tools and Applications IPTA 2016 (together with G. Wimmer and A. Vecsei): "CNN Transfer Learning for the Automated Diagnosis of Celiac Disease".

- Best Paper Award at the 3rd International Workshop on Computer-Assisted and Robotic Endoscopy (CARE'16) (3rd prize, together with E. Ribeiro, G. Wimmer, and M. Häfner): "Transfer Learning for Colonic Polyp Classification using Off-the-Shelf CNN Features".

- Best Paper Session at the 4th International Workshop on Biometrics and Forensics (IWBF'15) (together with L. Debiasi): "Comparison of PRNU Enhancement Techniques to generate PRNU Fingerprints for Biometric Source Sensor Attribution".

- Best Poster Award at The IAPR/IEEE International Joint Conference on Biometrics IJCB'14 (together with Ch. Rathgeb and P. Wild): "Effects of Severe Image Compression on Iris Segmentation Performance".

- Nominee for Outstanding Paper Award at the 16th International Conference on Multimodal Interaction (together with I. Aslan and A. Meschtscherjakov and M. Tscheligi): "Mid-air Authentication Gestures: An Exploration of Authentication Based on Palm and Finger Motions".

- Runner-up for Best Paper Award at the MICCAI MCV Workshop Large Data in Medical Imaging (together with M. Gadermayr and Andreas Vecsei): "Feature Extraction with Intrinsic Distortion Correction in Celiac Disease Imagery: No Need for Rasterization".

- Best Poster Paper Award at The International Joint Conference on Biometrics IJCB 2011 (together with Ch. Rathgeb and P. Wild): "Reliability-balanced Feature Level Fusion for Fuzzy Commitment Scheme".

- Best Paper Award at ACM Symposium on Applied Computing SAC 2010 (Applications Track, together with J. Hämmerle-Uhl and K. Raab): "Experimental Study on the Impact of Robust Watermarking on Iris Recognition Accuracy".

- Best Paper Award at the 2nd European Workshop on Visual Information Processing EUVIP'10 (2nd prize, together with Ch. Rathgeb): "Adaptive Fuzzy Commitment Scheme based on Iris-Code Error Analysis".

- Best Paper Award at CORES 2007 (2nd prize, together with R. Kwitt): "Multi–Directional Multi-Resolution Transforms for Zoom–Endoscopy Image Classification".

3.8 Conference Participation and Contributed Talks

I have been attending the following conferences and have given the listed talks/presentations:

- 22th International Workshop on Digital-forensics and Watermarking (IWDW2023)
  Virtual Space, November 2023.
  Presentation: Finger Vein Spoof GANs: Can we Supersede the Production of Presentation Attack Artefacts?

- IEEE International Joint Conference on Biometrics (IJCB'23)
  September 2023, Ljubljana.
  Presentation: Protocol Based Similarity Evaluation of Publicly Available Synthetic and Real Fingerprint Datasets

- 2023 ACM Workshop on Information Hiding and Multimedia Security
  June 2023, Chicago.
  Presentations: First Learning Steps to Recognize Faces in the Noise; Hand Vein Spoof GANs: Pitfalls in the Assessment of Synthetic Presentation Attack Artefacts; On the Feasibility of Post-Mortem Hand-Based Vascular Biometric Recognition

- Image Analysis and Processing. ICIAP 2023 Workshops (Recent Advances in Digital Security: Biometrics and Forensics (BioFor'23)
  September 2023, Virtual Space.
  Presentation: Morphing-Attacks against Binary Fingervein Templates

- 11th International Workshop on Biometrics and Forensics (IWBF'23)
  April 2023, Barcelona.
  Presentation: Cross-Sensor Micro-Texture Material Classification and Smartphone Acquisition do not go well together.
- Computational Science and Its Applications – ICCSA 2022
  July 2022, Malaga.
  Presentations: Comparative Compression Robustness Evaluation of Digital Image Forensics; An analysis of the use of hyperspectral data for roundwood tracking
- IEEE Workshop on Information Forensics and Security (WIFS2021)
  December 2021, Virtual Space.
  Presentation: Assessment of Synthetically Generated Mated Samples from Single Fingerprint Samples Instances
- Computational Science and Its Applications – ICCSA 2021
  September 2021, Virtual Space.
  Presentations: Temporal Image Forensics: Using CNNs for a Chronological Ordering of Line-Scan Data; Identifying the Origin of Finger Vein Samples Using Texture Descriptors
- IEEE International Conference on Image Processing (ICIP'21)
  September 2021, Virtual Space.
  Presentation: Security Assessment of Partially Encrypted Visual Data: Iris Recognition on Protected Samples
- IEEE/IAPR International Joint Conference on Biometrics (IJCB'21)
  August 2021, Virtual Space.
  Presentation: Feasibility of Morphing-Attacks in Vascular Biometrics
- ACM Workshop on Information Hiding and Multimedia Security (IH&MMSec '21)
  June 2021, Virtual Space.
  Presentation: PRNU-based Deepfake Detection
- 9th IEEE International Workshop on Biometrics and Forensics (IWBF'21)
  May 2021, Virtual Space.
  Presentation: Using CNNs to Identify the Origin of Finger Vein Sample Images
- 25th International Conference on Pattern Recognition (ICPR'20)
  January 2021, Virtual Space.
  Presentation: Countering Anti-Forensics of SIFT-Based Copy-Move Detection
- 8th International Workshop on Biometrics and Forensics (IWBF'20)
  April 2020, Virtual Space.
  Presentation & Poster: Security Assessment of Partially Encrypted Visual Data: Using Iris Recognition as Generic Measure; Analysing a Vein Liveness Detection Scheme

- IEEE Workshop on Information Forensics and Security (WIFS2019)
  December 2019, Delft, The Netherlands.
  Presentation: Depreciating Motivation and Empirical Security Analysis of Chaos-based Image and Video Encryption

- IEEE 10th International Conference on Biometrics Theory, Applications and Systems (BTAS)
  September 2019, Tampa, Florida, US.
  Talks & Presentation: Rotation Invariant Finger Vein Recognition, Finger-Vein Template Protection based on Alignment-Free Hashing, Gaze-angle Impact on Iris Segmentation using CNNs

- Information Security Conference (ISC'19)
  September 2019, NYC, USA.
  Session Chair

- 12th IAPR/IEEE International Conference on Biometrics (ICB'19)
  June 2019, Crete, Greece.
  Talk & Presentation: PRNU-based finger vein sensor identification: On the effect of different sensor croppings, Multi-sample Compression of Finger Vein Images using H.265 Video Coding

- IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP'19)
  May 2019, Brighton, UK.
  Presentation: Selective JPEG2000 Encryption of Iris Data: Protecting Sample Data vs. Normalised Texture

- Workshop of the Austrian Association for Pattern Recognition (OAGM'19)
  May 2019, Steyr, Austria.
  Talk: PRNU-based Finger Vein Sensor Identification in the Presence of Presentation Attack Data

- IEEE 9th International Conference on Biometrics: Theory, Applications, and Systems (BTAS2018)
  October 2018, Los Angeles, USA.
  Talks & Presentation: Mobile NIR Iris Recognition: Identifying Problems and Solutions, Fingerprint Template Ageing Revisited - It's the Quality, Stupid ! PRNU Variance Analysis for Morphed Face Image Detection

- International Conference of the Biometrics Special Interest Group (BIOSIG'18)
  September 2018, Darmstadt, Germany.
  Session Chair, Presentation: Finger-vein Sample Compression in Presence of Pre-Compressed Gallery Data

- 26th European Signal Processing Conference (EUSIPCO'18)
  September 2018, Rome, Italy.
  Special Session Co-Chair

- International Workshop on Biometrics and Forensics (IWBF'18)
  June 2018, Alghero, Italy.
  Session Chair & Talk: Efficient Iris Sample Data Protection using Selective JPEG2000 Encryption of Normalised Texture

- International Symposium on Computer-Based Medical Systems (CBMS'18)
  June 2018, Halmstad, Sweden.
  Session Chair & Talk: Lateralisation Matters: Discrimination of TLE and MCI Based on SPHARM Description of Hippocampal Shape

- OAGM/AAPR Workshop 2018: Medical Image Analysis (OAGM'18)
  May 2018, Hall in Tirol, Austria.
  Session Chair & Presentation: CNN training using additionally training data extracted from frames of endoscopic videos

- Bildverarbeitung fr die Medizin (BVM'18)
  March 2018, Erlangen, Germany.
  Presentation: Hippocampus Segmentation and SPHARM Coefficient Selection are Decisive for MCI Detection

- IEEE Workshop on Information Forensics and Security (WIFS'17)
  December 2017, Rennes, France.
  Talk: On the feasibility of classification-based product package authentication

- International Conference on Vision, Image and Signal Processing (ICVISP'17)
  September 2017, Osaka, Japan.
  Talk: Real-World Non-NIR Illumination and Wavelength-Specific Acquisition Variants in Iris Recognition

- European Signal Processing Conference (EUSIPCO'17)
  August 2017, Kos, Greece.
  Special Session Chair

- Scandinavian Conference on Image Analysis (SCIA'17)
  June 2017, Tromsoe, Norway.
  Presentation: Non-reference image quality assessment for fingervein presentation attack detection

- International Workshop on Biometrics and Forensics (IWBF '17)
  April 2017, Coventry, UK.
  Talk: Sensor Dependency in Efficient Fingerprint Image Protection using Selective JPEG2000 Encryption

- Workshop on Bildverarbeitung für die Medizin (BVM'17)
  March 2017, Heidelberg, Germany.
  Presentation: Pathology-related Automated Hippocampus Segmentation Accuracy

- 6th International Conference on Image Processing Theory, Tools and Applications (IPTA'16)
  December 2016, Oulu, Finland.
  Talk & Presentation: CNN Transfer Learning for the Automated Diagnosis of Celiac Disease & Bit-Stream-Based Scrambling for Regions of Interest in H.264/AVC Videos With Drift Reduction

- 18th International Conference on Information and Communications Security (ICICS'16)
  December 2016, Singapore.
  Talks: Assessment of Efficient Fingerprint Image Protection Principles using different Types of AFIS & Weaknesses in Security Considerations Related to Chaos-Based Image Encryption

- 17th Pacific-Rim Conference on Multimedia (PCM'16)
  Septmeber 2016, Xi'an, China.
  Talk & Presentation: Towards Drug Counterfeit Detection Using Package Paperboard Classification & Texture description using Dual Tree Complex Wavelet Packets

- 1st Workshop on Sensing, Processing and Learning for Intelligent Machines (SPLINE 2016)
  July 2016, Aalborg, Denmark.
  Talk: Efficient Fingerprint Image Protection Principles using Selective JPEG2000 Encryption

- IEEE International Symposium on Computer-Based Medical Systems (CBMS'16)
  June 2016, Belfast, UK.
  Talk: Variability Issues in Automated Hippocampal Segmentation: A Study on Out-of-the-Box Software and Multi-rater Ground Truth

- 9th IAPR/IEEE International Conference on Biometrics (ICB'16)
  June 2016, Halmstadt, Sweden.
  Talk: Compression Standards in Fingervein Recognition

- IEEE International Symposium on Biomedical Imaging (ISBI'16)
  April 2016, Prague, Czech Republic.
  Presentation: Narrow Band Imaging Versus White-Light: What is best for Computer-Assisted Diagnosis of Celiac Disease?

- 4th International Workshop on Biometrics and Forensics (IWBF'16)
  March 2016, Limassol, Cyprus.
  Talks: Comparison of PRNU Enhancement Techniques to generate PRNU Fingerprints for Biometric Source Sensor Attribution & Fingerprint Recognition under the Influence of Sensor Ageing

- Bildverarbeitung für die Medizin 2016 (BVM'16)
  March 2016, Berlin, Germany.
  Talk & Presentation: Assessing Out-of-the-box Software for Automated

Hippocampus Segmentation & Compression-scenarios for LIRE-based CBIR on colonoscopy data

- 3rd MICCAI Workshop on Computer-Assisted and Robotic Endoscopy (CARE'15)
  October 2015, Munich, Germany.
  Talk: Impact of Lossy Image Compression on CAD Support Systems for Colonoscopy

- IEEE International Conference on Image Processing (ICIP'15)
  September 2015, Quebec City, Canada.
  Presentation: How to Exploit Large Image Data in the Fields of Texture Classification

- Scandinavian Conference on Image Analysis (SCIA'15)
  June 2015, Copenhagen, Denmark.
  Talk & Presentation: Exploring Compression Impact on Face Detection Using Haar-like Features & Boosting Small-Data Performance of LBP: A Case Study in Celiac Disease Diagnosis

- IAPR/IEEE International Conference on Biometrics (ICB'15)
  May 2015, Phuket, Thailand.
  Talk & Presentation: Recompression effects in iris segmentation & Sensor Ageing Impact on Finger-Vein Recognition

- Bildverarbeitung für die Medizin (BVM'15)
  March 2015, Lübeck, Germany.
  Presentation: Colonic Polyp Classification in High- Definition Video Using Complex Wavelet-Packets

- 3rd International Workshop on Biometrics and Forensics (IWBF'15)
  March 2015, Gjovik, Norway.
  Presentation: Techniques for a Forensic Analysis of the CASIA-Iris V4 Database

- IEEE International Conference on Image Processing (ICIP 2014)
  October 2014, Paris, France.
  Presentation: General Purpose Bivariate Quality-Metrics for Fingerprint-Image Assessment Revisited

- Artificial Intelligence and Applications (AIAI 2014)
  September 2014, Rhodes, Greece.
  Talks: Visual Security Evaluation Based on SIFT Object Recognition & Similarity based cross-section segmentation in rough log end images

- International Conference of the Biometrics Special Interest Group (BIOSIG'14)
  September 2014, Darmstadt, Germany.
  Talks: Customisation of Paillier Homomorphic Encryption for Efficient Binary Biometric Feature Vector Matching & Pre-processing cascades and fusion in finger vein recognition

- IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP 2014)
  May 2014, Florence, Italy.
  Presentation: Transparent Encryption for HEVC Using Bit-Stream-Based Selective Coefficient Sign Encryption

- 2nd International Workshop on Biometrics and Forensics (IWBF 2014)
  March 2014, La Valetta, Malta.
  Presentation: Generation of iris sensor PRNU fingerprints from uncorrelated data

- Bildverarbeitung für die Medizin (BVM 2014)
  March 2014, Aachen, Germany.
  Talk: Comparison of Super-Resolution Methods for HD-Video Endoscopy

- 18th Iberoamerican Congress on Pattern Recognition (CIARP 2013)
  November 2013, Havana, Cuba.
  Presentations: Evolutionary Optimisation of JPEG2000 Part 2 Wavelet Packet Structures for Polar Iris Image Compression & Fusion of Iris Segmentation Results

- 14th Joint IFIP TC6 and TC11 Conference on Communications and Multimedia Security (CMS'2013)
  October 2013, Magdeburg, Germany.
  Talk: Towards Standardised Fingerprint Matching Robustness Assessment: The StirMark Toolkit – Cross-Feature Type Comparisons

- 21st European Signal Processing Conference (EUSIPCO '13)
  September 2013, Marrakech, Moroco.
  Presentation/Talk: AreaMap and Gabor Filter Based Vickers Hardness Indentation Measurement & Format Compliant RoI Encryption of JPEG XR Bitstreams Based on Tiling

- 1st ACM Workshop on Information Hiding and Multimedia Security (IH&MMSEC'13)
  June 2013, Montpellier, France.
  Special Session Chair "Media Encryption", Talks: Non-Invertible and Revocable Iris Templates using Key-dependent Wavelet Transforms & Towards Standardised Fingerprint Matching Robustness Assessment: The StirMark Toolkit – Cross-Database Comparisons with Minutiae-based Matching

- 6th IAPR International Conference on Biometrics (ICB'13)
  June 2013, Madrid, Spain.
  Presentation: Cancelable Iris-Templates using Key-dependent Wavelet Transforms

- International Workshop on Biometrics and Forensics (IWBF'13)
  April 2013, Lisbon, Portugal.

- Medical Image Computing and Computer-Assisted Intervention (MICCAI 2012)
  October 2012, Nice, France.
  Presentation: Endoscope distortion correction does not (easily) improve mocusa-based classification of celiac disease

- IEEE International Workshop on Multimedia Signal Processing (MMSP'12)
  September 2012, Banff, Canada.
  Presentations: Improved Endoscope Distortion Correction does not Necessarily Enhance Mucosa-Classification based Medical Decision Support Systems & Privacy Enhancing Technologies in Video Surveillance applied to JPEG2000 Codestreams

- 8th International Wireless Communications and Mobile Computing Conference (IWCMC'12)
  August 2012, Limassol, Cyprus.
  Talk: Watermarking scalability for copyright protection in wireless and mobile environments

- 5th International Conference on Image and Signal Processing (ICISP'12)
  June 2012, Agadir, Morocco.
  Talks: Iris-Biometric Fuzzy Commitment Schemes under Signal Degradation & Image Segmentation of Vickers Indentations using Shape from Focus

- 25th IEEE International Symposium on Computer-Based Medical Systems (CBMS'12)
  June 2012, Rome, Italy.
  Special Track Chair (Endoscopic Image Processing and Analysis), Talk: Evaluation of Cross-validation Protocols for the Classification of Endoscopic Images of Colonic Polyps

- 4th International Conference on Advances in Multimedia (MMEDIA 2012)
  May 2012, Chamonix, France.
  Talk: Optimisation of JPEG XR quantisation settings in iris recognition systems

- 19th International Conference on Systems, Signals and Image Processing (IWSSIP'12)
  April 2012, Vienna, Austria.
  Talk: Recognition Impact of JPEG2000 Part 2 wavelet packet subband structures in polar iris image compression

- The 5th IAPR/IEEE International Conference on Biometrics (ICB 2012)
  April 2012, New Delhi, India.
  Talk: Iris-Sensor Authentication using Camera PRNU Fingerprints

- 12th IFIP Communications and Multimedia Security Conference (CMS 2011)
  October 2011, Ghent, Begium.

Talk: Two-Factor Biometric Recognition with Integrated Tamper-protection Watermarking

- 14th International Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI 2011)
  September 2011, Toronto, Canada.

- IEEE International Conference on Image Processing (ICIP 2011)
  September 2011, Brussels, Belgium.
  Presentation: Multiple Blind Re-Watermarking with Quantisation-based Embedding

- 14th International Conference of Computer Analysis of Images and Patterns (CAIP'11)
  August 2011, Seville, Spain.
  Presentations: Effects of JPEG XR Compression Settings on Iris Recognition Systems & Semi-Fragile Watermarking in Biometric Systems: Template Self-Embedding

- 10th International Conference on Quality Control by Artificial Vision (QCAV '11)
  June 2011, St. Etienne, France.
  Talk: Measuring Image Sharpness for A Computer Vision-based Vickers Hardness Measurement System

- 5th Iberian Conference on Pattern Recognition and Image Analysis (IbPRIA 2011)
  June 2011, Las Palmas de Gran Cararia, Spain.
  Presentations: Lossless Compression of Polar Iris Image Data & Complex Wavelet Transform Variants in a Scale Invariant Classification of Celiac Disease.

- 13th Information Hiding Conference (IH 2011)
  May 2011, Prague, Czech Republic.
  Talk: Watermarking as a Means to Enhance Biometric Systems: A Critical Survey.

- 3rd European Workshop on Biometrics and ID Management (BioID)
  March 2011, Brandenburg, Germany.
  Session Chair & Talk: Attack against Robust Watermarking-Based Multimodal Biometric Recognition Systems.

- 10th International Conference on Information Technology and Applications in Biomedicine (ITAB 2010)
  November, 2010, Korfu, Greece.
  Talk: Experimental Study on the Impact of Endoscope Distortion Correction on Computer-assisted Celiac Disease Diagnosis.

- European Conference on Computer Vision (ECCV 2010)
  September 2010, Heraklion, Greece.

- Visual Communications and Image Processing (VCIP 2010)
  July 2010, Huang Shan, China.
  Presentation: JPEG2000 Part 2 wavelet packet subband structures in fingerprint recognition.

- International Conference on Image Analysis and Recognition (ICIAR'10)
  June 2010, Povoa de Varzim, Portugal.
  Talk: Transforming Rectangular and Polar Iris Images to Enable Cancelable Biometrics.

- 11th Joint IFIP TC6 and TC11 Conference on Communications and Multimedia Security (CMS 2010)
  May/June 2010, Linz, Austria.
  Session Chair, PC-member.

- The International Joint Conference on Computer Vision, Imaging and Computer Graphics Theory and Applications (VISAPP 2010)
  May 2010, Angers, France.
  Talk: Computationally Efficient Serial Combination of Rotation-invariant and Rotation Compensating Iris Recognition Algorithms.

- 25th ACM Symposium on Applied Computing (ACM SAC 2010)
  March 2010, Sierre, Switzerland.
  Talk: Experimental Study on the Impact of Robust Watermarking on Iris Recognition Accuracy (Best Paper Award, Applications Track).

- 6th International Symposium on Image and Signal Processing and Analysis (ISPA 2009)
  September 2009, Salzburg, Austria.
  Program co-chair, main local organizer & Talk: Evolutionary Optimization of JPEG Quantization Tables for Compressing Iris Polar Images in Iris Recognition Systems.

- 12th International Information Security Conference (ISC'09)
  September 2009, Pisa, Italy.
  Talk: Cancelable iris Biometrics using Block Re-mapping and Image Warping

- ESGA Seminar on Endoscopic Detection of Early Neoplasias in the Gastrointestinal Tract
  July 2009, Salzburg, Austria.

- 16th International Conference on Digital Signal Processing (DSP 2009)
  July 2009, Santorini, Greece.
  Session Chair & Talk: Block Selective Motion Estimation for Low-Complexity Video Coding.

- ECS10: Stereology and Image Analysis – 10th European Congress of ISS
  June 2009, Milano, Italy.
  Talk: Differential Frame Analysis And Selective Motion Estimation Approach for An Inter-Frame JPEG2000 Video Coding System

- 3rd International Conference on Biometrics (IAPR/IEEE ICB'09)
  June 2009, Alghero, Sardinia, Italy.
  Presentations: Improving compressed iris recognition accuracy using JPEG2000 RoI coding & Custom Design of JPEG quantization tables for compressing iris polar images to improve recognition accuracy.

- 24th IFIP International Information Security Conference 2009 (IFIP SEC'09)
  May 2009, Paphos, Cyprus.
  Talk: Custom JPEG Quantization for Improved Iris Recognition Accuracy.

- 3rd Pacific Rim Symposium on Image and Video Technology (PSIVT) 2009
  January 2009, Tokyo, Japan.
  Session Chair & Presentation: Usefulness of Retina Codes in Biometrics.

- 10th ACM Workshop on Multimedia and Security (MMSEC'08)
  Septmeber 2008, Oxford, UK.
  Talk: Multiple Re-Watermarking using varying non-stationary MRA with parameterized wavelet filters.

- The 8th IASTED International Conference on Visualization, Imaging, and Image Processing (VIIP 2008)
  September 2008, Palma de Mallorca, Spain.
  Talk: Attack against a JPEG2000-based robust hash for content identification.

- The 4th IET International Conference on Advances in Medical, Signal and Information Processing (MEDSIP 2008)
  July 2008, Santa Margherita Ligure, Italy.
  Talk and Presentation: One-Against-One Classification for Zoom-Endoscopy Images & Towards Automated Diagnosis of Celiac Disease by Computer-Assisted Classification of Duodenal Imagery.

- International Conference on Image and Signal Processing 2008 (ICISP 2008)
  July 2008, Cherbourg-Octeville, France.
  Talk: Personal Recognition using single-sensor multimodal hand biometrics.

- IEEE International Conference on Multimedia and Expo (ICME'08)
  June 2008, Hannover, Germany.
  Session chair & Presentation: Multiple Re-Watermarking using varying wavelet packets.

- 5th International Conference on Informatics in Control, Automation and Robotics (ICINCO'08)
  May 2008, Funchal, Madeira, Portugal.
  Presentation: Rotation-invariant iris recognition: boosting 1D spatial-domain signatures to 2D.

- IEEE International 3rd International Symposium on Communications, Control and Signal Processing (ISCCSP'08)
  March 2008, St. Juliens, Malta.
  Talk: Color Wavelet Cross Co-Occurrence Matrices for Endoscopy Image Classification.

- IEEE International Conference on Signal Processing and Communications (ICSPC '07)
  November 2007, Dubai, UAE.
  Session Chair & Talk: Partial Encryption Schemes for Matching Pursuit.

- 7th International Conference on Wavelet Analysis and Mutlirate Systems (WAMUS 2007)
  October 2007, Arcachon, France.
  Session chair & Talks: Improving Security of JPEG2000-Based Robust Hashing using Key Dependent Wavelet Packet Subband Structures & Statistical and Structural Wavelet Packet Features for Pit Pattern Classification in Zoom-Endoscopic Colon Images.

- 5th International Symposium and Image and Signal Processing and Analysis (ISPA 2007)
  September 2007, Istanbul, Turkey.
  Session Chair & Talk: Comparison of k-NN, SVM, and NN in Pit Pattern Classification of Zoom-Endoscopic Colon Images using Co-Occurrence Histograms.

- IEEE International Workshop on Machine Learning for Signal Processing (MLSP 2007)
  August 2007, Thessaloniki, Greece.

- 20th IEEE International Symposium on Computer Based Medical Systems (CBMS 2007)
  June 2007, Maribor, Slovenia.
  Talk: Pit Pattern Classification of Zoom-endoscopical Colon Images using DCT and FFT.

- Information Hiding 2007 & ECRYPT WaCha'07
  June 2007, St. Malo, France.
  PC-member WaCha 2007.

- Euromicro Conference on Parallel, Distributed, and Network Based Processing (PDP 2007)
  February 2007, Naples, Italy.
  PDIVM Special Session organizer and Session Chair.

- IFIP Communications and Multimedia Security (CMS 2006)
  October 2006, Crete, Greece.
  Talk: Compression of encrypted visual data.

- ACM Multimedia and Security Workshop (MM-SEC 2006)
  September 2006, Geneve, Switzerland.
  Session chair, Talk: Robustness and security of a wavelet-based CBIR hashing algorithm.

- 13th International Conference on Systems, Signals, and Image Processing (IWSSIP 2006)
  September 2006, Budapest, Hungary.
  Session chair, Talk: Video encryption exploiting non-standard 3D data arrangements.

- International Conference on Information Security (ISC 2006)
  September 2006, Samos, Greece.
  Talk: Transparent Image Encryption using Progressive JPEG.

- International Conference on Advances in Medical Signal and Image Processing (MEDSIP 2006)
  July 2006, Glasgow, UK.
  Posters: Computer Assisted Morphometric Analysis of TEM Images & Pit pattern classification of zoom-endoscopic colon images using wavelet texture features.

- 7th Nordic Signal Processing Symposium (NORSIG 2006)
  June 2006, Reykjavik, Iceland.
  Session chair, Talks: Pit pattern classification of zoom-endoscopic colon images using histogram techniques & On the significance of the zerotree hypothesis for wavelet-based image coding.

- International Conference on Information, Communication and Signal Processing (ICICS 2005)
  December 2005, Bangkok, Thailand.

- International Conference on Image Analysis and Processing (ICIAP 2005)
  September 2005, Cagliari, Italy.
  Talk: Lightweight protection of visual data using high-dimensional wavelet parametrization, Poster: Security enhancement of visual hashes through key dependent wavelet transformations.

- Visual Communications and Image Processing (VCIP 2005)
  July 2005, Beijing, China.
  Talk: Performance Analysis of Block-based Permutations in Securing JPEG2000 and SPIHT Compression.

- 5th EURASIP Conference focused on Speech and Image Processing, Multimedia Communications and Services (EC-SIP-M 2005)
  June/July 2005, Smolenice, Slovak Republic.
  Talks: Experimental Study on Scan Order and Motion Compensation in Lossless Video Coding & Transparent Encryption of JPEG 2000 Bitstreams.

- International Workshop on Parallel Numerics (ParNum 2005)
  April 2005, Portoroz, Slovenia.
  Session Chair, Talk: Limitations of Cluster Computing.

- Internationales Rechtsinformatik Symposium (IRIS 2005)
  Februar 2005, Salzburg, Austria .
  Vortrag: Rechtsunsicherheit durch digitale Signaturen für Multimedia?

- IEEE International Conference on Image Processing (ICIP 2004)
  October 2004, Singapore.
  Poster: Encryption of Wavelet-Coded Imagery using Random Permutations.

- XII European Signal Processing Conference EUSIPCO 2004
  September 2004, Vienna, Austria.
  Talk: Comparison of JPEG and JPEG 2000 in Low-Power Confidential Image Transmission, Poster: Layered Encryption Techniques for DCT-coded Visual Data.

- EuroPar 2004
  August 2004, Pisa, Italy.
  High Performance Multimedia Track Vice Chair, Talk: Dynamic Granularity Switching in Parallel Block-Matching Motion Compensation.

- IEEE International Conference on Multimedia and Expo (ICME 2004)
  June 2004, Taipei, Taiwan.
  Session Chair, Talk: Robustness against Unauthorized Watermark Removal Attacks via Key-dependent Wavelet Packet Subband Structures, Poster: Lightweight JPEG 2000 Confidentiality for Mobile Environments.

- Nordic Signal Processing Symposium (NORSIG 2004)
  June 2004, Espoo, Finland.
  Session Chair, Talks: Wavelet-Packet Subband Structures in the Evolution of the JPEG 2000 Standard & Robust Authentication of the JPEG 2000 Bitstream.

- International Conference on Computational Science and its Applications (ICCSA 2004), May 2004, Assisi, Italy.
  Talk: Distributed Optimization of Fiber Optic Network Layout using MATLAB.

- Int.Conf. on Software Engineering, Parallel and Distributed Systems (SEPADS 2004)
  February 2004, Salzburg, Austria.
  Talk: Observations on Data Distribution and Scalability of Parallel and Distributed Image Processing Applications.

- Communications and Multimedia Security CMS 2003
  October 2003, Torino, Italy.
  Talks: Watermark Security via Secret Wavelet Packet Subband Structures & Selective Encryption of the JPEG2000 Bitstream.

- IMACS Seminar on Monte Carlo Methods (MCM 2003)
  September 2003, Berlin, Germany.
  Talks: Measures of Uniform Distribution in Wavelet Based Image Compression & Normalization of the Spectral test in High Dimensions.

- ParCo 2003
  September 2003, Dresden, Germany.
  Talks: Parallel Overlapped Block-Matching Motion Compensation Using MPI and OpenMP & Wavelet-Based Still Image Coding Standards on SMPs using OpenMP.

- EuroPar 2003
  August 2003, Klagenfurt, Austria.
  Multimedia Track Local Chair.

- Visual Communications and Image Processing 2003
  July 2003, Lugano, Switzerland.

- Iberian Conference on Pattern Recognition and Image Analysis (IbPRIA 2003)
  June 2003, Puerto d'Andrax, Mallorca, Spain.
  Talk: Robust Hash-Functions for Visual Data: An Experimental Comparison.

- ACM Multimedia 2002
  Dezember 2002, San Juan Les Pins, France.
  Talk: Application scenarios for selective encryption of visual data.

- ParNum 2002
  October 2002, Bled, Slovenia.
  Talk: Communication patterns in MPI based parallel block-matching.

- IEEE Nordic Signal Processing Symposium 2002
  October 2002, Tromsoe/Trondheim, Norway.
  Talk: Selective bitplane encryption for secure transmission of image data in mobile environments.

- EuroPVM/MPI 2002
  September 2002, Linz, Austria.
  Talk: Granularity levels in parallel block-matching motion compensation.

- Communications and Multimedia Security CMS 2002
  September 2002, Portoroz, Slowenia.
  Talk: Selective encryption of visual data.

- EuroPar 2002
  August 2002, Paderborn, Germany.
  Multimedia Track Global Chair.

- Workshop on Multimedia Security and Watermarking
  May 2002, Vienna, Austria.
  Talk (German): Sicherheit für Wavelet Watermarks durch Filterparametrisierung.

- Third Benelux Signal Processing Symposium SPS 2002
  March 2002, Leuven, Belgium.
  Poster: New Models for Generating Optimal Wavelet-Packet-Tree-Structures.
- International Conference on Image Processing ICIP 2001
  October 2001, Thessaloniki, Greece.
  Poster: Watermark security via wavelet filter parametrization.
- International Symposium on Signal and Image Processing and Analysis ISPA 2001
  Juni 2001, Pula, Croatia.
  Talks: Wavelet Image and Video Coding on Parallel Architectures & oS-PIHT - Embedded Object-based SPIHT Image Coding & A Remark on the Interplay between Image Compression and Watermark Embedding Techniques.
- Communications and Multimedia Security CMS 2001
  May 2001, Darmstadt, Germany.
- International Parallel and Distributed Processing Symposium IPDPS 2001
  April 2001, San Franzisco, USA.
  PDIVM 2001 Chair.
- Evolutionary Computation EC'01
  February 2001, Puerto de la Cruz (Tenerife), Spain.
  Session Chair.
- Monte Carlo and Quasi-Monte Carlo Methods in Scientific Computing MCQMC 2000
  November 2000, Hong Kong, China.
  Talk: Defects in parallel Monte Carlo and Quasi-Monte Carlo integration
- ParNum 2000
  September 2000, Bratislava, Slovakia.
  Talk: Parallel Monte Carlo and Quasi-Monte Carlo Integration: the Leap-Frog Case.
- International Conference on Pattern Recognition ICPR 2000
  September 2000, Barcelona, Spain.
  Talk: Resolving a Defect in Quadrant-based Classification for Fast Block-Matching.
- EuroPar 2000
  August 2000, Munich, Germany.
  Multimedia Track Global Chair.
- Monte Carlo Simulation MCS 2000
  June 2000, Monte Carlo, Monaco.
- International Parallel and Distributed Processing Symposium IPDPS 2000
  May 2000, Cancun, Mexico.
  PDIVM 2000 Chair.

- EuroPar'99
  August 1999, Toulouse, France.
  Talk: Parallel Wavelet Transforms on Multiprocessors.

- 2nd IMACS Seminar on Monte Carlo Algorithms and Applications
  Juni 1999, Varna, Bulgaria.
  Talk: Techniques for parallel quasi-Monte Carlo integration and associated problems.

- Parallel Computation. 4th International Conference of the ACPC (ACPC'99)
  February 1999, Salzburg, Austria.
  Talk: Classification Based Speed-up Methods for Fractal Image Compression on Multicomputers.

- 12th Workshop on Parallel and Distributed Simulation (PADS'98)
  May 1998, Banff, Canada.
  Talk: Linear and Inversive Pseudorandom Numbers for Parallel and Distributed Simulation.

- Wavelets and Multiscale Methods (IWC'98)
  April 1998, Tanger, Maroc.
  Talk: Evolving Subband Structures for Wavelet Packet based Image Compression using Genetic Algorithms with Non-additive Cost Functions.

- Multimedia Hardware Architectures 1998
  Januar 1998, San Jose, CA.
  Talk: Improving the efficiency of parallel fractal compression using localized domain-pools.

- Visual Communications and Image Processing '98 (VCIP'98)
  January 1998, San Jose, CA.
  Talk: Predictive and direct fractal quantization of the wavelet packet domain.

- Parallel Computing 1997 (ParCo'97)
  September 1997, Bonn, Germany.
  Talk: Fractal Compression of Satellite Images: Combining Parallel Processing and Geometric Searching.

- International Picture Coding Symposium (PCS'97)
  September 1997, Berlin, Germany.
  Talks: Comparison of Wavelet, Fractal, and DCT based Methods on the Compression of Prediction-error Images & Enhancing wavelet image compression by partial fractal coding of spatial self-similarities.

- International Workshop Parallel Numerics 1997 (ParNum'97)
  September 1997, Zakopane, Poland.
  Talk: Parallel Computing in Cryptoanalysis: Experiences in a Graduate Students' Project.

- International Conference on Parallel Processing and Applied Mathematics (PPAM'97)
  September 1997, Zakopane, Poland.
  Talk: Fractal Image Compression on Multiprocessors and Multicomputers.

- Sixth international Conference on Image Processing and its Applications (IPA'97)
  July 1997, Dublin, Irland.
  Talk: Double tree wavelet image compression on parallel MIMD architectures.

- High Performance Computing and Networking (HPCN Europe 1997)
  Aprli 1997, Vienna, Austria.
  Talk: Hybrid fractal/wavelet image compression in a high performance computing environment.

- Visual Communications and Image Processing '97 (VCIP'97)
  February 1997, San Jose, CA.
  Talks: Issues in Implementing Block-Based Image Compression Techniques on Parallel MIMD Architectures & Approaching Real-Time Processing for Fractal Compression.

- EuroPVM'96
  Oktober 1996, Munich, Germany.
  Talk: Parallel Image Compression on a Workstationcluster Using PVM.

- International Conference of the ACPC'96
  September 1996, Klagenfurt, Austria.
  Talk: Parallel Computation of Optimal Parameters for Pseudo Random Number Generation.

- International Workshop Parallel Numerics'96
  September 1996, Gozd Martuljek, Slovenia.
  Talk: Adaptive Quadtree based Wavelet Packet Image Block-Coding on MIMD parallel architectures.

- EuroPar'96
  August 1996 , Lyon, France.
  Talk: Parallel algorithms for using non-stationary MRA in image compression.

- Wavelet Applications III
  April 1996, Orlando, FL.
  Talk: Adaptive wavelet image block coding.

- International Picture Coding Symposium 1996
  March 1996, Melbourne, Australien.
  Talk: Wavelet Image Block Coding: Adaptive Methods and Parallel Implementation.

- International Conference on Visual Information Systems
  Februar 1996, Melbourne, Australia.
  Talk: Parallel Algorithms for Fractal Image Coding on MIMD Architectures.

- International Conference on High Performance Computing
  December 1995, New Delhi, India.
  Talk: A parallel wavelet image block-coding algorithm.

- International Workshop Parallel Numerics '95
  September 1995, Sorrento, Italy.
  Talk: The Best Basis and Local Discriminant Bases Algorithms on Moderate Parallel MIMD Architectures.

- Irregular'95
  September 1995, Lyon, France.
  Talk: Adapted wavelet analysis on moderate parallel distributed memory MIMD architectures.

- Seventh SIAM Conference on PARALLEL PROCESSING for Scientific Computing
  February 1995, San Francisco, CA.
  Talk: Vector and parallel wavelet transforms for the analysis of time-varying signals.

- International workshop on parallel processing
  December 1994, Bangalore, India.
  Talk: Parallel compact coding of satellite images with wavelet packets using PVM.

- Mathematical Imaging: Wavelet applications in signal and image processing II
  July 1994, San Diego, CA.
  Talk: Compact image coding using wavelets and wavelet packets based on non-stationary and inhomogeneous multiresolution analysis.

3.9 Scientifc Publications

My publications may be assigned to the following scientific fields (the numbers refer to the list of publications given at the end of this curriculum vitae, journal publications are given in bold face there) – accepted but not yet published manuscripts are not listed:

- **Monograph on Image and Video Encryption** [653]

- **Monograph on Iris Recognition** [537]

- **Multimedia Signal Processing (Image and Video Coding, Image and Video Processing)**: [631, 630, 638, 641, 639, 643, 22, 644, 367, 24,

539, 23, 121, 484, 540, 122, 288, 289, 558, 119, 559, 436, 75, 560, 459, 76, 466, 467, 561, 541, 562, 365, 581, 646, 583, 86, 87, 582, 83, 386, 587, 584, 585, 388, 586, 389, 265, 159, 267, 609, 134, 157, 156, 380, 392, 415, 416, 620, 136, 139, 140, 135, 137, 414, 418, 417, 588, 621, 622, 578, 419, 132, 579, 164, 227, 228, 141, 570, 127, 675, 142, 232, 577, 575, 569, 568, 576, 143, 321, 403, 50, 573, 574, 35, 303, 698, 701, 699, 580, 702, 591, 454, 700]

- **Multimedia Security and Forensics (Watermarking, Media Encryption)**: [438, 432, 485, 307, 433, 486, 488, 53, 483, 599, 489, 487, 490, 54, 55, 600, 56, 469, 120, 462, 52, 359, 544, 118, 461, 463, 651, 449, 491, 492, 481, 13, 465, 652, 77, 450, 611, 78, 79, 613, 612, 366, 423, 67, 451, 360, 263, 165, 81, 70, 614, 422, 393, 71, 80, 615, 69, 397, 166, 162, 440, 394, 439, 222, 221, 375, 225, 617, 616, 442, 376, 378, 435, 441, 379, 163, 377, 72, 447, 73, 434, 240, 286, 618, 267, 266, 381, 443, 444, 446, 610, 619, 286, 445, 220, 239, 448, 623, 74, 224, 223, 677, 6, 82, 202, 678, 608, 308, 311, 272, 679, 36, 273, 680, 270, 326, 676, 493, 290, 271, 251, 571, 572, 37, 554, 556, 557, 413, 252, 253, 555, 316, 315, 313, 476, 314, 543, 318, 317, 589, 590]

- **BioMedical Image Processing**: [25, 26, 21, 27, 455, 180, 190, 123, 170, 171, 179, 404, 383, 387, 385, 183, 684, 182, 181, 384, 405, 226, 172, 175, 173, 174, 683, 390, 176, 169, 158, 291, 177, 187, 178, 233, 234, 229, 382, 406, 408, 654, 655, 682, 160, 188, 184, 218, 235, 231, 391, 407, 237, 131, 145, 144, 185, 238, 374, 168, 133, 151, 189, 192, 146, 148, 149, 194, 150, 147, 186, 236, 152, 191, 153, 193, 130, 154, 65, 64, 161, 125, 128, 129, 400, 549, 551, 703, 706, 707, 691, 705, 398, 275, 277, 274, 545, 550, 138, 126, 708, 692, 704, 399, 401, 694, 696, 402, 276, 693, 695, 97, 98, 96, 297]

- **Biometrics**: [424, 309, 664, 431, 430, 665, 666, 68, 124, 364, 209, 516, 361, 668, 669, 515, 362, 686, 210, 514, 667, 213, 519, 363, 453, 99, 521, 522, 523, 517, 520, 518, 531, 453, 214, 216, 215, 268, 283, 280, 282, 284, 285, 310, 535, 533, 525, 526, 527, 534, 524, 532, 607, 219, 261, 260, 281, 536, 528, 529, 672, 670, 671, 662, 673, 530, 203, 509, 656, 206, 674, 211, 205, 212, 204, 217, 250, 510, 39, 207, 477, 333, 208, 9, 66, 41, 40, 241, 262, 688, 687, 204, 336, 335, 42, 339, 337, 327, 338, 689, 249, 269, 264, 538, 513, 482, 353, 358, 59, 58, 1, 12, 11, 355, 356, 4, 5, 8, 49, 547, 512, 605, 563, 494, 278, 257, 331, 511, 346, 690, 46, 298, 340, 657, 497, 302, 348, 349, 342, 332, 322, 61, 60, 305, 354, 548, 546, 167, 343, 341, 496, 299, 256, 330, 329, 495, 412, 552, 597, 279, 38, 48, 45, 243, 301, 3, 43, 567, 427, 425, 426, 47, 498, 499, 500, 304, 300, 604, 255, 352, 553, 501, 502, 503, 44, 598, 345, 344, 242, 33, 34, 697, 324, 295, 601, 658, 155, 2, 254, 396, 292, 410, 411, 409, 606, 504, 429, 258, 62, 7, 293, 420, 350, 323, 428, 594, 595, 660, 659, 334, 325, 296, 351, 328, 663, 505, 259, 10, 542, 306, 357, 602, 320, 592, 294, 603, 452, 395, 685, 347, 593, 421]

- **Parallel and Distributed Processing**: [195, 196, 197, 632, 635, 636, 634, 633, 640, 648, 642, 637, 650, 649, 647, 103, 116, 199, 198, 287, 104, 105, 106, 117, 109, 200, 201, 369, 371, 107, 368, 102, 372, 108, 373, 370, 456, 110, 100, 101, 114, 437, 458, 457, 113, 111, 625, 460, 624, 506, 507, 468, 112, 115, 479, 508, 470, 480, 478, 626, 627, 464]

- **Numerics** : [629, 28, 645, 85, 94, 93, 565, 95, 29, 564, 566, 89, 90, 91, 596, 88, 84, 92, 244, 245, 246, 247, 248, 312]
- **Editor**
  - Monographs: Handbook of Vascular Biometrics [661]
  - Conference Proceedings: [709, 472, 471, 473, 474, 475, 628, 681, 57, 63, 32, 51, 319, 230, 14, 15, 30, 31, 18, 19, 17, 16, 20]
  - Journal Special Issues
    * *Mathematics and Computers in Simulation* special issue on "3rd IMACS Seminar on Monte Carlo Methods MCM 2001", Vol 62(3-6), March 2003.
    * *Parallel Computing* special issue on "Parallel Computing in Image and Video Processing", Vol 28(7-8), August 2002.
    * *Parallel and Distributed Computing Practices* special issue on "Parallel Numerics and Applications", Vol 5(3), April 2002.
    * *EURASIP Journal on Information Security* special issue on "Advances in Biometrics 2015", Vol. 2016:24-25, 2016.
    * *Pattern Recognition Letters* special issue on "Integrating Biometrics on Forensics", Vol 113, 2018.
    * *Signal Processing: Image Communication* special issue on "Medical Image Communication, Computing and Security", Vol 59(1-2), 2017.

3.10 Professional Memberships

- IEEE and IEEE Signal Processing Society
- European Association for Biometrics (EAB)
- EURASIP Special Area Team in "Biometrics, Data Forensics, and Security"

4 Teaching

4.1 Lectures Taught

1. Within the framework of the curriculum Applied Computer Science, University of Salzburg (from 1995 onwards)
   - Multimedia Data Formats
   - Multimedia Data Bases
   - Multimedia Security
   - Biometrics
   - Cryptography and IT Security

- Image Processing and Imaging
- Applied Computer Science: Selected Topics
- Parallel Processing
- MATLAB
- Foudations of Scientific Working Techniques and Presentation

2. Within the framework of the curriculum Computer Science, Johannes Kepler University Linz (2002/2003)
   - Selected Topics in Pervasive Computing: Multimedia Data Formats
   - Selected Topics in Pervasive Computing: Mobile Multimedia
3. Within the framework of the curriculum Computer Science, Klagenfurt University (2003/2004)
   - Multimedia Security
4. Carinthia Tech Institute (from 1999 onwards)
   - Compression Technology
   - Multimedia I
   - System Security
5. Salzburg University of Applied Sciences (from 2007 onwards)
   - Multimedia Security
6. Within the framework of the curriculum Mathematics, University of Salzburg (until 1995)
   - Mathematical Software
   - Numerical Mathematics
   - Numbertheoretical Numerics
   - Differential Equations

4.2 External Examiner and Reviewer

I am a member of the committee for the Austrian Computer Society "Incentive Award" (with the aim to promote excellent degree theses). Further, I have been external reviewer[1] and external examiner[2] for the following PhD candidates:

- Sandra Cremer[1,2], Telecom SudParis, France.
- Martin Dietze[1,2], University of Buckingham, UK.
- Asamaa Hosni[1,2], Technical University of Vienna, Austria.
- Karl Kümmel[1,2], University of Magdeburg, Germany.

- Manjoj Kumar Mishra[1], Indian School of Mines, Dhanbad, India.
- Rodvan Salih Kuzu[1], Universita degli Studi Roma TRE, Italy.
- Edward Hou Sou Lo[1], University of New South Wales, Australia.
- Jascha Kolberg[1,2], University of Applied Sciences, Darmstadt, Germany.
- Anu Pramila[1], University of Oulu, Finland.
- Daria La Rocca[1], Universita degli Studi Roma TRE, Italy.
- Mahshid Sadeghpour[1], RMIT University, Australia.
- Omair Sarwar[1], University of Klagenfurt, Austria.
- Tobias Scheidat[1,2], University of Magdeburg, Germany.
- Mathias Schlauweg[1,2], University of Rostock, Germany.
- Markus Seidl[1,2], Technical University of Vienna, Austria.

Additionally, I have been member of the habilitation / tenure qualification committee for:

- Alexander Meschtscherjakov (Center for Human-Computer Interaction, Univsersity of Salzburg)
- Andreas Naderlinger (Dept. Computer Sciences, University of Salzburg)
- Paulo Lobato Correia (IST Lisbon)
- Matthias Zeppelzauer (Dept. of Computer Science, Technical University of Vienna)

4.3 Theses Advisor

I have been advisor of several Master and PhD Theses at the University of Salzburg:

- PhD Theses:
  - Bernhard Prommegger: Finger vein Biometrics - An Analysis from Different Perspectives (2021)
  - Rudolf Schraml: Physical Object Identification and Authentication Applications (2021)
  - Luca Debiasi: Exploiting Image Sensor Data in Biometric Systems and Mobile Applications (2020)
  - Christof Kauba: Recognition Performance Related Factors in Hand-Based Biometric Systems (2018)

- Fabian Knirsch: Privacy-Enhancing Technology in the Smart-grid user Domain (2018)
- Eduardo Ribeiro: Exploring Transfer learning via Convolutional neural networks for Image Classification and Super-Resolution (2018)
- Georg Wimmer: Endoscopic image classification focused on scale invariant texture feature extraction techniques (2015)
- Sebastian Hegenbart: On the computer assisted diagnosis of endoscopic data with indication for celiac disease (2014)
- Andreas Unterweger: Post-Compression Multimedia Security (2014)
- Heinz Hofbauer: Visual Evaluation, Scaling and Transport of Secure Videos (2013)
- Michael Gschwandtner: Support framework for obstacle detection on autonomous trains (2012)
- Christian Rathgeb: Iris Biometrics: Template Protection and Advanced Comparators (2012)
- Peter Wild: Advanced Segmentation and Comparators for Iris Biometric Surveillance (2012)
- Michael Liedlgruber: Computer-aided Classification of Endoscopic Images from the Gastrointestinal Tract (2011)
- Arthur Schuchter: Low cost JPEG2000 Based Video Coding System (2011)
- Thomas Stütz: Format-Specific Multimeida Encryption – From JPEG2000 to H.264 AVC/SVC (2011)
- Roland Kwitt: Statistical Modeling in the Wavelet Domain and Applications (2010)
- Peter Meerwald: Digital Watermark Detection in Visual Multimedia Content (2010)
- Dominik Engel: Media encryption for still visual data - an analysis of selected techniques for natural images and fingerprint data in the spatial and wavelet domain (2008)
- Roland Norcen: Performance and Security Issues in Transformation Based Image and Video Coding (2003)
- Andreas Pommer: Selective Encryption of Wavelet-compressed Visual Data (2003)
- Rade Kutil: Wavelet Domain based Techniques for Video Coding (2002)
- Manfred Feil: Parallel Wavelet Packet Based Video Coding (2001)
- Thomas Schell: Evolutionary Optimization: Selection Schemes, Sampling and Applications in Image processing and Pseudo Random Number Generation (2001)

- Master Theses:

- Andreas Vorderleitner: Deep learning framework: CycleGANs and their derivatives in image sysnthesis for the evaluation of biometric systems (2022)
- Laura Martinez-Esmeral: Subject identification and de-identification in medical imkages (2022)
- Michael Linortner: Minutiae-based Finger Vein Recognition Using Standard Fingerprint Recognition Tools (2021)
- Johannes Schuiki: Presentation Attack Detection in Finger and Hand Vein Biometrics using Video Sequences (2021)
- Robert Jöchl: Approximating the Age of an Digital Image based on the Presence of In-Field Sensor Defects (2020)
- Muhammad Salman: Counter Measures for Keypoint Forensics (2019)
- Thomas Bergmüller: A novel industry-strength product authentication system using random optical variable devices (2017)
- Simon Kirchgasser: Ageing Effects in Fingerprint Recognition (2016)
- Luca Debiasi: A Forensic Analysis of the CASIA-Iris V4 Database (2015)
- Christof Kauba: Impact of Sensor Ageing on Finger-Image based Biometric Recognition Systems (2015)
- Martin Rieger: Selective Encryption of JPEG2000-Images in the Context of Biometric Iris-Recognition (2013)
- Rudolf Schraml: TreeBio – Preliminary study on traceability of tree logs using digital log end images (2013)
- Martin Draschl: Lightweight Encryption of Biometric Sample and Template Data (2012)
- Michael Gadermayr: Vickers Image Segmentation Using Active Contours (2012)
- Yvonne Höller: Shape-based Features in Distorted and Distortion-Corrected Endoscopic Images (2012)
- Stefan Jenisch: Format Compliant Methods for Encrypting JPEG XR Encoded Still Images (2012)
- Michael Karnutsch: Comparison & Optimisation of Wavelet Packet Subband Structures with respect to Iris Recognition (2011)
- Sebastian Hegenbart: Automated Marsh-like Classification of Celiac Disease in Endoscopic Images using Local Texture Operators based on Local Binary Patterns (2010)
- Georg Klima: Geometrical correct recognition and classification of images on the example of print patterns (2010)
- Michael Pober: Comparing performance of different fingerprint matchers by using StirMark distorted images (2010)
- Michael Gschwandtner: Efficient protection and access control of 3D geometry data (2009)

- Christian Koidl: Multiple blind watermarking in the DRM context (2009)
- Franz Mayringer: Methoden und Anwendungen der digitalen Sprachverarbeitung in der experimentellen Audiologie (2009)
- Bernhard Mühlbacher: Wavelet Packets Optimization in JPEG2000 using the example of fingerprints (2009)
- Elias Pschernig: Cancelable biometrics for iris detection with parameterized wavelets and wavelet packets (2009)
- Karl Raab: Watermarking in Scalable Media and in Biometrics (2009)
- Philipp Venningen: Developing Software to burn full DDP images onto DVD recordable discs (2009)
- Leonhard Brunauer: Pit Pattern Classification and Feature Selection for Colon Cancer Diagnosis using Fourier Filters (2008)
- Thomas Fuhrmann: Automated Diagnosis of Celiac Disease by Classification of Duodenal Imagery (2008)
- Christian Rathgeb: Iris-based Biometric Cryptosystems (2008)
- Peter Wild: Single-sensor hand and footprint-based multimodal biometric recognition (2008)
- Gerwin Fleischmann: Computer Aided Wafer Inspection: Integration of a CCD-camera module and investigation of image processing methods for supporting human operator's work (2007)
- Heinz Hofbauer: Improper Integrals and QMC Integration in a Grid Environment (2007)
- Christian Kastinger: Automatic Classification of Simulated Radar Range Profiles and Zoom-endoscopic Colon Images (2007)
- Gerold Laimer: Security of Perceptual Hash Functions (2007)
- Gerald Leimhofer: Selective Encryption with Matching Pursuit Projection (2007)
- Michael Liedlgruber: Pit Pattern Classification in Colonoscopy using Wavelets (2006)
- Thomas Stütz: Securing Scalable Visual Data in a Grid Environment (2006)
- Hartmut Wernisch: Multiple Watermarking for Digital Rights Management (2006)
- Thomas Berger: Analyse aktueller VPN Technologien in Bezug auf kryptographische Methoden, Performance und Tunnelmanagement (2005)
- Andreas Radermacher: Spam Prevention in Voice over IP Networks (2005)
- Michael Brachtl: Verteilte elekronische Vertragsabschlüsse und deren praktische Implementierbarkeit (2003)

- Werner Dietl: Improving the Security of Wavelet-based Watermarking Systems (2003)
- Albert Meixner: Methods of Protecting Image Integrity (2003)
- Dominik Engel: Adaptive objectoriented image compression with wavelet methods (2002)
- Florian Tischler: On parallel block-matching for digital video processing (2002)
- Harald Flatscher: Adaptive and object-based image and video compression using wavelets (2001)
- Peter Meerwald: Digital image watermarking in the wavelet transform domain (2001)
- Roland Norcen: Parallel implementations of matching pursuit projection (2001)
- Matthias Reichl: Fractal quantizers for the wavelet transform domain (2001)
- Markus Reisecker: The JPEG2000 standard and its implementation in the Verification Model 6.0 (2001)
- Rudolf Schürer: High-dimensional numerical integration on parallel computers (2001)
- Walter Gruber: EEG-signal analysis: From traditional methods to analytic wavelets (2000)
- Brigitte Jellinek: Invisible watermarking for digital image copyright protection (2000)
- Rade Kutil: High dimensional wavelet transforms on MIMD architectures (2000)
- Andreas Pommer: Fractal Video Compression — Basics, 2D, 3D and Parallel Algorithms (1999)
- Peter Schneider: Matching Pursuit Image and Video Compression - Speedup Techniques (1999)
- Manfred Feil: Wavelet transforms on parallel architectures (1998)
- Christian Hufnagl: Efficient motion estimation algorithms for digital video compression (1998)
- Alfred Bruckmann: Selective and hybrid image compression with wavelet methods (1997)

I have as well been supervisor of Master Theses at the Carinthia University of Applied Sciences (Carinthia Tech Institute, Klagenfurt):

- Mario Konrad: Iris Recognition: JPEG Compression and Serial Matching Schemes (2009)
- Reinhard Huber: Watermarking in Iris Biometrics (2010)
- Kurt Horvath: JPEG XR Compression in Iris Recognition (2011)

5 University Administration

- Together with Stefan Wegenkittl and Karl Entacher I have developed the curriculum for a Joint Degree Master Program on "Applied Image and Signal Processing". The international English-spoken program started in 2012/2013 and is conducted jointly with the Salzburg University of Applied Sciences.

- Together with Ursula Maier-Rabler I have developed the concept for the focus area "Center for Advanced Studies and Research in Information and Communication Technologies & Society ICT&S" of the University of Salzburg. After acceptance of the proposal by the rectorate and the senate of the University of Salzburg this focus area has been established. During a maternity leave of mine Wolfgang Pree took over my position at ICT&S. The focus area has been split into two units where the technologically oriented part was transformed into the Center for Human Computer Interaction led by Manfred Tscheligi.

- Together with Karl-Josef Fuchs I have developed and maintained the curriculum for the teaching degree for secondary schools in Computer Science and Computer Management and together we have also presented the program at the Federal Ministry for Education in Vienna. After acceptance of the proposal by the ministry and the establishment of the program at the University of Salzburg in 2000 I have been the main organizer and maintainer of the program ever since. In 2015-2016, Karl-Josef Fuchs, Helge Hagenauer and myself have transformed the program into the "Cluster Mitte" curriculum (together with the JKU Linz and the "Pädagogischen Hochschulen" in Linz and Salzburg) which started in winter term 2016/2017.

- Together with Helge Hagenauer and Christoph Kirsch I have developed a concept for a master program in "Cyber Physical Systems" in 2009, a program to be subscribed by Bacherlor of Engineering graduates. The program was not approved by the rectorate.

- Together with Robert Elsässer and Andreas Schröder I have developed a concept for a master program in "Computational Sciences" in 2014, a program to be subscribed by Bacherlor of Engineering graduates. The program was not approved by the rectorate.

- I have been deputy head of department (Dept. of Computer Sciences) since 2007, from September 2012 onwards I have been head of department together with Manfred Tscheligi, from Septmeber 2015 - September 2017 I have been head of department together with Robert Elsässer and deputy head of department until September 2019.

- I have been deputy head of the advisory committee of study affairs for the Computer Science programs (Bacherlor, Master, teaching degree for secondary schools) since the latter program has been established.

- I have been member of several appointment commissions, e.g. for Technical Computer Science, Databases, Information Systems, and Computer Architecture & Scientific Computing.

- I have been organizing two team-taught lecture series, the first of which focussing on strong interactions with local industry, the second one focussing on inter-disciplinary teacher degree training: "Applications in Technology and Enterprises" is organized on an annual basis where various people from industry and other research institutions provide insights into their daily computer science-related work. "Subject-specific software systems" is organized on a bi-annual basis and is an interdisciplinary lecture where students from the Computer Science teaching degree for secondary schools program work with software systems being used in school or research of different fields or subjects.

- Participation in "uni:hautnah 2008" (exibition on research efforts of the University of Salzburg in a local shopping center) with a booth on hand-geometry based biometric identification including practical testing using a flatbed-scanner.

- Participation in "Lange Nacht der Forschung 2012" (exhibition on research efforts across entire Austria with a boot on automated diagnosis and staging of colon polyps / cancer, where an interactive diagnosis "game" against a computer is displayed).

- Participation in "Lange Nacht der Forschung 2014" (with a boot on hand vein sensing and recognition, where hand veins are captured and displayed using reflection and transillumination NIR imaging).

- Participation in "Lange Nacht der Forschung 2016" (with a booth on demonstrating digital image forensics by linking peoples smartphones to uploaded image material).

- Participation in "Lange Nacht der Forschung 2018" (with a booth on hand vein sensing using different types of sensors, inclusing a rotating 3D sensor).

- Participation in "Lange Nacht der Forschung 2022" (with a booth on portrait morphing where people were captured and morphed in pairs).

- Participation in the PR efforts of the Computer Sciences Department by regularly giving lectures or by organising workshops with members of my group at the University "open house" events (I-Day), at educational fairs (like BeSt or BIM), the "schüler:uni" (in 2011) and in schools (on request).

References

[1] Victoria Ablinger, Cornelia Zenz, Jutta Hämmerle-Uhl, and Andreas Uhl. Compression standards in fingervein recognition. In *Proceedings of the 9th IAPR/IEEE International Conference on Biometrics (ICB'16)*, pages 1–7, 2016.

[2] Manuel Aguado-Martínez, José Hernández-Palancar, Katy Castillo-Rosado, Rodobaldo Cupull-Gómez, Christof Kauba, Simon Kirchgasser, and Andreas Uhl. Document scanners for minutiae-based palmprint recognition: a feasibility study. *Pattern Analysis and Applications*, pages 1–14, 2020.

[3] Manuel Aguado-Martnez, Jos Hernndez-Palancar, Katy Castillo-Rosado, Christof Kauba, Simon Kirchgasser, and Andreas Uhl. On using document scanners for minutiae-based palmprint recognition. In *Proceedings of the 24th Iberoamerican Congress on Pattern Recognition (CIARP 2019)*, volume 11896 of *Springer Lecture Notes on Computer Science*, pages 219 – 229, Havanna, Cuba, 2019.

[4] I. Aslan, A. Uhl, A. Meschtscherjakov, and M. Tscheligi. Mid-air authentication gestures: An exploration of authentication based on palm and finger motions (nominee for outstanding paper award). In *Proceedings of the 16th International Conference on Multimodal Interaction*, pages 311–318, 2014.

[5] I. Aslan, A. Uhl, A. Meschtscherjakov, and M. Tscheligi. Design and exploration of mid-air authentication gestures. *ACM Transactions on Interactive Intelligent Systems*, 6(23):1–22, 2016.

[6] Stefan Auer, Alexander Bliem, Dominik Engel, Andreas Uhl, and Andreas Unterweger. Bitstream-Based JPEG Encryption in Real-time. *International Journal of Digital Crime and Forensics*, 5(3):1–14, 2013.

[7] Altan Koray Aydemir, Jutta Hämmerle-Uhl, and Andreas Uhl. Feasibility of morphing-attacks in vascular biometrics. In *2021 IEEE/IAPR International Joint Conference on Biometrics (IJCB'21)*, pages 1–7, 2021.

[8] Thomas Bergmüller, Eleftherios Christopoulos, Kevin Fehrenbach, Martin Schnöll, and Andreas Uhl. Recompression effects in iris recognition. *Image and Vision Computing (Special Section on the Best of Biometrics 2015)*, 58:142–157, 2017.

[9] Thomas Bergmüller, Eleftherios Christopoulos, Martin Schnöll, and Andreas Uhl. Recompression effects in iris segmentation. In *Proceedings of the 8th IAPR/IEEE International Conference on Biometrics (ICB'15)*, pages 1–8, Phuket, Thailand, May 2015.

[10] Georg Wimmer Bernhard Prommegger, Dominik Söllinger and Andreas Uhl. Cnn based finger region segmentation for finger vein recognition. In *Proceedings of the 10th International Workshop on Biometrics and Forensics (IWBF'22)*, pages 1–6, Salzburg, Austria, 2022.

[11] Amrit Pal Singh Bhogal, Dominik Söllinger, Pauline Trung, Jutta Hämmerle-Uhl, and Andreas Uhl. Non-reference image quality assessment for fingervein presentation attack detection. In *Proceedings of 20th Scandinavian Conference on Image Analysis (SCIA'17)*, volume 10269 of *Springer Lecture Notes on Computer Science*, pages 184–196, 2017.

[12] Amrit Pal Singh Bhogal, Dominik Söllinger, Pauline Trung, and Andreas Uhl. Non-reference image quality assessment for biometric presentation attack detection (best reviewed papers session). In *Proceedings of the 5th International Workshop on Biometrics and Forensics (IWBF'17)*, pages 1–6, Coventry, United Kindom, 2017.

[13] M. Brachtl, W. M. Dietl, and A. Uhl. Key-dependency for a wavelet-based blind watermarking algorithm. In J. Dittmann and J. Fridrich, editors, *ACM Multimedia and Security Workshop*, pages 175–179, Magdeburg, Germany, September 2004.

[14] Arslan Bröme, Christoph Busch, Christian Rathgeb, and Andreas Uhl, editors. *Proceedings of the 14th International Conference of the Biometrics Special Interest Group (BIOSIG'15)*, volume P-245 of *Lecture Notes in Informatics*. Gesellschaft für Informatik e.V., 2015.

[15] Arslan Bröme, Christoph Busch, Christian Rathgeb, and Andreas Uhl, editors. *Proceedings of the 15th International Conference of the Biometrics Special Interest Group (BIOSIG'16)*, volume P-260 of *Lecture Notes in Informatics*. Gesellschaft für Informatik e.V., 2016.

[16] Arslan Brömme, Christoph Busch, Naser Damer, Antitza Dantcheva, Marta Gomez-Barrero, Kiran Raja, Christian Rathgeb, Ana F. Sequeira, and Andreas Uhl, editors. *Proceedings of the 20th International Conference of the Biometrics Special Interest Group (BIOSIG'20)*, volume P-315 of *Lecture Notes in Informatics*. Gesellschaft für Informatik e.V., 2021.

[17] Arslan Brömme, Christoph Busch, Antitza Dantcheva, Kiran Raja, Christian Rathgeb, and Andreas Uhl, editors. *Proceedings of the 19th International Conference of the Biometrics Special Interest Group (BIOSIG'20)*, volume P-306 of *Lecture Notes in Informatics*. Gesellschaft für Informatik e.V., 2020.

[18] Arslan Brömme, Christoph Busch, Antitza Dantcheva, Christian Rathgeb, and Andreas Uhl, editors. *Proceedings of the 17th International Conference of the Biometrics Special Interest Group (BIOSIG'18)*, volume P-282 of *Lecture Notes in Informatics*. Gesellschaft für Informatik e.V., 2018.

[19] Arslan Brömme, Christoph Busch, Antitza Dantcheva, Christian Rathgeb, and Andreas Uhl, editors. *Proceedings of the 18th International Conference of the Biometrics Special Interest Group (BIOSIG'19)*, volume P-296 of *Lecture Notes in Informatics*. Gesellschaft für Informatik e.V., 2019.

[20] Arslan Brömme, Naser Damer, Marta Gomez-Barrero, Kiran Raja, Christian Rathgeb, Massimiliano Todisco, and Andreas Uhl, editors. *Proceedings of the 21st International Conference of the Biometrics Special Interest Group (BIOSIG'22)*, volume P-329 of *Lecture Notes in Informatics*. Gesellschaft für Informatik e.V., 2022.

[21] A. Bruckmann, H. Flatscher, Th. Schell, and A. Uhl. Adaptive wavelet techniques for compressing digital mammograms (Invited Paper). *TASK Quarterly (Special Issue on Informatics in Medicine)*, 3(4):381–396, 1999.

[22] A. Bruckmann, J. Hämmerle, M. Reichl, and A. Uhl. Hybrid fractal/wavelet image compression in a high performance computing environment. In B. Hertzberger and P. Sloot, editors, *High Performance Computing and Networking. Proceedings of HPCN Europe 1997*, volume 1225 of *Lecture Notes on Computer Science*, pages 117–126. Springer-Verlag, 1997.

[23] A. Bruckmann, Th. Schell, and A. Uhl. Evolving subband structures for wavelet packet based image compression using genetic algorithms with non-additive cost functions. In *Proceedings of the International Conference "Wavelets and Multiscale Methods" (IWC'98), Tangier, 1998*. INRIA, Rocquencourt, April 1998. 4 pages.

[24] A. Bruckmann and A. Uhl. Enhancing wavelet image compression by partial fractal coding of spatial self-similarities. In *Proceedings of the International Picture Coding Symposium (PCS'97)*, volume 143 of *ITG-Fachberichte*, pages 331–336. VDE-Verlag, Berlin, Offenbach, September 1997.

[25] A. Bruckmann and A. Uhl. Selective medical image compression using wavelet techniques. *Journal of Computing and Information Technology (Special Issue on Biomedical Image Processing and Analysis)*, 2(6):203–213, 1998.

[26] A. Bruckmann and A. Uhl. Ein Vergleich von Wavelet und JPEG basierten selektiven Methoden im Bereich der medizinischen Bildkompression. In H. Evers, G. Glombitza, T. Lehmann, and H.-P. Meinzer, editors, *Proceedings des Workshops Bildverarbeitung fuer die Medizin 1999*, Informatik Aktuell, pages 216–220. Springer-Verlag, March 1999.

[27] A. Bruckmann and A. Uhl. Selective medical image compression techniques for telemedical and archiving applications. *Computers in Biology and Medicine*, 30(3):153 – 169, 2000.

[28] D. Brunner and A. Uhl. Parallel computation of optimal parameters for pseudo random number generation. In L. Böszörményi, editor, *Parallel Computation. Proceedings of ACPC'96*, volume 1127 of *Lecture Notes in Computer Science*, pages 78–89. Springer, Berlin, 1996.

[29] D. Brunner and A. Uhl. Optimal multipliers for linear congruential pseudo-random number generators with prime moduli: parallel computation and properties. *BIT*, 68:249–260, 1999.

[30] Christoph Busch, Antitza Dantcheva, Christian Rathgeb, and Andreas Uhl, editors. *Proceedings of the 16th International Conference of the Biometrics Special Interest Group (BIOSIG'17)*, volume P-270 of *Lecture Notes in Informatics*. Gesellschaft für Informatik e.V., 2017.

[31] M. J. Cardoso, T. Arbel, X. Luo, S. Wesarg, T. Reichl, M. A. G. Ballester, J. McLeod, K. Drechsler, T. Peters, M. Erdt, K. Mori, M. G. Linguraru, A. Uhl, C. O. Laura, and R. Shekhar, editors. *Computer Assisted and Robotic Endoscopy and Clinical Image-Based Procedures. Proceedings of the 4th International Workshop CARE 2017 and the 6th International Workshop CLIP 2017*, volume 10550 of *Lecture Notes in Computer Science*. Springer, 2017.

[32] A. Carini, S. Loncaric, A. Uhl, and P. Zinterhof, editors. *Proceedings of the 6th International Symposium on Image and Signal Processing and Analysis (ISPA'09)*, Salzburg, Austria, September 2009.

[33] Katy Castillo-Rosado, Michael Linortner, Andreas Uhl, Heydi Mendez-Vasquez, and Jos Hernandez-Palancar. Minutiae-based Finger Vein Recognition Evaluated with Fingerprint Comparison Software. In *Proceedings of the IEEE 19th International Conference of the Biometrics Special Interest Group (BIOSIG 2020)*, pages 1 – 8, Darmstadt, Germany, 2020.

[34] Anurag Chowdhury, Simon Kirchgasser, Andreas Uhl, and Arun Ross. Can a cnn automatically learn the significance of minutiae points for fingerprint matching? In *The IEEE Winter Conference on Applications of Computer Vision (WACV)*, pages 1–9, Snowmass Village, Colorado, USA, 2020.

[35] Petr Cisar, Dinara Bekkozhayeva, Oleksandr Movchan, Mohammadmehdi Saberioon, and Rudolf Schraml. Computer vision based individual fish identification using skin dot pattern. *Scientific Reports*, 11(1), 2021.

[36] Jan De Cock, Heinz Hofbauer, Thomas Stütz, Andreas Uhl, and Andreas Unterweger. An Industry-Level Blu-ray Watermarking Framework. *Multimedia Tools and Applications*, 74(18):80798101, 2014.

[37] L. Debiasi, E. Leitet, K. Norell, T. Tachos, and A. Uhl. Blind source camera clustering of criminal case data. In *Proceedings of the 7th International Workshop on Biometrics and Forensics (IWBF'19)*, pages 1–6, Cancun, Mexico, 2019.

[38] L. Debiasi, U. Scherhag, C. Rathgeb, A. Uhl, and C. Busch. Prnu-based detection of morphed face images. In *Proceedings of the 6th International Workshop on Biometrics and Forensics (IWBF'18)*, pages 1–7, Sassari, Italy, 2018.

[39] L. Debiasi, Z. Sun, and A. Uhl. Generation of iris sensor PRNU fingerprints from uncorrelated data. In *Proceedings of the 2nd International Workshop on Biometrics and Forensics (IWBF'14)*, pages 1–6, Valletta, Malta, 2014.

[40] L. Debiasi and A. Uhl. Blind biometric source sensor recognition using advanced prnu fingerprints. In *Proceedings of the 2015 European Signal Processing Conference (EUSIPCO'15)*, pages 779–783, Nice, France, 2015.

[41] L. Debiasi and A. Uhl. Techniques for a forensic analysis of the casia-iris v4 database. In *Proceedings of the 3rd International Workshop on Biometrics and Forensics (IWBF'15)*, pages 1–8, Gjovik, Norway, 2015.

[42] L. Debiasi and A. Uhl. Comparison of prnu enhancement techniques to generate prnu fingerprints for biometric source sensor attribution. In *Proceedings of the 4th International Workshop on Biometrics and Forensics (IWBF'16)*, pages 1–6, Limassol, Cyprus, 2016.

[43] Luca Debiasi, Naser Damer, Alexandra Mosegu Saladi, Christian Rathgeb, Ulrich Scherhag, Christoph Busch, Florian Kirchbuchner, and Andreas Uhl. On the detection of gan-based face morphs using established morph detectors. In *Proceedings of the 20th*

International Conference on Image Analysis and Processing (ICIAP2019), pages 1–11, Trento, Italy, 2019.

[44] Luca Debiasi, Christof Kauba, Heinz Hofbauer, Bernhard Prommegger, and Andreas Uhl. Presentation attacks and detection in finger- and hand-vein recognition. In *Proceedings of the Joint Austrian Computer Vision and Robotics Workshop (ACVRW'20)*, pages 65 – 70, Graz, Austria, 2020.

[45] Luca Debiasi, Christof Kauba, Bernhard Prommegger, and Andreas Uhl. Near-infrared illumination add-on for mobile hand-vein acquisition. In *2018 IEEE 9th International Conference on Biometrics Theory, Applications and Systems (BTAS)*, pages 1–9, Los Angeles, California, USA, 2018.

[46] Luca Debiasi, Christof Kauba, and Andreas Uhl. Identifying iris sensors from iris images. In Christian Rathgeb and Christoph Busch, editors, *Iris and Periocular Biometric Recognition*, chapter 16, pages 359–382. IET, London, UK, 2017.

[47] Luca Debiasi, Simon Kirchgasser, Bernhard Prommegger, Andreas Uhl, Grudzien Artur, and Kowalski Marcin. Biometric template protection in the image domain using non-invertible grey-scale transforms. In *Proceedings of the IEEE Workshop on Information Forensics and Security (WIFS2019)*, pages 1–6, Delft, Netherlands, 2019.

[48] Luca Debiasi, Christian Rathgeb, Ulrich Scherhag, Andreas Uhl, and Christoph Busch. Prnu variance analysis for morphed face image detection. In *Proceedings of the IEEE 9th International Conference on Biometrics: Theory, Applications, and Systems (BTAS2018)*, pages 1–8, Los Angeles, California, USA, 2018.

[49] Luca Debiasi and Andreas Uhl. Prnu enhancement effects on biometric source sensor attribution. *IET Biometrics*, 4(6):256–265, 2017.

[50] Remi Decelle and Ehsaneddin Jalilian. Neural networks for cross-section segmentation in raw images of log ends (best session paper award). In *Proceedings of 4th IEEE International Conference on Image Processing, Applications and Systems (IPAS 2020)*, pages 1 – 6, Genova, Italy, 2020.

[51] B. DeDecker, J. Lapon, V. Naessens, and A. Uhl, editors. *Communication and Multimedia Security (Proceedings of the 12th IFIP CMS 2011)*, volume 7025 of *Lecture Notes on Computer Science*, Ghent, Belgium, October 2011. Springer-Verlag.

[52] W. M. Dietl and A. Uhl. Robustness against unauthorized watermark removal attacks via key-dependent wavelet packet subband structures. In *Proceedings of the IEEE International Conference on Multimedia and Expo, ICME '04*, Taipei, Taiwan, June 2004.

[53] Werner Dietl, Peter Meerwald, and Andreas Uhl. Watermark security via high-resolution wavelet filter parametrization. In Kmeť Stanislav and Pavluš Miron, editors, *Proceedings of 7th International Scientific Conference, Section 1: Applied Mathematics*, pages 21–28, Košice, Slovakia, May 2002.

[54] Werner Dietl, Peter Meerwald, and Andreas Uhl. Key-dependent pyramidal wavelet domains for secure watermark embedding. In Edward J. Delp and Ping Wah Wong, editors, *Proceedings of SPIE, Electronic Imaging, Security and Watermarking of Multimedia Contents V*, volume 5020, pages 728–739, Santa Clara, CA, USA, January 2003. SPIE.

[55] Werner Dietl, Peter Meerwald, and Andreas Uhl. Protection of wavelet-based watermarking systems using filter parametrization. *Signal Processing (Special Issue on Security of Data Hiding Technologies)*, 83(10):2095–2116, October 2003.

[56] Werner Dietl and Andreas Uhl. Watermark security via secret wavelet packet subband structures. In A. Lioy and D. Mazzocchi, editors, *Communications and Multimedia Security. Proceedings of the Seventh IFIP TC-6 TC-11 Conference on Communications and Multimedia Security*, volume 2828 of *Lecture Notes on Computer Science*, pages 214–225, Turin, Italy, October 2003. Springer-Verlag.

[57] J. Dittmann, S. Katzenbeisser, and A. Uhl, editors. *Communication and Multimedia Security (Proceedings of the 9th IFIP CMS 2005)*, volume 3677 of *Lecture Notes on Computer Science*, Salzburg, Austria, September 2005. Springer-Verlag.

[58] Martin Draschl, Jutta Hämmerle-Uhl, and Andreas Uhl. Assessment of Efficient Fingerprint Image Protection Principles using different Types of AFIS. In *Proceedings of the 18th International Conference on Information and Communications Security (ICICS'16)*, volume 9977 of *Springer LNCS*, pages 241–253, Singapore, 2016.

[59] Martin Draschl, Jutta Hämmerle-Uhl, and Andreas Uhl. Efficient fingerprint image protection principles using selective JPEG2000 encryption. In *Proceedings of the 1st Workshop on Sensing, Processing and Learning for Intelligent Machines (SPLINE 2016)*, pages 1–6, Aalborg, Denmark, 2016.

[60] Martin Draschl, Jutta Hämmerle-Uhl, and Andreas Uhl. Sensor dependency in efficient fingerprint image protection using selective jpeg2000 encryption. In *Proceedings of the 5th International Workshop on Biometrics and Forensics (IWBF'17)*, pages 1–6, Coventry, United Kindom, 2017.

[61] P. Drozdowski, C. Rathgeb, H. Hofbauer, J. Wagner, A. Uhl, and C. Busch. Towards prealignment of near-infrared iris images. In *Proceedings of the IAPR/IEEE International Joint Conference on Biometrics (IJCB'17)*, page 8, 2017.

[62] Pawel Drozdowski, Bernhard Prommegger, Georg Wimmer, Rudolf Schraml, Christian Rathgeb, Andreas Uhl, and Christoph Busch. Demographic Bias: A Challenge for Fingervein Recognition Systems? In *2020 28th European Signal Processing Conference (EUSIPCO)*, pages 825–829, Amsterdam, The Nederlands, 2021.

[63] H. Efinger and A. Uhl. *Scientific Computing in Salzburg.* vol. 189 of books@ocg.at. Austrian Computer Society, Salzburg, Austria, 2005.

[64] Peter Elmer, Michael Häfner, Toru Tamaki, Shinji Tanaka, Rene Thaler, Andreas Uhl, and Shigeto Yoshida. Compression-scenarios for LIRE-based CBIR on colonoscopy data. In *Proceedings of Bildverarbeitung für die Medizin 2016 (BVM'16)*, Springer Informatik Aktuell, pages 152–157, March 2016.

[65] Peter Elmer, Michael Häfner, Toru Tamaki, Shinji Tanaka, Rene Thaler, Andreas Uhl, and Shigeto Yoshida. Impact of lossy image compression on CAD support systems for colonoscopy. In *Computer-Assisted and Robotic Endoscopy (CARE'15)*, volume 9515 of *Springer Lecture Notes in Computer Science*, pages 1–11, October 2016.

[66] Peter Elmer, Artur Lupp, Stefan Sprenger, Rene Thaler, and Andreas Uhl. Exploring compression impact on face detection using Haar-like features. In *Proceedings of the 19th Scandinavian Conference on Image Analysis (SCIA'15)*, volume 9127 of *Springer LNCS*, pages 53–64, 2015.

[67] Dominik Engel, Rade Kutil, and Andreas Uhl. A symbolic transform attack on lightweight encryption based on wavelet filter parameterization. In *Proceedings of ACM Multimedia and Security Workshop, MM-SEC '06*, pages 202–207, Geneva, Switzerland, September 2006.

[68] Dominik Engel, Elias Pschernig, and Andreas Uhl. An analysis of lightweight encryption schemes for fingerprint images. *IEEE Transactions on Information Forensics and Security*, 3(2):173–182, June 2008.

[69] Dominik Engel, Thomas Stütz, and Andreas Uhl. Efficient transparent JPEG2000 encryption with format-compliant header protection. In *Proceedings of IEEE International Conference on Signal Processing and Communications, ICSPC '07*, pages 1067–1070, Dubai, UAE, November 2007. IEEE.

[70] Dominik Engel, Thomas Stütz, and Andreas Uhl. Format-compliant JPEG2000 encryption in JPSEC: Security, applicability and the impact of compression parameters. *EURASIP Journal on Information Security*, 2007(Article ID 94565):20 pages, 2007.

[71] Dominik Engel, Thomas Stütz, and Andreas Uhl. Format-compliant JPEG2000 encryption with combined packet header and packet body protection. In *Proceedings of ACM Multimedia and Security Workshop, MM-SEC '07*, pages 87–95, New York, NY, USA, September 2007. ACM Press.

[72] Dominik Engel, Thomas Stütz, and Andreas Uhl. Evaluation of JPEG2000 hashing for efficient authentication. In *Proceedings of International Conference on Multimedia & Expo (ICME '09)*, New York City, USA, June 2009. IEEE.

[73] Dominik Engel, Thomas Stütz, and Andreas Uhl. A survey on JPEG2000 encryption. *Multimedia Systems*, 15(4):243–270, 2009.

[74] Dominik Engel, Thomas Stütz, and Andreas Uhl. Assessing JPEG2000 encryption with key-dependent wavelet packets. *EURASIP Journal on Information Security*, 2012(2), 2012.

[75] Dominik Engel and Andreas Uhl. Adaptive object-based image compression using wavelet packets. In M. Grgic, editor, *Proceedings of the 4th International Symposium on Video/Image Processing and Multimedia Communications (VIPromCom 2002)*, pages 183–187, Zadar, Croatia, June 2002.

[76] Dominik Engel and Andreas Uhl. Adaptive image compression of arbitrarily shaped objects using wavelet packets. In *Picture Coding Symposium 2003 (PCS'03)*, pages 283–288, Saint Malo, France, April 2003.

[77] Dominik Engel and Andreas Uhl. Parameterized biorthogonal wavelet lifting for lightweight JPEG2000 transparent encryption. In *Proceedings of ACM Multimedia and Security Workshop, MM-SEC '05*, pages 63–70, New York, NY, USA, August 2005.

[78] Dominik Engel and Andreas Uhl. Security enhancement for lightweight JPEG2000 transparent encryption. In *Proceedings of Fifth International Conference on Information, Communication and Signal Processing, ICICS '05*, pages 1102–1106, Bangkok, Thailand, December 2005.

[79] Dominik Engel and Andreas Uhl. Secret wavelet packet decompositions for JPEG2000 lightweight encryption. In *Proceedings of 31st International Conference on Acoustics, Speech, and Signal Processing, ICASSP '06*, volume V, pages 465–468, Toulouse, France, May 2006. IEEE.

[80] Dominik Engel and Andreas Uhl. An attack against image-based selective bitplane encryption. In *Proceedings of the IEEE International Conference on Image Processing, ICIP '07*, volume II, pages 141–144, San Antonio, TX, USA, September 2007. IEEE.

[81] Dominik Engel and Andreas Uhl. An evaluation of lightweight JPEG2000 encryption with anisotropic wavelet packets. In Edward J. Delp and Ping W. Wong, editors, *Security, Steganography, and Watermarking of Multimedia Contents IX*, Proceedings of SPIE, pages 65051S1–65051S10, San Jose, CA, USA, January 2007. SPIE.

[82] Dominik Engel, Andreas Uhl, and Andreas Unterweger. Region of Interest Signalling for Encrypted JPEG Images. In *IH&MMSec'13: Proceedings of the 1st ACM Workshop on Information Hiding and Multimedia Security*, pages 165–174. ACM, June 2013.

[83] K. Entacher, S. Hegenbart, J. Kerschbaumer, C. Lenz, D. Planitzer, M. Seidel, A. Uhl, and R. Weiglmaier. Pith detection on CT-cross-section images of logs: An experimental comparison. In *Proceedings of the 3rd International Symposium on Communications, Control and Signal Processing (ISCCSP '08)*, pages 478–483. IEEE Press, 2008.

[84] K. Entacher, G. Laimer, H. Röck, and A. Uhl. Normalization of the spectral test in high dimensions. *Monte Carlo Methods and Applications*, 10(3-4):265–272, 2004.

[85] K. Entacher, O. Lendl, A. Uhl, and S. Wegenkittl. Analyzing streams of pseudo-random numbers for parallel monte carlo integration. In R. Wyrzykowski, H. Piech, B. Mochnacki, M. Vajtersic, and P. Zinterhof, editors, *Proceedings of the International Workshop on Parallel Numerics (Parnum'97)*, pages 59–71, Zakopane, Poland, September 1997.

[86] K. Entacher, C. Lenz, M. Seidel, A. Uhl, and R. Weiglmaier. Applicability of motion estimation algorithms for an automatic detection of spiral grain in CT cross-section images of logs. In W. Kropatsch, M. Kampel, and A. Hanbury, editors, *Proceedings of the 12th International Conference on Computer Analysis of Images and Patterns (CAIP'07)*, volume 4673 of *LNCS*, pages 36–44. Springer Verlag, 2007.

[87] K. Entacher, D. Planitzer, and A. Uhl. Towards an automated generation of tree ring profiles from CT-images. In M. Petrou, T. Saramäki, A. Ercil, and S. Loncaric, editors, *Proceedings of the 5th International Symposium on Image and Signal Processing and Analysis (ISPA'07)*, pages 174–179, 2007.

[88] K. Entacher, T. Schell, W. Ch. Schmid, and A. Uhl. Defects in parallel Monte Carlo and quasi-Monte Carlo integration using the leap-frog technique. *Parallel Algorithms and Applications*, 18(1–2):27–47, 2003.

[89] K. Entacher, Th. Schell, and A. Uhl. Evolutionary optimization of random number generators. In G.I. Schuëller and P.D. Spanos, editors, *Monte Carlo Simulation (Proceedings of the International Conference on Monte Carlo Simulation (MCS 2000))*, pages 19–26, Monte Carlo, Monaco, 2001. A.A. Balkema Publishers.

[90] K. Entacher, Th. Schell, and A. Uhl. Optimization of random number generators: Efficient search for high-quality LCGs. *Probabilistic Engineering Mechanics*, 16(4):289–293, 2001.

[91] K. Entacher, Th. Schell, and A. Uhl. Efficient lattice assessment for LCG and GLP parameter searches. *Mathematics of Computation*, 71(239):1231–1242, 2002.

[92] K. Entacher, Th. Schell, and A. Uhl. Bad lattice points. *Computing*, 75(4):281–295, 2005.

[93] K. Entacher, A. Uhl, and S. Wegenkittl. Linear and inversive pseudorandom numbers for parallel and distributed simulation. *Simulation Digest (ACM SIGSIM Newsletter, Proceedings of the 12th Workshop on Parallel and Distributed Simulation (PADS'98))*, 28(1):90–97, May 1998.

[94] K. Entacher, A. Uhl, and S. Wegenkittl. Linear congruential generators for parallel Monte-Carlo: the Leap-Frog case. *Monte Carlo Methods and Applications*, 4(1):1–16, 1998.

[95] K. Entacher, A. Uhl, and S. Wegenkittl. Parallel random number generation: Long-range correlations among multiple processors. In P. Zinterhof, M. Vajtersic, and A. Uhl, editors, *Parallel Computation. Proceedings of ACPC'99*, volume 1557 of *Lecture Notes on Computer Science*, pages 107–116. Springer-Verlag, 1999.

[96] Laura Martinez Esmeral and Andreas Uhl. Class activation maps for the disentanglement and occlusion of identity attributes in medical imagery. In *IEEE2022 IEEE-EMBS International Conference on Biomedical and Health Informatics (BHI'22)*, 2022.

[97] Laura Martinez Esmeral and Andreas Uhl. Low-effort re-identification techniques based onmedical imagery threaten patient privacy. In *Proceedings of MIUA 2022: Medical Image Understanding and Analysis*, number 13413 in Springer LNCS, page 719733, 2022.

[98] Laura Martinez Esmeral and Andreas Uhl. Patient identification methods based on medical imagery and their impact on patient privacy and open medical data. In *2022 IEEE 35th International Symposium on Computer-Based Medical Systems (CBMS)*, 2022.

[99] Peter Färberböck, Jutta Hämmerle-Uhl, Dominik Kaaser, Elias Pschernig, and Andreas Uhl. Transforming rectangular and polar iris images to enable cancelable biometrics. In *Proceedings of the International Conference on Image Analysis and Recognition (ICIAR'10)*, volume 6112 of *Springer LNCS*, pages 276–386, Povoa de Varzim, Portugal, 2010.

[100] M. Feil, R. Kutil, P. Meerwald, and A. Uhl. Wavelet image and video coding on parallel architectures (invited paper). In S. Loncaric and H. Babic, editors, *Proceedings of the 2nd IEEE Region 8 - EURASIP Symposium on Image and Signal Processing and Analysis, ISPA '01*, pages 24–35, Pula, Croatia, June 2001.

[101] M. Feil, R. Kutil, R. Norcen, and A. Uhl. ParWave: Parallel wavelet video coding. In E. Krause and W. Jäger, editors, *High Performance Computing in Science and Engineering 2001*, pages 512–526, Stuttgart, Germany, 2002. Springer-Verlag.

[102] M. Feil, R. Kutil, and A. Uhl. Parallel wavelet transforms on multiprocessors. In P. Amestoy et al., editors, *Parallel Processing. Proceedings of EuroPar'99*, volume 1685 of *Lecture Notes on Computer Science*, pages 1013–1017. Springer-Verlag, 1999.

[103] M. Feil and A. Uhl. Wavelet packet decomposition and best basis selection on massively parallel SIMD arrays. In *Proceedings of the International Conference "Wavelets and Multiscale Methods" (IWC'98), Tangier, 1998*. INRIA, Rocquencourt, April 1998. 4 pages.

[104] M. Feil and A. Uhl. Algorithms and programming paradigms for 2-D wavelet packet decomposition on multicomputers and multiprocessors. In P. Zinterhof, M. Vajtersic, and A. Uhl, editors, *Parallel Computation. Proceedings of ACPC'99*, volume 1557 of *Lecture Notes on Computer Science*, pages 367–376. Springer-Verlag, 1999.

[105] M. Feil and A. Uhl. Real-time image analysis using wavelets: the "à trous" algorithm on MIMD architectures. In D. Sinha, editor, *Real-Time Imaging IV*, volume 3645 of *SPIE Proceedings*, pages 56–65, 1999.

[106] M. Feil and A. Uhl. Real-time image analysis using wavelets: the "à trous" algorithm on MIMD architectures. *IS&T/SPIE's Electronic Imaging International Technical Group Newsletter*, 9(2):4–5, 1999.

[107] M. Feil and A. Uhl. 2-D Wavelet Packet decomposition on multicomputers. In *Proceedings of the 8th Euromicro Workshop on Parallel and Distributed Processing*, pages 351–356. IEEE Computer Society, 2000.

[108] M. Feil and A. Uhl. Multicomputer algorithms for wavelet packet image decomposition. In *Proceedings of the International Parallel and Distributed Processing Symposium (IPDPS'2000)*, pages 793–798, Cancun, Mexico, 2000. IEEE Computer Society.

[109] M. Feil and A. Uhl. Real-time image analysis using MIMD parallel "à trous" wavelet algorithms. *Real-time Imaging*, 7(6):483–493, 2001.

[110] M. Feil and A. Uhl. Wavelet packet based video coding in parallel and distributed environments. In S. Panchanathan, V. Bove, and S.I. Sudharsanan, editors, *Media Processors 2001*, volume 4313 of *SPIE Proceedings*, pages 52–60, January 2001.

[111] M. Feil and A. Uhl. Efficient wavelet-based video coding. In *Proceedings of the 16th International Parallel and Distributed Processing Symposium IPDPS'02 (Abstracts and CD-ROM), PDIVM 2002*, page 128. IEEE Computer Society Press, 2002.

[112] M. Feil and A. Uhl. ParWave: Granularity in parallel wavelet packet video coding. In E. Krause and W. Jäger, editors, *High Performance Computing in Science and Engineering 2002*, pages 479–490, Stuttgart, Germany, 2002. Springer-Verlag.

[113] M. Feil and A. Uhl. Wavelet packet image decomposition on MIMD architectures. *Real-time Imaging*, 8:399–412, 2002.

[114] M. Feil and A. Uhl. Wavelet packet zerotree image coding on multicomputers. In *Proceedings of the 10th Euromicro Workshop on Parallel and Distributed Processing*, pages 353–359. IEEE Computer Society, 2002.

[115] M. Feil and A. Uhl. Motion-compensated wavelet packet zerotree video coding on multicomputers. *Journal of Systems Architecture*, 49:75–87, 2003.

[116] M. Feil, A. Uhl, and M. Vajtersic. Continous wavelet transform on massively parallel arrays. In E.H. D'Hollander, G.R. Joubert, F.J. Peters, U. Trottenberg, and R. Völpel, editors, *Parallel Computing: Fundamentals, Applications and New Directions*, number 12 in Advances in Parallel Computing, pages 207–210. North Holland, 1998.

[117] M. Feil, A. Uhl, and M. Vajtersic. Computation of the continuous wavelet transform on massively parallel SIMD arrays. *Parallel Processing Letters*, 9(4):453–466, 1999.

[118] Mark M. Fisch, Herbert Stögner, and Andreas Uhl. Layered encryption techniques for DCT-coded visual data. In *Proceedings (CD-ROM) of the European Signal Processing Conference, EUSIPCO '04*, Vienna, Austria, September 2004. paper cr1361.

[119] Harald Flatscher and Andreas Uhl. oSPIHT - embedded object-based SPIHT image coding. In S. Loncaric and H. Babic, editors, *Proceedings of the 2nd IEEE Region 8 - EURASIP Symposium on Image and Signal Processing and Analysis, ISPA '01*, pages 593–598, Pula, Croatia, June 2001.

[120] Bubi G. Flepp-Stars, Herbert Stögner, and Andreas Uhl. Confidential transmission of lossless visual data: Experimental modelling and optimization. In A. Lioy and D. Mazzocchi, editors, *Communications and Multimedia Security. Proceedings of the IFIP TC6/TC11 Sixth Joint Working Conference on Communications and Multimedia Security, CMS '03*, volume 2828 of *Lecture Notes on Computer Science*, pages 252 – 263, Turin, Italy, October 2003. Springer-Verlag.

[121] Th. Freina and A. Uhl. Predictive fractal image coding: hybrid algorithms and compression of residuals. In *Proceedings Data Compression Conference (DCC'98)*, page 549. IEEE Computer Society Press, March 1998. poster.

[122] Th. Freina and A. Uhl. Hybrid image coding using fractal prediction. In *Proceedings of the International Picture Coding Symposium (PCS'99)*, pages 133–136, Portland, Oregon USA, April 1999.

[123] T. Fuhrmann, J. Pletzer, and A. Uhl. Computer assisted morphometric analysis of TEM images. In W. Sandham, D. Hamilton, and C. James, editors, *Proceedings of the International Conference on Advances in Medical Signal and Image Processing (MEDSIP'06)*, Glasgow, Scotland, UK, July 2006. paper no. 0039.

[124] Thomas Fuhrmann, Jutta Hämmerle-Uhl, and Andreas Uhl. Usefulness of retina codes in biometrics. In *Advances in Image and Video Technology: Proceedings of the 3rd Pacific-Rim Symposium on Image and Video Technology, PSIVT '09*, volume 5414 of *Lecture Notes in Computer Science*, pages 624–632, Tokyo, Japan, January 2009. Springer.

[125] M. Gadermayr, S. Hegenbart, R. Kwitt, and A. Uhl. Narrow band imaging versus white-light: What is best for computer-assisted diagnosis of celiac disease? In *Proc. of the 13th IEEE International Symposium on Biomedical Imaging (ISBI'16)*, pages 355–359, Prague, Czech Republic, April 2016.

[126] M. Gadermayr, G. Wimmer, H. Kogler, A. Vcsei, D. Merhof, and A. Uhl. Automated classification of celiac disease during upper endoscopy: Status quo and quo vadis. *Computers in Biology and Medicine*, 102:222 – 226, 2018.

[127] Michael Gadermayr, Sebastian Hegenbart, and Andreas Uhl. Scale-adaptive texture classification. In *Proceedings of 22nd IEEE International Conference on Pattern Recognition (ICPR'14)*, August 2014.

[128] Michael Gadermayr, Hubert Kogler, Maximilian Karla, Dorit Merhof, Andreas Uhl, and Andreas Vecsei. Computer-aided texture analysis combined with experts' knowledge: Improving endoscopic celiac disease diagnosis. *World Journal of Gastroenterology*, 22(31):7124–7134, 2016.

[129] Michael Gadermayr, Hubert Kogler, Maximilian Karla, Andreas Vecsei, Andreas Uhl, and Dorit Merhof. Incorporating human knowledge in automated celiac disease diagnosis. In *Proceedings of the sixth International Conference on Image Processing Theory, Tools and Applications (IPTA'16)*, page 6 pages, 2016.

[130] Michael Gadermayr, Hubert Kogler, Andreas Uhl, and Andreas Vécsei. Comparing endoscopic imaging configurations in computer-aided celiac disease diagnosis. In *Proceedings of the 5th IEEE International Conference on Image Processing Theory, Tools and Applications 2015 (IPTA'15)*, pages 446–451, November 2015.

[131] Michael Gadermayr, Michael Liedlgruber, Andreas Uhl, and Andreas Vécsei. Evaluation of different distortion correction methods and interpolation techniques for an automated classification of celiac disease. *Computer Methods and Programs in Biomedicine*, 112(3):694–712, December 2013.

[132] Michael Gadermayr, Michael Liedlgruber, Andreas Uhl, and Andreas Vécsei. Problems in distortion corrected texture classification and the impact of scale and interpolation. In *Proceedings of the 9th International Conference on Image Analysis and Processing (ICIAP'13)*, volume 8156 of *Springer LNCS*, pages 513–522, September 2013.

[133] Michael Gadermayr, Michael Liedlgruber, Andreas Uhl, and Andreas Vécsei. Shape curvature histogram: A shape feature for celiac disease diagnosis. In *Medical Computer Vision. Large Data in Medical Imaging (Proceedings of the 3rd International MICCAI - MCV Workshop 2013)*, volume 8331 of *Springer LNCS*, pages 175–184, 2014.

[134] Michael Gadermayr, Andreas Maier, and Andreas Uhl. Algorithms for microindentation measurement in automated Vickers hardness testing. In J.-C. Pinoli, J. Debayle, Y. Gavet, F. Cruy, and C. Lambert, editors, *Tenth International Conference on Quality Control for Artificial Vision (QCAV'11)*, number 8000 in Proceedings of SPIE, pages 80000M–1 – 80000M–10, St. Etienne, France, June 2011. SPIE.

[135] Michael Gadermayr, Andreas Maier, and Andreas Uhl. The impact of unfocused Vickers indentation images on the segmentation performance. In George et al Bebis, editor, *Proceedings of the 8th International Symposium on Visual Computing (ISVC'12)*, volume 7432 of *Springer LNCS*, pages 368–378, Rethymno, Greece, July 2012.

[136] Michael Gadermayr, Andreas Maier, and Andreas Uhl. Robust algorithm for automated microindentation measurement in Vickers hardness testing. *Journal of Electronic Imaging*, 21:021109, 2012.

[137] Michael Gadermayr, Andreas Maier, and Andreas Uhl. Active contours methods with respect to vickers indentations. *Machine Vision and Applications*, 24(6):1183–1196, 2013.

[138] Michael Gadermayr, Dorit Merhof, Andreas Vecsei, and Andreas Uhl. Degradation adaptive texture classification for real-world application scenarios. *Pattern Recognition and Image Analysis*, 27(1):66–81, 2017.

[139] Michael Gadermayr and Andreas Uhl. Dual-resolution active contours segmentation of Vickers indentation images with shape prior initialisation. In A. Elmoataz, D. Mammass, O. Lezoray, F. Nouboud, and D. Aboutajdine, editors, *Proceedings of the 5th International Conference on Image and Signal Processing (ICISP'12)*, volume 7340 of *Springer LNCS*, pages 362–369, Agadir, Morocco, June 2012.

[140] Michael Gadermayr and Andreas Uhl. Image segmentation of Vickers indentations using shape from focus. In Aurlio J. C. Campilho and Mohamed S. Kamel, editors, *Proceedings of the International Conference on Image Analysis and Recognition (ICIAR'12)*, volume 7324 of *Springer LNCS*, pages 149–157, Aveiro, Portugal, June 2012.

[141] Michael Gadermayr and Andreas Uhl. Degradation adaptive texture classification. In *Proceedings of the IEEE International Conference on Image Processing 2014 (ICIP'14)*, October 2014.

[142] Michael Gadermayr and Andreas Uhl. How to exploit large image data in the fields of texture classification. In *Proceedings of the IEEE International Conference on Image Processing (ICIP'15)*, 2015. accepted.

[143] Michael Gadermayr and Andreas Uhl. Making texture descriptors invariant to blur. *EURASIP Journal on Image and Video Processing*, 2016:4, 2016.

[144] Michael Gadermayr, Andreas Uhl, and Andreas Vécsei. Barrel-type distortion compensated fourier feature extraction. In *Proceedings of the 9th International Symposium on Visual Computing (ISVC'13)*, volume 8033 of *Springer LNCS*, pages 50–59, July 2013.

[145] Michael Gadermayr, Andreas Uhl, and Andreas Vécsei. Distortion adaptive image classification - an alternative to barrel-type distortion correction. In *Proceedings of the 9th International Symposium on Visual Computing (ISVC'13)*, volume 8034 of *Springer LNCS*, pages 465–474, July 2013.

[146] Michael Gadermayr, Andreas Uhl, and Andreas Vécsei. Degradation adaptive texture classification: A case study in celiac disease diagnosis brings new insight. In *Proceedings of the International Conference on Image Analysis and Recognition (ICIAR'14)*, volume 8815 of *Springer LNCS*, pages 263–273, 2014.

[147] Michael Gadermayr, Andreas Uhl, and Andreas Vécsei. The effect of endoscopic lens distortion correction on physicians' diagnosis performance. In *Proceedings of Bildverarbeitung für die Medizin 2014 (BVM'14)*, Springer Informatik aktuell, pages 174–179, Aachen, Germany, March 2014.

[148] Michael Gadermayr, Andreas Uhl, and Andreas Vécsei. Feature extraction with intrinsic distortion correction in celiac disease imagery: No need for rasterization (runner-up for best paper award). In *Medical Computer Vision. Large Data in Medical Imaging*

(Proceedings of the 3rd International MICCAI - MCV Workshop 2013), volume 8331 of *Springer LNCS*, pages 196–204, 2014.

[149] Michael Gadermayr, Andreas Uhl, and Andreas Vécsei. Getting one step closer to fully automatized celiac disease diagnosis. In *Proceedings of the 4th IEEE International Conference on Image Processing Theory, Tools and Applications 2014 (IPTA'14)*, pages 13–17, October 2014.

[150] Michael Gadermayr, Andreas Uhl, and Andreas Vécsei. Is a precise distortion estimation needed for computer aided celiac disease diagnosis? In *Proceedings of the 8th International Conference on Image and Signal Processing (ICISP'14)*, volume 8509 of *Springer LNCS*, pages 620–628, July 2014.

[151] Michael Gadermayr, Andreas Uhl, and Andreas Vécsei. Quality based information fusion in fully automatized celiac disease diagnosis. In *Proceedings of the German Conference on Pattern Recognition (GCPR'14)*, volume 8753 of *Springer LNCS*, pages 1–12, 2014.

[152] Michael Gadermayr, Andreas Uhl, and Andreas Vécsei. Boosting small-data performance of lbp: A case study in celiac disease diagnosis. In *Proceedings of the 19th Scandinavian Conference on Image Analysis (SCIA'15)*, volume 9127 of *Springer LNCS*, pages 224–233, 2015.

[153] Michael Gadermayr, Andreas Uhl, and Andreas Vécsei. Dealing with intra-class and intra-image variations in automatic celiac disease diagnosis. In *Proceedings of Bildverarbeitung für die Medizin 2015 (BVM'15)*, pages 461–466, March 2015.

[154] Michael Gadermayr, Andreas Uhl, and Andreas Vécsei. Fully automated decision support systems for celiac disease diagnosis. *Innovation and Research in BioMedical Engineering (IRBM, Special Issue on Medical Image Analysis for Computer Aided Diagnosis)*, 37(1):31–39, 2016.

[155] Chiara Galdi, Jonathan Boyle, Lulu Chen, Valeria Chiesa, Luca Debiasi, Jean-Luc Dugelay, James Ferryman, Artur Grudzie, Christof Kauba, Simon Kirchgasser, Marcin Kowalski, Michael Linortner, Patryk Maik, Kacper Micho, Luis Patino, Bernhard Prommegger, Ana F. Sequeira, ukasz Szklarski, and Andreas Uhl. Protect: Pervasive and user focused biometrics border project a case study. *IET Biometrics*, 9(6):297–308, 2020.

[156] M. Gschwandtner, R. Kwitt, W. Pree, and A. Uhl. Blensor: blender sensor simulation toolbox. In *Proceedings of the 7th international conference on Advances in visual computing - Volume Part II*, volume 6939 of *ISVC'11*, pages 199–208, Berlin, Heidelberg, 2011. Springer-Verlag.

[157] M. Gschwandtner, R. Kwitt, W. Pree, and A. Uhl. Infrared camera calibration for dense depth map construction. In *Proceedings of the IEEE Intelligent Vehicles Symposium (IV '11)*, pages 857–862, Baden-Baden, Germany, June 2011.

[158] M. Gschwandtner, M. Liedlgruber, A. Uhl, and A. Vécsei. Experimental study on the impact of endoscope distortion correction on computer-assisted celiac disease diagnosis. In *Proceedings of the 10th International Conference on Information Technology and Applications in Biomedicine (ITAB'10)*, Corfu, Greece, November 2010.

[159] M. Gschwandtner, W. Pree, and A. Uhl. Track detection for autonomous trains. In *Advances in Visual Computing: 6th International Symposium, (ISVC 2010)*, pages 19–28, Las Vegas, Nevada, USA, November 2010.

[160] Michael Gschwandtner, Jutta Hämmerle-Uhl, Yvonne Höller, Michael Liedlgruber, Andreas Uhl, and Andreas Vécsei. Improved endoscope distortion correction does not necessarily enhance mucosa-classification based medical decision support systems. In *Proceedings of the IEEE International Workshop on Multimedia Signal Processing (MMSP'12)*, pages 158–163, September 2012.

[161] Michael Gschwandtner, Yvonne Höller, Michael Liedlgruber, Eugen Trinka, and Andreas Uhl. Assessing out-of-the-box software for automated hippocampus segmentation. In *Proceedings of Bildverarbeitung für die Medizin 2016 (BVM'16)*, Springer Informatik Aktuell, pages 212–217, March 2016.

[162] Michael Gschwandtner and Andreas Uhl. Toward DRM for 3D geometry data. In Edward J. Delp III, Ping Wah Wong, Jana Dittmann, and Nasir D. Memon, editors, *Proceedings of SPIE, Security, Forensics, Steganography, and Watermarking of Multimedia Contents X*, volume 6819, page 68190V ff., San Jose, CA, USA, January 2008. SPIE.

[163] Michael Gschwandtner and Andreas Uhl. Protected progressive meshes. In *Advances in Visual Computing*, volume 5876 of *Lecture Notes in Computer Science*, pages 35–48. Springer, 2009.

[164] Michael Gschwandtner, Andreas Uhl, and Andreas Unterweger. Speeding Up Object Detection – Fast Resizing in the Integral Image Domain. In *VISAPP 2014 – Proceedings of the 9th International Conference on Computer Vision Theory and Applications*, volume 1, pages 64–72, Lisbon, Portugal, January 2014. SciTePress.

[165] Michael Gschwandtner, Andreas Uhl, and Peter Wild. Compression of encrypted visual data. In H. Leitold and E. Markatos, editors, *Communications and Multimedia Security, Proceedings of the 10th IFIP International CMS 2006 Conference*, volume 4237 of *Lecture Notes on Computer Science*, pages 141–150. Springer Verlag, October 2006.

[166] Michael Gschwandtner, Andreas Uhl, and Peter Wild. Transmission error and compression robustness of 2D Chaotic Map image encryption schemes. *EURASIP Journal on Information Security*, 2007(Article ID 48179):doi:10.1155/2007/48179, 16 pages, 2007.

[167] Veronika Haaf, Martin Neukamp, Jutta Hämmerle-Uhl, and Andreas Uhl. Real-world non-nir illumination and wavelength-specific acquisition variants in iris recognition (best paper award). In *Proceedings of the International Conference on Vision, Image and Signal Processing (ICVISP 2017)*, Osaka, Japan, 2017.

[168] A. Häfner, A. Uhl, and G. Wimmer. A novel shape feature descriptor for the classification of polyps in HD colonoscopy. In *Medical Computer Vision. Large Data in Medical Imaging (Proceedings of the 3rd International MICCAI - MCV Workshop 2013)*, volume 8331 of *Springer LNCS*, pages 205–213, 2014.

[169] M. Häfner, L. Brunauer, H. Payer, R. Resch, A. Gangl, A. Uhl, A. Vécsei, and F. Wrba. Computer-aided classification of zoom-endoscopical images using fourier filters. *IEEE Transactions on Information Technology in Biomedicine*, 14(4):958–970, 2010.

[170] M. Häfner, L. Brunauer, H. Payer, R. Resch, F. Wrba, A. Gangl, A. Vécsei, and A. Uhl. Pit pattern classification of zoom-endoscopic colon images using DCT and FFT. In P. Kokol, V. Podgorelec, D. Micetic-Turk, M. Zorman, and M. Verlic, editors, *Proceedings of the IEEE International Symposium on Computer-Based Medical Systems (CBMS'07)*, pages 159–164, Maribor, Slovenia, June 2007. IEEE Computer Society CPS.

[171] M. Häfner, L. Brunauer, H. Payer, R. Resch, F. Wrba, A. Gangl, A. Vécsei, and A. Uhl. Pit pattern classification of zoom-endoscopical colon images using evolved Fourier feature vectors. In K. Diamantaras, T. Adali, I. Pitas, J. Larsen, T. Papadimitriou, and S. Douglas, editors, *Proceedings of the 2007 IEEE Machine Learning for Signal Processing Workshop (MLSP'07)*, pages 99–104, Thessaloniki, Greece, August 2007. IEEE.

[172] M. Häfner, A. Gangl, R. Kwitt, A. Uhl, A. Vécsei, and F. Wrba. Improving pit-pattern classification of endoscopy images by a combination of experts. In *Proceedings of the International Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI '09)*, pages 247–254, London, UK, 2009.

[173] M. Häfner, A. Gangl, M. Liedlgruber, A. Uhl, A. Vécsei, and F. Wrba. Combining Gaussian Markov random fields with the discrete wavelet transform for endoscopic image classification. In *Proceedings of the 17th International Conference on Digital Signal Processing (DSP'09)*, pages 177–182, Santorini, Greece, 2009.

[174] M. Häfner, A. Gangl, M. Liedlgruber, A. Uhl, A. Vécsei, and F. Wrba. Pit pattern classification using extended local binary patterns. In *Proceedings of the 9th International Conference on Information Technology and Applications in Biomedicine (ITAB'09)*, Larnaca, Cyprus, November 2009.

[175] M. Häfner, A. Gangl, M. Liedlgruber, A. Uhl, A. Vécsei, and F. Wrba. Pit pattern classification using multichannel features and multiclassification. In D.I. Fotiadis T.P. Exarchos, A. Papadopoulos, editor, *Handbook of Research on Advanced Techniques in Diagnostic Imaging and Biomedical Applications*, pages 335–350. IGI Global, Hershey, PA, USA, 2009.

[176] M. Häfner, A. Gangl, M. Liedlgruber, A. Uhl, A. Vécsei, and F. Wrba. Classification of endoscopic images using Delaunay triangulation-based edge features. In *Proceedings of the International Conference on Image Analysis and Recognition (ICIAR'10)*, volume 6112 of *Springer LNCS*, pages 131–140, Povoa de Varzim, Portugal, June 2010.

[177] M. Häfner, A. Gangl, M. Liedlgruber, A. Uhl, A. Vécsei, and F. Wrba. Endoscopic image classification using edge-based features. In *Proceedings of the 20th International Conference on Pattern Recognition (ICPR'10)*, pages 2724–2727, Istanbul, Turkey, August 2010.

[178] M. Häfner, S. Hegenbart, M. Liedlgruber, A. Uhl, A. Vécsei, and F. Wrba. Optimized selection of weak methods for the classification of endoscopic images using an ensemble classifier. In *Proceedings of the 7th International Symposium on Image and Signal Processing and Analysis (ISPA'11)*, pages 721–726, Dubrovnik, Croatia, September 2011.

[179] M. Häfner, C. Kastinger, H.P. Schmidt, K. Thonhauser, F. Wrba, A. Gangl, A. Vécsei, and A. Uhl. Comparison of k-NN, SVM, and NN in pit pattern classification of zoom-endoscopic colon images using co-occurrence histograms. In M. Petrou, T. Saramäki, A. Ercil, and S. Loncaric, editors, *Proceedings of the 5th International Symposium on Image and Signal Processing and Analysis (ISPA'07)*, pages 516–521, 2007.

[180] M. Häfner, C. Kendlbacher, W. Mann, W. Taferl, F. Wrba, A. Gangl, A. Vécsei, and A. Uhl. Pit pattern classification of zoom-endoscopic colon images using histogram techniques. In Johannes R. Sveinsson, editor, *Proceedings of the 7th Nordic Signal Processing Symposium (NORSIG 2006)*, pages 58–61, Reykjavik, Iceland, June 2006.

[181] M. Häfner, R. Kwitt, A. Uhl, A. Gangl, F. Wrba, and A. Vécsei. Computer-assisted pit-pattern classification in different wavelet domains for supporting dignity assessment of colonic polyps. *Pattern Recognition*, 42(6):1180–1191, September 2008.

[182] M. Häfner, R. Kwitt, A. Uhl, A. Gangl, F. Wrba, and A. Vécsei. Feature-extraction from multi-directional multi-resolution image transformations for the classification of zoom-endoscopy images. *Pattern Analysis and Applications*, 12(4):407–413, December 2009.

[183] M. Häfner, R. Kwitt, F. Wrba, A. Gangl, A. Vécsei, and A. Uhl. One-against-one classification for zoom-endoscopy images. In *Proceedings of the 4th International Conference on Advances in Medical, Signal and Information Processing (MEDSIP '08)*, pages 1–4, Santa Margherita Ligure, Italy, 2008.

[184] M. Häfner, M. Liedlgruber, S. Maimone, A. Uhl, A. Vécsei, and F. Wrba. Evaluation of cross-validation protocols for the classification of endoscopic images of colonic polyps. In *Proceedings of the 25th IEEE International Symposium on Computer-Based Medical Systems (CBMS'12)*, June 2012.

[185] M. Häfner, M. Liedlgruber, and A. Uhl. Pocs-based super-resolution for hd endoscopy video frames. In *Proceedings of the 26th IEEE International Symposium on Computer-Based Medical Systems (CBMS'13)*, pages 185–190, June 2013.

[186] M. Häfner, M. Liedlgruber, and A. Uhl. Comparison of super-resolution methods for hd-video endoscopy. In *Proceedings of Bildverarbeitung für die Medizin 2014 (BVM'14)*, Springer Informatik aktuell, pages 78–83, Aachen, Germany, March 2014.

[187] M. Häfner, M. Liedlgruber, A. Uhl, A. Vécsei, and F. Wrba. Color treatment in endoscopic image classification using multi-scale local color vector patterns. *Medical Image Analysis*, 16(1):75–86, January 2012.

[188] M. Häfner, M. Liedlgruber, A. Uhl, A. Vécsei, and F. Wrba. Delaunay triangulation-based pit density estimation for the classification of polyps in high-magnification chromo-colonoscopy. *Computer Methods and Programs in Biomedicine*, 107(3):565–581, 2012.

[189] M. Häfner, M. Liedlgruber, A. Uhl, and G. Wimmer. Bridging the resolution gap between endoscope types for a colonic polyp classification. In *Proceedings of the 22nd International Conference on Pattern Recognition (ICPR'14)*, pages 2739 – 2744, 2014.

[190] M. Häfner, M. Liedlgruber, F. Wrba, A. Gangl, A. Vécsei, and A. Uhl. Pit pattern classification of zoom-endoscopic colon images using wavelet texture features. In W. Sandham, D. Hamilton, and C. James, editors, *Proceedings of the International Conference on Advances in Medical Signal and Image Processing (MEDSIP'06)*, Glasgow, Scotland, UK, July 2006. paper no. 0038.

[191] Michael Häfner, Michael Liedlgruber, and Andreas Uhl. Colonic polyp classification in high- definition video using complex wavelet-packets. In *Proceedings of Bildverarbeitung für die Medizin 2015 (BVM'15)*, pages 365–370, March 2015.

[192] Michael Häfner, Michael Liedlgruber, Andreas Uhl, and Georg Wimmer. Evaluation of super-resolution methods in the context of colonic polyp classification. In *Proceedings of the 12th International Workshop on Content-Based Multimedia Indexing (CBMI'14)*, pages 1–6, 2014.

[193] Michael Häfner, Toru Tamaki, Shinji Tanaka, Andreas Uhl, Georg Wimmer, and Shigeto Yoshida. Local fractal dimension based approaches for colonic polyp classification. *Medical Image Analysis*, 26:92–107, 2015.

[194] Michael Häfner, Andreas Uhl, and Georg Wimmer. Shape and size adapted local fractal dimension for the classification of polyps in hd colonoscopy. In *Proceedings of the IEEE International Conference on Image Processing 2014 (ICIP'14)*, October 2014.

[195] J. Hämmerle and A. Uhl. Parallel algorithms for fractal image coding on MIMD architectures. In *Proceedings of The First International Conference on Visual Information Systems 1996 (Visual'96)*, pages 182–191, Melbourne, February 1996.

[196] J. Hämmerle and A. Uhl. Approaching real-time processing for fractal compression. In J. Biemond and E.J. Delp, editors, *Visual Communications and Image Processing '97*, volume 3024 of *SPIE Proceedings*, pages 514–525, San Jose, February 1997.

[197] J. Hämmerle and A. Uhl. Fractal image compression on multiprocessors and multicomputers. In R. Wyrzykowski, H. Piech, and J. Szopa, editors, *Proc. of the International Conference on Parallel Processing and Applied Mathematics (PPAM'97)*, pages 433–441, Zakopane, Poland, September 1997.

[198] J. Hämmerle and A. Uhl. Fractal compression of satellite images: Combining parallel processing and geometric searching. In E.H. D'Hollander, G.R. Joubert, F.J. Peters, U. Trottenberg, and R. Völpel, editors, *Parallel Computing: Fundamentals, Applications and New Directions*, number 12 in Advances in Parallel Computing, pages 121–128. North Holland, 1998.

[199] J. Hämmerle and A. Uhl. Improving the efficiency of parallel fractal compression using localized domain-pools. In S. Panchanathan, F. Sijstermans, and S.I. Sudharsanan, editors, *Multimedia Hardware Architectures 1998*, volume 3311 of *SPIE Proceedings*, pages 90–98, 1998.

[200] J. Hämmerle and A. Uhl. Classification based speed-up methods for fractal image compression on multicomputers. In P. Zinterhof, M. Vajtersic, and A. Uhl, editors, *Parallel Computation. Proceedings of ACPC'99*, volume 1557 of *Lecture Notes on Computer Science*, pages 276–285. Springer-Verlag, 1999.

[201] J. Hämmerle and A. Uhl. Fractal image compression on MIMD architectures II: Classification based speed-up methods. *Journal of Computing and Information Technology (Special Issue on Parallel Numerics and Parallel Computing in Image Processing, Video Processing, and Multimedia)*, 8(1):71–82, 2000.

[202] J. Hämmerle-Uhl, S. Jenisch, and A. Uhl. Format Compliant RoI Encryption of JPEG XR Bitstreams Based on Tiling. In *Proceedings of the 21st European Signal Processing Conference, EUSIPCO '13*, Marrakech, Morocco, September 2013.

[203] J. Hämmerle-Uhl, M. Karnutsch, and A. Uhl. Evolutionary optimisation of JPEG2000 Part 2 wavelet packet structures for polar iris image compression. In *Proceedings of*

the 18th Iberoamerican Congress on Pattern Recognition (CIARP'13), volume 8258 of *Springer LNCS*, pages 391–398, Havana, Cuba, 2013.

[204] J. Hämmerle-Uhl, G. Penn, G. Pötzelsberger, and A. Uhl. Size-reduction strategies for iris codes. *International Jounal of Computer, Control, Quantum and Information Engineering (Proceedings of International Conference on Image Processing, Analysis and Computer Vision ICIPAVC'15)*, 9(1):290–293, 2015.

[205] J. Hämmerle-Uhl, M. Pober, and A. Uhl. Towards standardised fingerprint matching robustness assessment: The stirmark toolkit – cross-database comparisons with minutiae-based matching. In *Proceedings of the 1st ACM Workshop on Information Hiding and Multimedia Security (IH&MMSec'13)*, pages 111–116, Montpellier, France, June 2013.

[206] J. Hämmerle-Uhl, M. Pober, and A. Uhl. Towards standardised fingerprint matching robustness assessment: The stirmark toolkit – cross-feature type cmparisons. In *Proceedings of the 14th IFIP International Conference on Communications and Multimedia Security (CMS'13)*, volume 8099 of *Springer Lecture Notes on Computer Science*, pages 3–17, Magdeburg, Germany, September 2013.

[207] J. Hämmerle-Uhl, M. Pober, and A. Uhl. General purpose bivariate quality-metrics for fingerprint-image assessment revisited. In *Proceedings of the IEEE International Conference on Image Processing (ICIP'14)*, Paris, France, October 2014.

[208] J. Hämmerle-Uhl, M. Pober, and A. Uhl. Systematic evaluation methodology for fingerprint-image quality assessment techniques. In *Proceedings of the MIPRO'14 Special Session on Biometrics, Forensics, De-identification and privacy protection (BiForD'14)*, pages 99–104, Opatija, Croatia, May 2014.

[209] J. Hämmerle-Uhl, C. Prähauser, T. Starzacher, and A. Uhl. Improving compressed iris recognition accuracy using JPEG2000 RoI coding. In M. Tistarelli and M.S. Nixon, editors, *Proceedings of the 3rd International Conference on Biometrics 2009 (ICB'09)*, volume 5558 of *LNCS*, pages 1102–1111. Springer Verlag, 2009.

[210] J. Hämmerle-Uhl, E. Pschernig, and A. Uhl. Cancelable iris biometrics using block remapping and image warping. In P. Samarati, M. Yung, F. Martinelli, and C.A. Ardagna, editors, *Proceedings of the 12th International Information Security Conference (ISC'09)*, volume 5735 of *LNCS*, pages 135–142. Springer Verlag, 2009.

[211] J. Hämmerle-Uhl, E. Pschernig, and A. Uhl. Cancelable iris-templates using key-dependent wavelet transforms. In *Proceedings of the 6th IAPR International Conference on Biometrics (ICB'13)*, Madrid, Spain, June 2013.

[212] J. Hämmerle-Uhl, E. Pschernig, and A. Uhl. Non-invertible and revocable iris templates using key-dependent wavelet transforms. In *Proceedings of the 1st ACM Workshop on Information Hiding and Multimedia Security (IH&MMSec'13)*, pages 105–110, Montpellier, France, June 2013.

[213] J. Hämmerle-Uhl, K. Raab, and A. Uhl. Experimental study on the impact of robust watermarking on iris recognition accuracy (best paper award, applications track). In *Proceedings of the 25th ACM Symposium on Applied Computing*, pages 1479–1484, 2010.

[214] J. Hämmerle-Uhl, K. Raab, and A. Uhl. Attack against robust watermarking-based multimodal biometric recognition systems. In C. Vielhauer et al., editor, *Proceedings of the 2011 BioID Workshop*, volume 6583 of *Springer LNCS*, pages 25–36, Brandenburg, Germany, 2011.

[215] J. Hämmerle-Uhl, K. Raab, and A. Uhl. Robust watermarking in iris recognition: application scenarios and impact on recognition performance. *ACM SIGAPP Applied Computing Review*, 11(3):6–18, 2011.

[216] J. Hämmerle-Uhl, K. Raab, and A. Uhl. Watermarking as a means to enhance biometric systems: A critical survey. In T. Filler, T. Pevny, S. Craver, and A. Ker, editors, *Proceedings of the 2011 Information Hiding Conference (IH'11)*, volume 6958 of *Springer LNCS*, pages 238–254, Prague, Czech Republic, 2011.

[217] J. Hämmerle-Uhl, E. Tillian, and A. Uhl. Recognition impact of JPEG2000 Part 2 wavelet packet subband structures in IREX K3 iris image compression. *International*

Jounal of Information and Electronics Engineering (Proceedings of ICSIA'14), 5(1):51–54, 2015.

[218] Jutta Hämmerle-Uhl, Yvonne Höller, Andreas Uhl, and Andreas Vécsei. Endoscope distortion correction does not (easily) improve mocusa-based classification of celiac disease. In *Medical Image Computing and Computer-Assisted Intervention – MICCAI 2012*, volume 7512 of *Springer Lecture Notes in Computer Science*, pages 574–581, September 2012.

[219] Jutta Hämmerle-Uhl, Michael Karnutsch, and Andreas Uhl. Recognition impact of JPEG2000 part 2 wavelet packet subband structures in polar iris image compression. In B. Zovko-Cihlar, M. Rupp, and C.F. Mecklenbräuker, editors, *Proceedings of the 19th International Conference on Systems, Signals and Image Processing (IWSSIP'12)*, pages 13–16, 2012.

[220] Jutta Hämmerle-Uhl, Christian Koidl, and Andreas Uhl. Multiple blind re-watermarking with quantisation-based embedding. In *Proceedings of the IEEE International Conference on Image Processing, ICIP '11*, pages 269–272, Brussels, Belgium, September 2011.

[221] Jutta Hämmerle-Uhl, Gerold Laimer, and Andreas Uhl. Attack against a JPEG2000-based robust hash for content identification. In J.J. Villanueva, editor, *Proceedings of the 8th IASTED International Conference on Visualization, Imaging, and Image Processing, VIIP '08*, pages 156–160, Palma de Mallorca, Spain, September 2008.

[222] Jutta Hämmerle-Uhl, Michael Liedlgruber, Andreas Uhl, and Hartmut Wernisch. Multiple re-watermarking using varying wavelet packets. In *Proceedings of the 2008 IEEE Conference on Multimedia & Expo, ICME '08*, pages 213–216, Hannover, Germany, June 2008.

[223] Jutta Hämmerle-Uhl, Karl Raab, and Andreas Uhl. Watermarking scalability for copyright protection in wireless and mobile environments. In *Proceedings of the 8th International Wireless Communications and Mobile Computing Conference (IWCMC'12)*, pages 791–796, September 2012.

[224] Jutta Hämmerle-Uhl, Rudolf Schraml, and Andreas Uhl. Privacy enhancing technologies in video surveillance applied to JPEG2000 codestreams. In *Proceedings of the IEEE International Workshop on Multimedia Signal Processing (MMSP'12)*, pages 95–100, September 2012.

[225] Jutta Hämmerle-Uhl, Andreas Uhl, and Hartmut Wernisch. Multiple re-watermarking using varying non-stationary MRA with parametrized wavelet filters. In *Proceedings of the ACM Multimedia and Security Workshop, MMSEC '08*, pages 63–68, Oxford, UK, September 2008. ACM.

[226] S. Hegenbart, R. Kwitt, M. Liedlgruber, A. Uhl, and A. Vécsei. Impact of duodenal image capturing techniques and duodenal regions on the performance of automated diagnosis of celiac disease. In *Proceedings of the 6th International Symposium on Image and Signal Processing and Analysis (ISPA'09)*, pages 718–723, Salzburg, Austria, September 2009.

[227] S. Hegenbart and A. Uhl. An orientation-adaptive extension to scale-adaptive local binary patterns. In *Proceedings of the 22nd International Conference on Pattern Recognition (ICPR'14)*, pages 1120–1125, Aug 2014.

[228] S. Hegenbart and A. Uhl. A scale-adaptive extension to methods based on LBP using scale-normalized laplacian of gaussian extrema in scale-space. In *Proceedings of the International Conference on Acoustics, Speech, and Signal Processing (ICASSP'14)*, pages 4352–4356, 2014.

[229] S. Hegenbart, A. Uhl, and A. Vécsei. Impact of endoscopic image degradations on lbp based features using one-class svm for classification of celiac disease. In *Proceedings of the 7th International Symposium on Image and Signal Processing and Analysis (ISPA'11)*, pages 715–720, Dubrovnik, Croatia, September 2011.

[230] Sebastian Hegenbart, Roland Kwitt, and Andreas Uhl, editors. *Proceedings of the 39th Annual Workshop of the Austrian Association for Pattern Recognition (OAGM'15)*. ArXiv, 2015. arXiv:1505.01065.

[231] Sebastian Hegenbart, Stefan Maimone, Andreas Uhl, Andreas Vécsei, and Georg Wimmer. Customised frequency pre-filtering in a local binary pattern-based classification of gastrointestinal images. In *Medical Content-Based Retrieval for Clinical Decision Support*, volume 7723 of *Springer Lecture Notes in Computer Science*, pages 99–109, October 2012.

[232] Sebastian Hegenbart and Andreas Uhl. A scale- and orientation-adaptive extension of local binary patterns for texture classification. *Pattern Recognition*, 48(8):2633 – 2644, 2015.

[233] Sebastian Hegenbart, Andreas Uhl, and Andreas Vécsei. Impact of histogram subset selection on classification using multiscale LBP. In *Proceedings of Bildverarbeitung für die Medizin 2011 (BVM'11)*, Informatik aktuell, pages 359–363, Lübeck, Germany, March 2011.

[234] Sebastian Hegenbart, Andreas Uhl, and Andreas Vécsei. Systematic assessment of performance prediction techniques in medical image classification - a case study on celiac disease. In *Proceedings of the 22nd International Conference on Information Processing in Medical Imaging (IPMI'11)*, volume 6801 of *Springer LNCS*, pages 498–508, Monastery Irsee, Germany, July 2011.

[235] Sebastian Hegenbart, Andreas Uhl, and Andreas Vécsei. On the implicit handling of varying distances and gastrointestinal regions in endoscopic video sequences with indication for celiac disease. In *Proceedings of the IEEE International Symposium on Computer-Based Medical Systems (CBMS'12)*, pages 1–6, June 2012.

[236] Sebastian Hegenbart, Andreas Uhl, and Andreas Vécsei. Survey on computer aided decision support for diagnosis of celiac disease. *Computers in Biology and Medicine*, 65:348 – 358, 2015. http://dx.doi.org/10.1016/j.compbiomed.2015.02.007.

[237] Sebastian Hegenbart, Andreas Uhl, Andreas Vécsei, and Georg Wimmer. Scale invariant texture descriptors for classifying celiac disease. *Medical Image Analysis*, 17(4):458 – 474, 2013.

[238] Sebastian Hegenbart, Andreas Vécsei, Andreas Uhl, and Georg Wimmer. On the effects of de-interlacing on the classification accuracy of interlaced endoscopic videos with indication for celiac disease. In *Proceedings of the 26th IEEE International Symposium on Computer-Based Medical Systems (CBMS'13)*, June 2013.

[239] Hermann Hellwagner, Heinz Hofbauer, Robert Kuschnig, Thomas Stütz, and Andreas Uhl. Secure transport and adaptation of MC-EZBC video utilizing H.264-based transport protocols. *Elsevier Journal on Signal Processing: Image Communication*, 27(2):192–207, 2011.

[240] Hermann Hellwagner, Robert Kuschnig, Thomas Stütz, and Andreas Uhl. Efficient in-network adaptation of encrypted H.264/SVC content. *Elsevier Journal on Signal Processing: Image Communication*, 24(9):740 – 758, July 2009.

[241] Thomas Herzog and Andreas Uhl. JPEG optimisation for fingerprint recognition: Generalisation potential of an evolutionary approach. In *Proceedings of the International Conference of the Biometrics Special Interest Group (BIOSIG'15)*, page 8, Darmstadt, Germany, 2015.

[242] Thomas Herzog and Andreas Uhl. Analysing a vein liveness detection scheme. In *Proceedings of the 8th International Workshop on Biometrics and Forensics (IWBF'20)*, pages 1–6, Porto, Portugal, 2020.

[243] Christoph Hochwarter, Dietmar Jahnel, and Andreas Uhl. Public Perceptions, Preferences and Legal Aspects towards ATMs with Biometric Authentication in Austria. In *Proceedings of the International Conference of the Biometrics Special Interest Group (BIOSIG'19)*, pages 13–24, Darmstadt, Germany, 2019.

[244] H. Hofbauer, A. Uhl, and P. Zinterhof. Quasi Monte Carlo Integration in GRID Environments: Further Leaping Effects. *Parallel Processing Letters*, 16(3):285–311, 2006.

[245] H. Hofbauer, A. Uhl, and P. Zinterhof. Quasi-Monte Carlo Integration on GRIDS: Using blocked Substreams. In J. Volkert, T. Fahringer, D. Kranzlmüller, and W. Schreiner, editors, *Proceedings of the 1st Austrian Grid Symposium*, volume 210 of *books@ocg.at*, pages 219–233, Schloss Hagenberg, Austria, 2006. Austrian Computer Society.

[246] H. Hofbauer, A. Uhl, and P. Zinterhof. Parameterization of Zinterhof Sequences for GRID-based QMC Integration. In J. Volkert, T. Fahringer, D. Kranzlmüller, and W. Schreiner, editors, *Proceedings of the 2nd Austrian Grid Symposium*, volume 221 of *books@ocg.at*, pages 91–105, Innsbruck, Austria, 2007. Austrian Computer Society.

[247] H. Hofbauer, A. Uhl, and P. Zinterhof. *A Pragmatic View on Numerical Integration of Unbounded Functions*, pages 511–528. Springer-Verlag, 2008.

[248] H. Hofbauer, A. Uhl, and P. Zinterhof. Zinterhof sequences in GRID-based numerical integration. In Alexander Keller, Stefan Heinrich, and Harald Niederreiter, editors, *Monte Carlo and Quasi-Monte Carlo Methods 2006*, pages 495–510. Springer-Verlag, 2008.

[249] Heinz Hofbauer, Fernando Alonso-Fernandez, Josef Bigun, and Andreas Uhl. Experimental analysis regarding the influence of iris segmentation on the recognition rate. *IET Biometrics*, 5(3):200 – 211, 2016.

[250] Heinz Hofbauer, Fernando Alonso-Fernandez, Peter Wild, Josef Bigun, and Andreas Uhl. A ground truth for iris segmentation. In *Proceedings of the 22th International Conference on Pattern Recognition (ICPR'14)*, page 6pp., Stockholm, Sweden, 2014.

[251] Heinz Hofbauer, Florent Autrusseau, and Andreas Uhl. To see or not to see: Determining the recognition threshold of encrypted images. In *Proceedings of 7th European Workshop on Visual Information Processing (EUVIP'18)*, page 6, 2018.

[252] Heinz Hofbauer, Florent Autrusseau, and Andreas Uhl. To recognize or not to recognize — a database of encrypted images with subjective recognition ground truth. *Information Sciences*, (551):128–145, 2020.

[253] Heinz Hofbauer, Florent Autrusseau, and Andreas Uhl. Low quality and recognition of image content. *IEEE Transactions on Multimedia*, 24:16, 2021.

[254] Heinz Hofbauer, Luca Debiasi, Susanne Kränkl, and Andreas Uhl. Exploring presentation attack vulnerability and usability of face recognition systems. *IET Biometrics*, 10(2):219–232, 2021.

[255] Heinz Hofbauer, Luca Debiasi, and Andreas Uhl. Mobile face recognition systems: Exploring presentation attack vulnerability and usability. In *Proceedings of the 12th IAPR/IEEE International Conference on Biometrics (ICB'19)*, Crete, Greece, 2019.

[256] Heinz Hofbauer, Ehsaneddin Jalilian, Ana F. Sequeira, James Ferryman, and Andreas Uhl. Mobile nir iris recognition: Identifying problems and solutions. In *Proceedings of the IEEE 9th International Conference on Biometrics: Theory, Applications, and Systems (BTAS 2018)*, page 9, 2018.

[257] Heinz Hofbauer, Ehsaneddin Jalilian, and Andreas Uhl. Exploiting superior cnn-based iris segmentation for better recognition accuracy. *Pattern Recognition Letters*, 120:17 – 23, 2019.

[258] Heinz Hofbauer, Yoanna Martnez-Daz, Simon Kirchgasser, Heydi Mndez-Vzquez, and Andreas Uhl. Highly efficient protection of biometric face samples with selective jpeg2000 encryption. In *Proceedings of the IEEE International Conference on Acoustics, Speech and Signal Processing, ICASSP '21*, page 5, 2021.

[259] Heinz Hofbauer, Yoanna Martnez-Daz, Luis Santiago Luevano, Heydi Mndez-Vzquez, and Andreas Uhl. Utilizing cnns for cryptanalysis of selective biometric face sample encryption. In *Proceedings of the 26th International Conference on Pattern Recognition (ICPR)*, page 8, 2022.

[260] Heinz Hofbauer, Christian Rathgeb, Andreas Uhl, and Peter Wild. Image metric-based biometric comparators: A supplement to feature vector-based hamming distance? In *Proceedings of the International Conference of the Biometrics Special Interest Group (BIOSIG'12)*, pages 1 – 5, Darmstadt, Germany, September 2012.

[261] Heinz Hofbauer, Christian Rathgeb, Andreas Uhl, and Peter Wild. Iris recognition in image domain: Quality-metric based comparators. In *Proceedings of the 8th International Symposium on Visual Computing (ISVC'12)*, pages 1 – 10, Crete, Greece, July 2012.

[262] Heinz Hofbauer, Christian Rathgeb, Johannes Wagner, Andreas Uhl, and Christoph Busch. Investigation of better portable graphics compression for iris biometric recognition. In *Proceedings of the International Conference of the Biometrics Special Interest Group (BIOSIG'15)*, page 8, Darmstadt, Germany, 2015.

[263] Heinz Hofbauer, Thomas Stütz, and Andreas Uhl. Selective encryption for hierarchical MPEG. In H. Leitold and E. Markatos, editors, *Communications and Multimedia Security, Proceedings of the 10th IFIP International CMS 2006 Conference*, volume 4237 of *Lecture Notes on Computer Science*, pages 151–160. Springer Verlag, October 2006.

[264] Heinz Hofbauer, Inmaculada Tomeo-Reyes, and Andreas Uhl. Isolating iris template ageing in a semi-controlled environment. In *Proceedings of the International Conference of the Biometrics Special Interest Group (BIOSIG'16)*, page 8, Darmstadt, Germany, 2016.

[265] Heinz Hofbauer and Andreas Uhl. The cost of in-network adaption of the MC-EZBC for universal multimedia access. In *Proceedings of the 6th International Symposium on Image and Signal Processing and Analysis (ISPA '09)*, Salzburg, Austria, September 2009.

[266] Heinz Hofbauer and Andreas Uhl. Selective encryption of the MC EZBC bitstream for DRM scenarios. In *Proceedings of the 11th ACM Workshop on Multimedia and Security*, pages 161–170, Princeton, New Jersey, USA, September 2009. ACM.

[267] Heinz Hofbauer and Andreas Uhl. Visual quality indices and low quality images. In *IEEE 2nd European Workshop on Visual Information Processing*, pages 171–176, Paris, France, July 2010.

[268] Heinz Hofbauer and Andreas Uhl. An effective and efficient visual quality index based on local edge gradients. In *IEEE 3rd European Workshop on Visual Information Processing*, page 6pp., Paris, France, July 2011.

[269] Heinz Hofbauer and Andreas Uhl. Calculating a boundary for the significance from the equal-error rate. In *Proceedings of the 9th IAPR/IEEE International Conference on Biometrics (ICB'16)*, pages 1–4, 2016.

[270] Heinz Hofbauer and Andreas Uhl. Identifying deficits of visual security metrics for images. *Signal Processing: Image Communication*, 46:60 – 75, 2016.

[271] Heinz Hofbauer and Andreas Uhl. Applicability of no-reference visual quality indices for visual security assessment. In *Proceedings of the 6th ACM Workshop on Information Hiding and Multimedia Security (IH&MMSec 2018)*, pages 139–144, 2018.

[272] Heinz Hofbauer, Andreas Uhl, and Andreas Unterweger. Transparent Encryption for HEVC Using Bit-Stream-Based Selective Coefficient Sign Encryption. In *2014 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, pages 1986–1990, Florence, Italy, May 2014. IEEE.

[273] Heinz Hofbauer, Andreas Unterweger, and Andreas Uhl. Encrypting only ac coefficient signs considered harmful. In *Proceedings of the IEEE International Conference on Image Processing (ICIP'15)*, 2015.

[274] C. Hofer, R. Kwitt, M. Niethammer, and A. Uhl. Deep learning with topological signatures. In *NIPS*, 2017.

[275] Christoph Hofer, Roland Kwitt, Yvonne Höller, and Andreas Uhl Eugen Trinka. Simple domain adaptation for cross-dataset analyses of brain mri data. In *14th International IEEE Symposium on Biomedical Imaging (ISBI'17)*, page 5 pages, 2017.

[276] Christoph Hofer, Roland Kwitt, Yvonne Höller, Eugen Trinka, and Andreas Uhl. An empirical assessment of appearance descriptors applied to MRI for automated diagnosis of TLE and MCI. *Computers in Biology and Medicine*, 117:103592, 2020.

[277] Christoph Hofer, Roland Kwitt, Marc Niethammer, Yvonne Höller, and Andreas Uhl Eugen Trinka. Constructing shape spaces from a topological perspective. In *IPMI*, 2017.

[278] Yvonne Höller, Arne Bathke, and Andreas Uhl. Age, sex, and pathology effects on stability of electroencephalographic biometric features based on measures of interaction. *IEEE Transactions on Information Forensics and Security*, 14(2):459–471, 2019.

[279] Yvonne Höller and Andreas Uhl. Do EEG-biometric templates threaten user privacy ? In *Proceedings of the 6th ACM Workshop on Information Hiding and Multimedia Security (IH&MMSec 2018)*, pages 31–42, 2018.

[280] Kurt Horvath, Herbert Stögner, and Andreas Uhl. Effects of JPEG XR compression settings on iris recognition systems. In P. Real, D. Diaz-Pernil, H. Molina-Abril, A. Berciano, and W. Kropatsch, editors, *Proceedings of the 14th International Conference on Computer Analysis of Images and Patterns (CAIP 2011)*, volume 6855 of *LNCS*, pages 73–80. Springer Verlag, 2011.

[281] Kurt Horvath, Herbert Stögner, and Andreas Uhl. Optimisation of JPEG XR quantisation settings in iris recognition systems. In P. Davies and D. Newell, editors, *Proceedings of the 4th International Conference on Advances in Multimedia (MMEDIA 2012)*, pages 88–93. IARIA, 2012.

[282] Kurt Horvath, Herbert Stögner, Andreas Uhl, and Georg Weinhandel. Experimental study on lossless compression of biometric iris data. In *Proceedings of the 7th International Symposium on Image and Signal Processing (ISPA 2011)*, pages 379–384, Dubrovnik, Croatia, September 2011.

[283] Kurt Horvath, Herbert Stögner, Andreas Uhl, and Georg Weinhandel. Lossless compression of polar iris image data. In J. Vitria, J. M. Sanches, and M. Hernandez, editors, *Proceedings of the 5th Iberian Conference on Pattern Recognition and Image Analysis (IbPRIA 2011)*, volume 6669 of *LNCS*, pages 329–337. Springer Verlag, 2011.

[284] Reinhard Huber, Herbert Stögner, and Andreas Uhl. Semi-fragile watermarking in biometric systems: template self-embedding. In P. Real, D. Diaz-Pernil, H. Molina-Abril, A. Berciano, and W. Kropatsch, editors, *Proceedings of the 14th International Conference on Computer Analysis of Images and Patterns (CAIP 2011)*, volume 6855 of *LNCS*, pages 34–41. Springer Verlag, 2011.

[285] Reinhard Huber, Herbert Stögner, and Andreas Uhl. Two-factor biometric recognition with integrated tamper-protection watermarking. In B. DeDecker, J. Lapon, V. Naessens, and A. Uhl, editors, *Proceedings of the 12th IFIP TC6/TC11 International Conference on Communications and Multimedia Security (CMS 2011)*, volume 7025 of *LNCS*, pages 72–84. Springer Verlag, 2011.

[286] S. Huber, R. Kwitt, P. Meerwald, M. Held, and A. Uhl. Watermarking of 2D vector graphics with distortion constraint. In *Proceedings of the IEEE International Conference on Multimedia & Expo (ICME '10)*, pages 480–485, Singapore, July 2010.

[287] C. Hufnagl, J. Hämmerle, A. Pommer, A. Uhl, and M. Vajtersic. Fractal image compression on massively parallel arrays. In *Proceedings of the International Picture Coding Symposium (PCS'97)*, volume 143 of *ITG-Fachberichte*, pages 77–80. VDE-Verlag, Berlin, Offenbach, September 1997.

[288] C. Hufnagl and A. Uhl. Fractal block-matching in motion compensated video coding. *Fractals*, 8(1):35–48, 2000.

[289] C. Hufnagl and A. Uhl. Resolving a defect in quadrant-based classification for fast block-matching. In *Proceedings of the IEEE International Conference on Pattern Recognition (ICPR'00)*, volume 3, pages 203–206, Barcelona, Spain, September 2000. IEEE Computer Society Press.

[290] Thomas Hütter, Mario Preishuber, Jutta Hämmerle-Uhl, and Andreas Uhl. Weaknesses in Security Considerations Related to Chaos-Based Image Encryption. In *Proceedings of the 18th International Conference on Information and Communications Security (ICICS'16)*, volume 9977 of *Springer LNCS*, pages 278–291, Singapore, 2016.

[291] M. Hfner, A. Uhl, A. Vcsei, G. Wimmer, and F. Wrba. Complex wavelet transform variants and discrete cosine transform for scale invariance in magnification-endoscopy image classification. In *10th IEEE International Conference on Information Technology and Applications in Biomedicine (ITAB)*, pages 1–5, Nov 2010.

[292] Dimitris Iakovidis, ..., Andreas Uhl, and .... Roadmap on signal processing for next generation measurement systems (Section 4.6. Signal and image processing methods for biometrics: the impact of DL). *Measurement Science and Technology*, 33(1):012002, 2021.

[293] Ehsaneddin Jalilian, Heinz Hofbauer, and Andreas Uhl. Deep iris compression. In *Pattern Recognition. ICPR International Workshops and Challenges, Proceedings, Part V*, volume 12565 of *LNCS*, pages 1 – 15, Milan, Italy, 2021. Springer.

[294] Ehsaneddin Jalilian, Heinz Hofbauer, and Andreas Uhl. Iris image compression using deep convolutional neural networks. *Sensors*, 22(7):2698, 2022.

[295] Ehsaneddin Jalilian, Mahmut Karakaya, and Andreas Uhl. End-to-end off-angle iris recognition using cnn based iris segmentation. In *Proceedings of the IEEE 19th International Conference of the Biometrics Special Interest Group (BIOSIG 2020)*, pages 1 – 12, Darmstadt, Germany, 2020.

[296] Ehsaneddin Jalilian, Mahmut Karakaya, and Andreas Uhl. Cnn-based off-angle iris segmentation and recognition. *IET Biometrics*, 10(5):518–535, 2021.

[297] Ehsaneddin Jalilian, Michael Linortner, and Andreas Uhl. Impact of image compression on in-vitro cell migration analysis. *Computers*, 12(5):98, 2023.

[298] Ehsaneddin Jalilian and Andreas Uhl. Iris segmentation using fully convolutional encoder–decoder networks. In Bir Bhanu and Ajay Kumar, editors, *Deep Learning for Biometrics*, chapter 6, pages 133–155. Springer, (ZG) Switzerland, 2017.

[299] Ehsaneddin Jalilian and Andreas Uhl. Finger-vein recognition using deep fully convolutional neural semantic segmentation networks: The impact of training data. In *Proceedings of the IEEE 10th International Workshop on Information Forensics and Security (WIFS 2018)*, pages 1–8, Hong Kong, 2018.

[300] Ehsaneddin Jalilian and Andreas Uhl. Deep domain adaption for convolutional neural network (cnn) based iris segmentation: Solutions and pitfalls. In *Proceedings of the IEEE 18th International Conference of the Biometrics Special Interest Group (BIOSIG 2019)*, pages 1–9, Darmstadt, Germany, 2019.

[301] Ehsaneddin Jalilian and Andreas Uhl. Enhanced segmentation-cnn based finger-vein recognition by joint training with automatically generated and manual labels. In *Proceedings of the IEEE 5th International Conference on Identity, Security and Behavior Analysis (ISBA 2019)*, pages 1–8, IDRBT, 2019.

[302] Ehsaneddin Jalilian and Andreas Uhl. Improved cnn-segmentation-based finger vein recognition using automatically generated and fused training labels. In Andreas Uhl, Christoph Busch, Sebastien Marcel, and Raymond Veldhuis, editors, *Handbook of Vascular Biometrics*, chapter 8, pages 200–223. Springer Nature Switzerland AG, Cham, Switzerland, 2019.

[303] Ehsaneddin Jalilian and Andreas Uhl. Deep learning based automated vickers hardness measurement. In *Proceedings of the 19th International Conference on Computer Analysis of Images and Patterns (CAIP 2021)*, volume 13053 of *Springer Lecture Notes on Computer Science (LNCS)*, pages 3–13, Nicosia, Cyprus (held Online due to Covid), 2021.

[304] Ehsaneddin Jalilian, Andreas Uhl, and Mahmut Karakaya. Gaze-angle impact on iris segmentation using cnns. In *Proceedings of the IEEE 10th International Conference on Biometrics: Theory, Applications and Systems (BTAS 2019)*, pages 1–8, Tampa, Florida, USA, 2019.

[305] Ehsaneddin Jalilian, Andreas Uhl, and Roland Kwitt. Domain adaptation for cnn based iris segmentation. In *Proceedings of the IEEE 16th International Conference of the Biometrics Special Interest Group (BIOSIG 2017)*, pages 51 – 60, Darmstadt, Germany, 2017.

[306] Ehsaneddin Jalilian, Georg Wimmer, Mahmut Karakaya, and Andreas Uhl. Deep learning based off-angle iris recognition. In *IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP 2022)*, pages 4048–4052, Singapore, 2022.

[307] Brigitte Jellinek and Andreas Uhl. A remark on the interplay between image compression and watermark embedding techniques. In S. Loncaric and H. Babic, editors, *Proceedings of the 2nd IEEE Region 8 - EURASIP Symposium on Image and Signal Processing and Analysis (ISPA'01)*, pages 68–73, Pula, Croatia, June 2001.

[308] S. Jenisch and A. Uhl. A detailed evaluation of format-compliant encryption methods for JPEG XR-compressed images. *EURASIP Journal on Information Security*, 2014(6), 2014.

[309] Stefan Jenisch, Stefan Lukesch, and Andreas Uhl. Comparison of compression algorithms' impact on iris recognition accuracy II: revisiting JPEG. In *Proceedings of SPIE, Security, Forensics, Steganography, and Watermarking of Multimedia Contents X*, volume 6819, page 68190M ff., San Jose, CA, USA, January 2008.

[310] Stefan Jenisch and Andreas Uhl. Security analysis of a cancelable iris recognition system based on block remapping. In *Proceedings of the IEEE International Conference on Image Processing, ICIP'11*, pages 3274–3277, Brussels, Belgium, September 2011.

[311] Stefan Jenisch and Andreas Uhl. Visual security evaluation based on SIFT object recognition. In L. Iliadis et al., editors, *Proceedings of the 10th Artificial Intelligence Applications and Innovations Conference (AIAI 2014)*, volume 436 of *Springer IFIP AICT*, pages 624–633, Rhodes, GR, September 2014.

[312] P. Jez, A. Uhl, and P. Zinterhof. *Applications and Parallel Implementation of QMC Integration*, pages 175–216. Springer-Verlag, 2009.

[313] Robert Joechl and Andreas Uhl. Apart from in-field sensor defects, are there additional age traces hidden in a digital image? In *2021 IEEE International Workshop on Information Forensics and Security (WIFS)*, pages 1–6, Montpellier, France, 2021.

[314] Robert Joechl and Andreas Uhl. Effects of image compression on image age approximation. In *20th International Workshop on Digital-forensics and Watermarking (IWDW2021)*, volume 13180 of *Springer LNCS*, pages 102–116, Beijing, China, 2021. Springer International Publishing.

[315] Robert Joechl and Andreas Uhl. Identification of in-field sensor defects in the context of image age approximation. In *2021 IEEE International Conference on Image Processing (ICIP)*, pages 3043–3047, Anchorage, AK, USA, 2021.

[316] Robert Joechl and Andreas Uhl. A machine learning approach to approximate the age of a digital image. In *Digital Forensics and Watermarking: 19th International Workshop, IWDW 2020, Melbourne, VIC, Australia, November 25–27, 2020, Revised Selected Papers*, volume 12617 of *Springer LNCS*, pages 181–195. Springer International Publishing, 2021.

[317] Robert Joechl and Andreas Uhl. Deep learning image age approximation - what is more relevant: Image content or age information? In *21th International Workshop on Digital-forensics and Watermarking (IWDW2022)*, volume 13825 of *Springer LNCS*, pages 114–128, Guilin, China, 2022.

[318] Robert Joechl and Andreas Uhl. Device (in)dependence of deep learning-based image age approximation. In *2022 ICPR-Workshop on Artificial Intelligence for Multimedia Forensics and Disinformation Detection*, pages 1–14, Montreal, Quebec, Canada, 2022.

[319] Stefan Katzenbeisser, Roland Kwitt, Alessandro Piva, Andreas Uhl, and Andreas Unterweger, editors. *Proceedings of the 2nd ACM Workshop on Information Hiding and Multimedia Security*. ACM New York, NY, USA, 2014.

[320] C. Kauba, M. Drahansk, M. Novkov, A. Uhl, and . Rydlo. Three-dimensional finger vein recognition: A novel mirror-based imaging device. *Journal of Imaging (Section Biometrics, Forensics, and Security)*, 8(5):148, 2022.

[321] Christof Kauba, Luca Debiasi, Rudolf Schraml, and Andreas Uhl. Towards drug counterfeit detection using package paperboard classification. In *Advances in Multimedia Information Processing – Proceedings of the 17th Pacific-Rim Conference on Multimedia (PCM'16)*, volume 9917 of *Springer LNCS*, pages 136–146, Xi'an, CHINA, 2016.

[322] Christof Kauba, Luca Debiasi, and Andreas Uhl. Identifying the origin of iris images based on fusion of local image descriptors and prnu based techniques. In *Proceedings of the IAPR/IEEE International Joint Conference on Biometrics (IJCB'17)*, pages 294 – 301, Denver, Colorado, USA, 2017.

[323] Christof Kauba, Simon Kirchgasser, Robert Jchl, and Andreas Uhl. Assessment of sensor ageing-impact in air travelled fingerprint capturing devices. In *Proceedings of the IEEE 20th International Conference of the Biometrics Special Interest Group (BIOSIG 2021)*, pages 1–8, Darmstadt, Germany, 2021.

[324] Christof Kauba, Simon Kirchgasser, Vahid Mirjalili, Arun Ross, and Andreas Uhl. Inverse biometrics: Reconstructing grayscale finger vein images from binary features. In *Proceedings of the IAPR/IEEE International Joint Conference on Biometrics (IJCB2020)*, pages 1–8, Houston, Texas, USA, 2020.

[325] Christof Kauba, Simon Kirchgasser, Vahid Mirjalili, Andreas Uhl, and Arun Ross. Inverse biometrics: Generating vascular images from binary templates. *IEEE Transactions on Biometrics, Behavior, and Identity Science*, 3(4):464–478, 2021.

[326] Christof Kauba, Stefan Mayer, and Andreas Uhl. Image segmentation based visual security evaluation. In *Proceedings of the 4th ACM Workshop on Information Hiding and Multimedia Security (IH&MMSec 2016)*, pages 1–6, Vigo, Spain, 2016.

[327] Christof Kauba, Emanuela Piciucco, Emanuele Maiorana, Patrizio Campisi, and Andreas Uhl. Advanced variants of feature level fusion for finger vein recognition. In *Proceedings of the International Conference of the Biometrics Special Interest Group (BIOSIG'16)*, pages 1–12, Darmstadt, Germany, 2016.

[328] Christof Kauba, Emanuela Piciucco, Emanuele Maiorana, Marta Gomez-Barrero, Bernhard Prommegger, Patrizio Campisi, and Andreas Uhl. Towards practical cancelable biometrics for finger vein recognition. *Information Sciences*, 585:395–417, 2022.

[329] Christof Kauba, Bernhard Prommegger, and Andreas Uhl. Focussing the beam - a new laser illumination based data set providing insights to finger-vein recognition. In *2018 IEEE 9th International Conference on Biometrics Theory, Applications and Systems (BTAS)*, pages 1–9, Los Angeles, California, USA, 2018.

[330] Christof Kauba, Bernhard Prommegger, and Andreas Uhl. The two sides of the finger - an evaluation on the recognition performance of dorsal vs. palmar finger-veins. In *Proceedings of the International Conference of the Biometrics Special Interest Group (BIOSIG'18)*, pages 1–8, Darmstadt, Germany, 2018.

[331] Christof Kauba, Bernhard Prommegger, and Andreas Uhl. Combined fully contactless finger and hand vein capturing device with a corresponding dataset. *Sensors (Special Issue Biometric Systems)*, 19(22)(5014):1–25, 2019.

[332] Christof Kauba, Bernhard Prommegger, and Andreas Uhl. Openvein - an open-source modular multipurpose finger vein scanner design. In Andreas Uhl, Christoph Busch, Sebastien Marcel, and Raymond Veldhuis, editors, *Handbook of Vascular Biometrics*, chapter 3, pages 77–111. Springer Nature Switzerland AG, Cham, Switzerland, 2019.

[333] Christof Kauba, Jakob Reissig, and Andreas Uhl. Pre-processing cascades and fusion in finger vein recognition. In *Proceedings of the International Conference of the Biometrics Special Interest Group (BIOSIG'14)*, Darmstadt, Germany, September 2014.

[334] Christof Kauba, Dominik Söllinger, Simon Kirchgasser, Axel Weissenfeld, Gustavo Fernndez Domnguez, Bernhard Strobl, and Andreas Uhl. Towards using police officers' business smartphones for contactless fingerprint acquisition and enabling fingerprint comparison against contact-based datasets. *Sensors (Special Issue Biometric Sensing)*, 21(7):1–42, 2021.

[335] Christof Kauba and Andreas Uhl. Robustness evaluation of hand vein recognition systems. In *Proceedings of the International Conference of the Biometrics Special Interest Group (BIOSIG'15)*, pages 1–8, Darmstadt, Germany, 2015.

[336] Christof Kauba and Andreas Uhl. Sensor ageing impact on finger-vein recognition. In *Proceedings of the 8th IAPR/IEEE International Conference on Biometrics (ICB'15)*, pages 1–8, Phuket, Thailand, May 2015.

[337] Christof Kauba and Andreas Uhl. Fingerprint recognition under the influence of sensor ageing. In *Proceedings of the 4th International Workshop on Biometrics and Forensics (IWBF'16)*, pages 1–6, Limassol, Cyprus, 2016.

[338] Christof Kauba and Andreas Uhl. Fingerprint recognition under the influence of sensor ageing. *IET Biometrics*, 4(6):245–255, 2016.

[339] Christof Kauba and Andreas Uhl. Prnu-based image alignment for defective pixel detection. In *Proceedings of the IEEE Eighth International Conference on Biometrics: Theory, Applications, and Systems (BTAS2016)*, pages 1–6, Niagara Falls, Buffalo, New York, USA, 2016.

[340] Christof Kauba and Andreas Uhl. Robustness of finger-vein recognition. In Martin Drahansk, editor, *Hand-Based Biometrics: Methods and technology*, chapter 9, pages 193–216. IET, London, UK, 2018.

[341] Christof Kauba and Andreas Uhl. Shedding light on the veins - reflected light or transillumination in hand-vein recognition. In *Proceedings of the 11th IAPR/IEEE International Conference on Biometrics (ICB'18)*, pages 1–8, Gold Coast, Queensland, Australia, 2018.

[342] Christof Kauba and Andreas Uhl. An available open-source vein recognition framework. In Andreas Uhl, Christoph Busch, Sebastien Marcel, and Raymond Veldhuis, editors, *Handbook of Vascular Biometrics*, chapter 4, pages 113–142. Springer Nature Switzerland AG, Cham, Switzerland, 2019.

[343] Simon Kirchgasser, Katy Castillo-Rosado, David Estevez-Breso, Emilio Rodriguez-Hernandez, Jose Hernandez-Palancar, and Andreas Uhl. Fingerprint Template Ageing Revisited - It's the Quality, Stupid ! In *Proceedings of the IEEE 9th International Conference on Biometrics: Theory, Applications, and Systems (BTAS2018)*, pages 1–8, Los Angeles, California, USA, 2018.

[344] Simon Kirchgasser, Luca Debiasi, Rudolf Schraml, Heinz Hofbauer, Andreas Uhl, Jonathan Boyle, and James Ferryman. Template protection on multiple facial biometrics in the signal domain under visible and near-infrared light. In *Proceedings of the IEEE 8th International Workshop on Biometrics and Forensics (IWBF'20)*, pages 1–6, Porto, Portugal, 2020.

[345] Simon Kirchgasser, Yoanna Martnez Daz, Heydi Mendez-Vazquez, and Andreas Uhl. Is warping-based cancellable biometrics (still) sensible for face recognition ? In *Proceedings of the IAPR/IEEE International Joint Conference on Biometrics (IJCB2020)*, pages 1–8, Houston, Texas, USA, 2020.

[346] Simon Kirchgasser, Christof Kauba, Yen-Lung Lai, Jin Zhe, and Andreas Uhl. Finger vein template protection based on alignment-robust feature description and index-of-maximum hashing. *IEEE Transactions on Biometrics, Behavior, and Identity Science*, 2(4):337–349, 2020.

[347] Simon Kirchgasser, Christof Kauba, Bernhard Prommegger, Fabio Monticelli, and Andreas Uhl. On the feasibility of post-mortem hand-based vascular biometric recognition. In *Proceedings of the 2023 ACM Workshop on Information Hiding and Multimedia Security*, IH&MMSec '23, page 121126, New York, NY, USA, 2023. Association for Computing Machinery.

[348] Simon Kirchgasser, Christof Kauba, and Andreas Uhl. Cancellable biometrics for finger vein recognition - application in the feature domain. In Andreas Uhl, Christoph Busch, Sebastien Marcel, and Raymond Veldhuis, editors, *Handbook of Vascular Biometrics*, chapter 16, pages 507–525. Springer Nature Switzerland AG, Cham, Switzerland, 2019.

[349] Simon Kirchgasser, Christof Kauba, and Andreas Uhl. Towards understanding acquisition conditions influencing finger-vein recognition. In Andreas Uhl, Christoph Busch, Sebastien Marcel, and Raymond Veldhuis, editors, *Handbook of Vascular Biometrics*, chapter 7, pages 177–199. Springer Nature Switzerland AG, Cham, Switzerland, 2019.

[350] Simon Kirchgasser, Christof Kauba, and Andreas Uhl. Assessment of synthetically generated mated samples from single fingerprint samples instances. In *Proceedings of the IEEE Workshop on Information Forensics and Security (WIFS2021)*, pages 1–6, Montpellier, France, 2021.

[351] Simon Kirchgasser, Christof Kauba, and Andreas Uhl. The plus multi-sensor and longitudinal fingerprint dataset: An initial quality and performance evaluation. *IEEE Transactions on Biometrics, Behavior, and Identity Science*, 4(1):43–56, 2022.

[352] Simon Kirchgasser, Yen-Lung Lai, Jin Zhe, and Andreas Uhl. Finger-Vein Template Protection based on Alignment-Free Hashing. In *Proceedings of the IEEE 10th International Conference on Biometrics: Theory, Applications, and Systems (BTAS2019)*, pages 1–9, Tampa, Florida, USA, 2019.

[353] Simon Kirchgasser and Andreas Uhl. Biometric menagerie in time-span separated fingerprint data. In *Proceedings of the International Conference of the Biometrics Special Interest Group (BIOSIG'16)*, pages 1–12, Darmstadt, Germany, 2016.

[354] Simon Kirchgasser and Andreas Uhl. Fingerprint template ageing vs. template changes revisited. In *Proceedings of the International Conference of the Biometrics Special Interest Group (BIOSIG'17)*, pages 1–12, Darmstadt, Germany, 2017.

[355] Simon Kirchgasser and Andreas Uhl. Template ageing and quality analysis in time-span separated fingerprint data. In *Proceedings of the IEEE International Conference on Identity, Security and Behavior Analysis (ISBA '17)*, pages 1–8, New Delhi, Indien, 2017.

[356] Simon Kirchgasser and Andreas Uhl. Template ageing in non-minutiae fingerprint recognition. In *Proceedings of the International Workshop on Biometrics and Forensics (IWBF '17)*, pages 1–6, Coventry, United Kingdom, 2017.

[357] Simon Kirchgasser and Andreas Uhl. Template protection: On the need to adapt the current unlinkability evaluation protocol. In *Proceedings of the IEEE 21th International Conference of the Biometrics Special Interest Group (BIOSIG 2022)*, pages 1–8, Darmstadt, Germany, 2022.

[358] Daniel Kocher, Stefan Schwarz, and Andreas Uhl. Empirical evaluation of lbp-extension features for finger vein spoofing detection. In *Proceedings of the International Conference of the Biometrics Special Interest Group (BIOSIG'16)*, page 8, Darmstadt, Germany, 2016.

[359] T. Köckerbauer, M. Kumar, and A. Uhl. Lightweight JPEG2000 confidentiality for mobile environments. In *Proceedings of the IEEE International Conference on Multimedia and Expo, ICME '04*, Taipei, Taiwan, June 2004.

[360] T. Köckerbauer, M. Polak, T. Stütz, and A. Uhl. GVid - video coding and encryption for advanced Grid visualization. In J. Volkert, T. Fahringer, D. Kranzlmüller, and W. Schreiner, editors, *Proceedings of the 1st Austrian Grid Symposium*, volume 210 of *books@ocg.at*, pages 204–218, Schloss Hagenberg, Austria, 2006. Austrian Computer Society.

[361] Mario Konrad, Herbert Stögner, and Andreas Uhl. Custom design of JPEG quantization tables for compressing iris polar images to improve recognition accuracy. In M. Tistarelli and M.S. Nixon, editors, *Proceedings of the 3rd International Conference on Biometrics 2009 (ICB'09)*, volume 5558 of *LNCS*, pages 1091–1101. Springer Verlag, 2009.

[362] Mario Konrad, Herbert Stögner, and Andreas Uhl. Evolutionary optimization of JPEG quantization tables for compressing iris polar images in iris recognition systems. In *Proceedings of the 6th International Symposium on Image and Signal Processing and Analysis, ISPA '09*, Salzburg, Austria, September 2009.

[363] Mario Konrad, Herbert Stögner, Andreas Uhl, and Peter Wild. Computationally efficient serial combination of rotation-invariant and rotation compensating iris recognition algorithms. In P. Richard and J. Braz, editors, *Proceedings of the 5th International Conference on Computer Vision Theory and Applications, VISAPP'10*, volume 1, pages 85–90, Angers, France, May 2010.

[364] G.S. Kostmajer, H. Stögner, and A. Uhl. Custom JPEG quantization for improved iris recognition accuracy. In D. Gritzalis and J. Lopez, editors, *Emerging Challenges for Security, Privacy and Trust. Proceedings of the 24th IFIP International Information Security Conference 2009 (IFIP SEC'09)*, volume 297 of *IFIP AICT*, pages 76–86. Springer Verlag, May 2009.

[365] S. Kramatsch, H. Stögner, and A. Uhl. Experimental study on scan order and motion compensation in lossless video coding. In P. Podhradsky et al., editors, *Proceedings EC-SIP-M 2005 (5th EURASIP Conference focused on Speech and Image Processing, Multimedia Communications and Services)*, pages 292–297, Smolenice, Slovak Republic, 2005.

[366] S. Kramatsch, H. Stögner, and A. Uhl. Video encryption exploiting non-standard 3D data arrangements. In B. Enyedi and A. Reichardt, editors, *Proceedings of the 13th International Conference on Systems, Signals, and Image Processing (IWSSIP 2006)*, pages 49–52, Budapest, Hungary, 2006.

[367] D. Krämer, A. Bruckmann, T. Freina, M. Reichl, and A. Uhl. Comparison of wavelet, fractal and DCT based methods on the compression of prediction-error images. In *Proceedings of the International Picture Coding Symposium (PCS'97)*, volume 143 of *ITG-Fachberichte*, pages 393–397. VDE-Verlag, Berlin, Offenbach, September 1997.

[368] R. Kutil and A. Uhl. Comparison of PVM and MPI on SGI multiprocessors in a high bandwidth multimedia application. In J. Dongarra, E. Luque, and T. Margalef, editors, *Recent Advances in Parallel Virtual Machine and Message Passing Interface. 6th European PVM/MPI Users Group Meeting*, volume 1697 of *Lecture Notes on Computer Science*, pages 149–156. Springer-Verlag, September 1999.

[369] R. Kutil and A. Uhl. Hardware and software aspects for 3-D wavelet decomposition on shared memory MIMD computers. In Peter Zinterhof, M. Vajtersic, and Andreas Uhl, editors, *Parallel Computation. Proceedings of ACPC'99*, volume 1557 of *Lecture Notes on Computer Science*, pages 347–356. Springer-Verlag, 1999.

[370] R. Kutil and A. Uhl. Architecture comparison in a high bandwidth application. In G. Okša, R. Trobec, A. Uhl, M. Vajteršic, R. Wyrzykowski, and P. Zinterhof, editors, *Proceedings of the International Workshop on Parallel Numerics (Parnum 2000)*, pages 219–228, Bratislava, Slovakia, September 2000.

[371] R. Kutil and A. Uhl. Optimization of 3-d wavelet decomposition on multiprocessors. *Journal of Computing and Information Technology (Special Issue on Parallel Numerics and Parallel Computing in Image Processing, Video Processing, and Multimedia)*, 8(1):31–40, 2000.

[372] R. Kutil and A. Uhl. Parallel adaptive 3-d wavelet analysis for fast and efficient video coding. In E.H. D'Hollander, G.R. Joubert, F.J. Peters, and H.J. Sips, editors, *Parallel Computing: Fundamentals and Applications. Proceedings of the International Conference ParCo 1999*, pages 316–323. Imperial College Press, 2000.

[373] R. Kutil and A. Uhl. Parallel adaptive wavelet analysis (Invited Paper). *Future Generation Computer Systems (Special Issue on High Performance Numerical Methods and Applications)*, 1(18):97–106, 2001.

[374] R. Kwitt, S. Hegenbart, N. Rasiwasia, A. Vécsei, and A. Uhl. Do we need annotation experts? a case study in celiac disease classification. In *Proceedings of the International Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI'14)*, volume 8674 of *Lecture Notes in Computer Science*, pages 454–461, September 2014.

[375] R. Kwitt, P. Meerwald, and A. Uhl. A lightweight Rao-Cauchy detector for additive watermarking in the DWT-domain. In *Proceedings of the ACM Multimedia and Security Workshop (MMSEC '08)*, pages 33–41, Oxford, UK, September 2008.

[376] R. Kwitt, P. Meerwald, and A. Uhl. Blind DT-CWT domain additive spread-spectrum watermark detection. In *Proceedings of the 16th International Conference on Digital Signal Processing (DSP '09)*, Santorini, Greece, July 2009.

[377] R. Kwitt, P. Meerwald, and A. Uhl. Color-image watermarking using multivariate power-exponential distribution. In *Proceedings of the IEEE International Conference on Image Processing (ICIP '09)*, pages 4245–4248, Cairo, Egypt, November 2009.

[378] R. Kwitt, P. Meerwald, and A. Uhl. Efficient detection of additive watermarking in the DWT-domain. In *Proceedings of the 17th European Signal Processing Conference (EUSIPCO '09)*, pages 2072–2076, Glasgow, UK, August 2009.

[379] R. Kwitt, P. Meerwald, and A. Uhl. Blind detection of additive spread-spectrum watermarking in the dual-tree complex wavelet domain. *International Journal of Digital Crime and Forensics*, 2(2):34–46, April 2010.

[380] R. Kwitt, P. Meerwald, and A. Uhl. Efficient texture image retrieval using copulas in a Bayesian framework. *IEEE Transactions on Image Processing*, 20(7):2063–2077, July 2011.

[381] R. Kwitt, P. Meerwald, and A. Uhl. Lightweight detection of additive watermarking in the DWT-domain. *IEEE Transactions on Image Processing*, 20(2):474–484, February 2011.

[382] R. Kwitt, N. Rasiwasia, N. Vasconcelos, A. Uhl, M. Häfner, and F. Wrba. Learning pit pattern concepts for gastroenterological training. In *Proceedings of the International Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI '11)*, volume LNCS 6893, pages 280–287, Toronto, Canada, 2011.

[383] R. Kwitt and A. Uhl. Modeling the marginal distributions of complex wavelet coefficient magnitudes for the classification of zoom-endoscopy images. In *Proceedings of the IEEE Computer Society Workshop on Mathematical Methods in Biomedical Image Analysis (MMBIA '07)*, pages 1–8, Rio de Janeiro, Brasil, 2007.

[384] R. Kwitt and A. Uhl. Color eigen-subband features for endoscopy image classification. In *Proceedings of the 33rd IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP '08)*, pages 589–592, Las Vegas, Nevada, United States, 2008.

[385] R. Kwitt and A. Uhl. Color wavelet cross co-occurrence matrices for endoscopy image classification. In *Proceedings of the 3rd International Symposium on Communications, Control and Signal Processing (ISCCSP '08)*, pages 715–718, St. Julians, Malta, 2008.

[386] R. Kwitt and A. Uhl. Image similarity measurement by Kullback-Leibler divergences between complex wavelet subband statistics for texture retrieval. In *Proceedings of the IEEE International Conference on Image Processing (ICIP '08)*, pages 933–936, San Diego, California, United States, October 2008.

[387] R. Kwitt and A. Uhl. *Multi–Directional Multi-Resolution Transforms for Zoom–Endoscopy Image Classification (Best Paper Award at CORES '07)*, volume 45 of *Advances in Soft Computing*, pages 35–43. Springer, 2008.

[388] R. Kwitt and A. Uhl. A joint model of complex wavelet coefficients for texture retrieval. In *Proceedings of the IEEE International Conference on Image Processing (ICIP '09)*, pages 1877–1880, Cairo, Egypt, November 2009.

[389] R. Kwitt and A. Uhl. Lightweight probabilistic image retrieval. *IEEE Transactions on Image Processing*, 19(1):241–253, January 2010.

[390] R. Kwitt, A. Uhl, M. Häfner, A. Gangl, F. Wrba, and A. Vécsei. Predicting the histology of colorectal lesions in a probabilistic framework. In *Proceedings of the IEEE International Workshop on Mathematical Methods in Biomedical Image Analysis (MMBIA '10)*, pages 103–110, San Francisco, CA, United States, June 2010.

[391] R. Kwitt, N. Vasconcelos, N. Rasiwasia, A. Uhl, B. Davis, M. Häfner, and F. Wrba. Endoscopic image analysis in semantic space. *Medical Image Analysis*, 16:1415–1422, 2012.

[392] Roland Kwitt, Peter Meerwald, Andreas Uhl, and Geert Verdoolaege. Testing a multivariate model for wavelet coefficients. In *Proceedings of the IEEE International Conference on Image Processing (ICIP '11)*, pages 1277–1280, Brussels, Belgium, September 2011.

[393] G. Laimer and A. Uhl. Improving security of JPEG2000-based robust hashing using key-dependent wavelet packet subband structures. In P. Dondon, V. Mladenov, S. Impedovo, and S. Cepisca, editors, *Proceedings of the 7th WSEAS International Conference on Wavelet Analysis & Multirate Systems (WAMUS'07)*, pages 127–132, Arcachon, France, October 2007.

[394] Gerold Laimer and Andreas Uhl. Key dependent JPEG2000-based robust hashing for secure image authentication. *EURASIP Journal on Information Security*, Article ID 895174:doi:10.1155/2008/895174, 19 pages, 2008.

[395] Lukas Lamminger, Heinz Hofbauer, and Andreas Uhl. First learning steps to recognize faces in the noise. In *Proceedings of the 2023 ACM Workshop on Information Hiding and Multimedia Security*, IH&MMSec '23, page 139144, New York, NY, USA, 2023. Association for Computing Machinery.

[396] Ming Jie Lee, Andrew B.J. Teoh, Andreas Uhl, Shiuan-Ni Liang, and Jin Zhe. A tokenless cancellable scheme for multimodal biometric systems. *Computers & Security*, 108:102350, 2021.

[397] Gerald Leimhofer and Andreas Uhl. Partial encryption schemes for matching pursuit. In *Proceedings of IEEE International Conference on Signal Processing and Communications, ICSPC '07*, pages 1487 – 1490, Dubai, UAE, November 2007.

[398] M. Liedgruber, K. Butz, Yvonne Höller, G. Kuchukhidze, A. Taylor, A. Thomschewski, O. Tomasi, E. Trinka, and A. Uhl. Pathology-related automated hippocampus segmentation accuracy. In *Proceedings of Bildverarbeitung für die Medizin 2017 (BVM'17)*, Springer Informatik Aktuell, pages 128–133, March 2017.

[399] M. Liedgruber, K. Butz, Yvonne Höller, G. Kuchukhidze, A. Taylor, A. Thomschewski, O. Tomasi, E. Trinka, and A. Uhl. Hippocampus Segmentation and SPHARM Coefficient Selection are Decisive for MCI Detection. In *Proceedings of Bildverarbeitung für die Medizin 2018 (BVM'18)*, Springer Informatik Aktuell, pages 239–244, March 2018.

[400] M. Liedlgruber, K. Butz, Y. Höller, G. Kuchukhidze, A. Taylor, O. Tomasi, E. Trinka, and A. Uhl. Variability issues in automated hippocampal segmentation: A study on out-of-the-box software and multi-rater ground truth. In *Proceedings of the 29th IEEE International Symposium on Computer-Based Medical Systems (CBMS'16)*, pages 191–196, June 2016.

[401] M. Liedlgruber, K. Butz, Y. Höller, G. Kuchukhidze, A. Taylor, O. Tomasi, E. Trinka, and A. Uhl. Lateralisation Matters: Discrimination of TLE and MCI Based on SPHARM Description of Hippocampal Shape. In *Proceedings of the 31st IEEE International Symposium on Computer-Based Medical Systems (CBMS'18)*, pages 129–134, June 2018.

[402] M. Liedlgruber, K. Butz, Y. Höller, G. Kuchukhidze, A. Taylor, O. Tomasi, E. Trinka, and A. Uhl. Can SPHARM-Based Features from Automated or Manually Segmented Hippocampi Distinguish Between MCI and TLE? In *Proceedings of 21st Scandinavian Conference on Image Analysis (SCIA'19)*, volume 11482 of *Springer Lecture Notes on Computer Science*, pages 465–476, 2019.

[403] M. Liedlgruber, M. Häfner, J. Hämmerle-Uhl, and A. Uhl. Texture description using dual tree complex wavelet packets. In *Advances in Multimedia Information Processing – Proceedings of the 17th Pacific-Rim Conference on Multimedia (PCM'16)*, volume 9916 of *Springer LNCS*, pages 181–190, Xi'an, China, 2016.

[404] M. Liedlgruber and A. Uhl. Statistical and structural wavelet packet features for pit pattern classification in zoom-endoscopic colon images. In P. Dondon, V. Mladenov, S. Impedovo, and S. Cepisca, editors, *Proceedings of the 7th WSEAS International Conference on Wavelet Analysis & Multirate Systems (WAMUS'07)*, pages 147–152, Arcachon, France, October 2007.

[405] M. Liedlgruber and A. Uhl. Endoscopic image processing - an overview. In *Proceedings of the 6th International Symposium on Image and Signal Processing and Analysis, ISPA '09*, pages 707–712, Salzburg, Austria, September 2009.

[406] Michael Liedlgruber and Andreas Uhl. Predicting pathology in medical decision support systems in endoscopy of the gastrointestinal tract. In Chiang Jao, editor, *Efficient Decision Support Systems – Practice and Challenges in Biomedical Related Domain*, pages 195–214. InTech, Rijeka, Croatia, 2011.

[407] Michael Liedlgruber and Andreas Uhl. Computer-aided decision support systems for endoscopy in the gastrointestinal tract: A review. *IEEE Reviews in Biomedical Engineering*, 4:73–88, 2012.

[408] Michael Liedlgruber, Andreas Uhl, and Andreas Vécsei. Statistical analysis of the impact of distortion (correction) on an automated classification of celiac disease. In *Proceedings of the 17th International Conference on Digital Signal Processing (DSP'11)*, Corfu, Greece, July 2011.

[409] Michael Linortner and Andreas Uhl. On the relevance of minutiae count and distribution for finger vein recognition accuracy. In *2021 International Conference of the Biometrics Special Interest Group (BIOSIG)*, pages 1–5, 2021.

[410] Michael Linortner and Andreas Uhl. Towards match-on-card finger vein recognition. In *Proceedings of the 2021 ACM Workshop on Information Hiding and Multimedia Security*, IH&MMSec '21, pages 87–92, New York, NY, USA, 2021. Association for Computing Machinery.

[411] Michael Linortner and Andreas Uhl. VeinPLUS+: A publicly available and free software framework for vein recognition. In *2021 International Conference of the Biometrics Special Interest Group (BIOSIG)*, pages 1–5, 2021.

[412] T. Lipowski, B. Maser, J. Hämmerle-Uhl, and A. Uhl. Finger-vein sample compression in presence of pre-compressed gallery data. In *Proceedings of the International Conference of the Biometrics Special Interest Group (BIOSIG'18)*, pages 1–8, Darmstadt, Germany, 2018.

[413] Florian Lugstein, Simon Baier, Gregor Bachinger, and Andreas Uhl. PRNU-based Deepfake Detection. In *Proceedings of the 2021 ACM Workshop on Information Hiding and Multimedia Security (IH&MMSec '21)*, pages 7 – 12, New York, NY, USA, 2021. Association for Computing Machinery.

[414] A. Maier, G. Niederbrucker, S. Stenger, and A. Uhl. Efficient focus assessment for a computer vision-based Vickers hardness measurement system. *Journal of Electronic Imaging*, 21:021114, 2012.

[415] A. Maier, G. Niederbrucker, and A. Uhl. Measuring image sharpness for a computer vision-based Vickers hardness measurement system. In J.-C. Pinoli, J. Debayle, Y. Gavet, F. Cruy, and C. Lambert, editors, *Tenth International Conference on Quality Control for Artificial Vision (QCAV'11)*, number 8000 in Proceedings of SPIE, pages 80000N–1 – 80000N–10, St. Etienne, France, June 2011. SPIE.

[416] A. Maier and A. Uhl. Robust automatic indentation localisation and size approximation for vickers microindentation hardness indentations. In *Proceedings of the 7th International Symposium on Image and Signal Processing (ISPA 2011)*, pages 295–300, Dubrovnik, Croatia, September 2011.

[417] A. Maier and A. Uhl. The areamap operator and its application to vickers hardness testing images (invited paper). *International Journal of Future Generation Communication and Networking (Special Issue on Image and Signal Processing Best papers of ICISP 2012)*, 5(4):1–16, 2012.

[418] A. Maier and A. Uhl. Fast orientation invariant template matching using centre-of-gravity information. In *Computational Modelling of Objects Represented in Images: Fundamentals, Methods and Applications III, Proceedings of the International Symposium CompIMAGE 2012*, pages 97–101, Rome, Italy, September 2012.

[419] A. Maier and A. Uhl. AreaMap and Gabor Filter based vickers hardness indentation measurement. In *Proceedings of the 21st European Signal Processing Conference, EUSIPCO '13*, Marrakech, Morocco, September 2013.

[420] Andrey Makrushin, Christof Kauba, Simon Kirchgasser, Stefan Seidlitz, Christian Kraetzer, Andreas Uhl, and Jana Dittmann. General requirements on synthetic fingerprint images for biometric authentication and forensic investigations. In *Proceedings of the 9th ACM Workshop on Information Hiding and Multimedia Security (IH&MMSec'21)*, pages 1–11, Brussels, Belgium (held Online due to Covid), 2021.

[421] Andrey Makrushin, Andreas Uhl, and Jana Dittmann. A survey on synthetic biometrics: Fingerprint, face, iris and vascular patterns. *IEEE ACCESS*, 11:33887–33899, 2023.

[422] Daniel Mark, Andreas Uhl, and Hartmut Wernisch. Experimental study on watermark interference in multiple re-watermarking. In Edward J. Delp and Ping W. Wong, editors, *Security, Steganography, and Watermarking of Multimedia Contents IX*, number 6505 in Proceedings of SPIE, pages 65050N–1 – 65050N–9, San Jose, CA, USA, January 2007. SPIE.

[423] A. Mascher-Kampfer, H. Stögner, and A. Uhl. Multiple re-watermarking scenarios. In B. Enyedi and A. Reichardt, editors, *Proceedings of the 13th International Conference on Systems, Signals, and Image Processing (IWSSIP 2006)*, pages 53–56, Budapest, Hungary, 2006.

[424] A. Mascher-Kampfer, H. Stögner, and A. Uhl. Comparison of compression algorithms' impact on fingerprint and face recognition accuracy. In C.W. Chen, D. Schonfeld, and J. Luo, editors, *Visual Communications and Image Processing 2007 (VCIP'07)*, number 6508 in Proceedings of SPIE, pages 650810–1 – 65050N–10, San Jose, CA, USA, January 2007. SPIE.

[425] B. Maser, T. Lipowski, J. Hämmerle-Uhl, and A. Uhl. Finger vein image compression with uniform background. In *Proceedings of the International Conference on Biometric Engineering and Applications (ICBEA'19)*, pages 23 – 27, Stockholm, Sweden, 2019.

[426] Babak Maser, Dominik Söllinger, and Andreas Uhl. PRNU-based detection of finger vein presentation attacks. In *Proceedings of the 7th International Workshop on Biometrics and Forensics (IWBF'19)*, pages 1–6, Cancun, Mexico, 2019.

[427] Babak Maser, Dominik Söllinger, and Andreas Uhl. PRNU-based Finger Vein Sensor Identification in the Presence of Presentation Attack Data. In *Proceedings of the Joint ARW/OAGM Workshop 2019 (ARW/OAGM'19)*, 2019.

[428] Babak Maser and Andreas Uhl. Identifying the origin of finger vein samples using texture descriptors. In *Computational Science and Its Applications – ICCSA 2021*, volume 12950 of *LNCS*, pages 237–250, Cham, 2021. Springer International Publishing.

[429] Babak Maser and Andreas Uhl. Using CNNs to identify the origin of finger vein sample images. In *Proceedings of the 9th IEEE International Workshop on Biometrics and Forensics (IWBF'21)*, pages 1–6, Rome, Italy (moved to virtual), 2021.

[430] S. Matschitsch, H. Stögner, M. Tschinder, and A. Uhl. Rotation-invariant iris recognition: boosting 1D spatial-domain signatures to 2D. In J. Filipe, J.A. Cetto, and J.-L. Ferrier, editors, *ICINCO 2008: Proceedings of the 5th International Conference on Informatics in Control, Automation and Robotics*, volume SPSMC, pages 232–235. INSTICC Press, 2008.

[431] S. Matschitsch, M. Tschinder, and A. Uhl. Comparison of compression algorithms' impact on iris recognition accuracy. In S.-W. Lee and S.Z. Li, editors, *Proceedings of the 2nd International Conference on Biometrics 2007 (ICB'07)*, volume 4642 of *LNCS*, pages 232–241. Springer Verlag, 2007.

[432] P. Meerwald and A. Uhl. A survey of wavelet-domain watermarking algorithms. In Ping Wah Wong and Edward J. Delp, editors, *Proceedings of SPIE, Electronic Imaging, Security and Watermarking of Multimedia Contents III*, volume 4314, pages 505–516, San Jose, CA, USA, January 2001. SPIE.

[433] P. Meerwald and A. Uhl. Watermark security via wavelet filter parametrization. In *Proceedings of the IEEE International Conference on Image Processing (ICIP'01)*, volume 3, pages 1027–1030, Thessaloniki, Greece, October 2001. IEEE Signal Processing Society.

[434] Peter Meerwald, Christian Koidl, and Andreas Uhl. Attack on 'Watermarking Method Based on Significant Difference of Wavelet Coefficient Quantization'. *IEEE Transactions on Multimedia*, 11(5):1037–1041, August 2009.

[435] Peter Meerwald, Christian Koidl, and Andreas Uhl. Targeted attacks on quantization-based watermarking schemes. In *Proceedings of the 6th International Symposium on Image and Signal Processing and Analysis, ISPA '09*, pages 465–470, Salzburg, Austria, September 2009.

[436] Peter Meerwald, Roland Norcen, and Andreas Uhl. Cache issues with JPEG2000 wavelet lifting. In C.-C. Jay Kuo, editor, *Visual Communications and Image Processing 2002 (VCIP'02)*, volume 4671 of *SPIE Proceedings*, pages 626–634, San Jose, CA, USA, January 2002. SPIE.

[437] Peter Meerwald, Roland Norcen, and Andreas Uhl. Parallel JPEG2000 image coding on multiprocessors. In *Proceedings of the International Parallel & Distributed Processing Symposium 2002 (IPDPS'02)*, pages 2–7, Fort Lauderdale, FL, USA, April 2002. IEEE Computer Society Press.

[438] Peter Meerwald and Andreas Uhl. Sicherheit und Robustheit Wavelet-basierter Watermarking-Algorithmen. In M. Schumacher and R. Steinmetz, editors, *Proceedings des Workshops Sicherheit in Netzen und Medienströmen*, Informatik aktuell, pages 181–190, Berlin, Germany, September 2000. Springer-Verlag.

[439] Peter Meerwald and Andreas Uhl. Blind motion-compensated video watermarking. In *Proceedings of the 2008 IEEE Conference on Multimedia & Expo, ICME '08*, pages 357–360, Hannover, Germany, June 2008.

[440] Peter Meerwald and Andreas Uhl. Toward robust watermarking of scalable video. In *Proceedings of SPIE, Security, Forensics, Steganography, and Watermarking of Multimedia Contents X*, volume 6819, page 68190J ff., San Jose, CA, USA, January 2008.

[441] Peter Meerwald and Andreas Uhl. Additive spread-spectrum watermark detection in demosaicked images. In *Proceedings of the ACM Multimedia and Security Workshop, MMSEC '09*, pages 25–32, Princeton, NJ, USA, September 2009. ACM.

[442] Peter Meerwald and Andreas Uhl. Watermarking of raw digital images in camera firmware: embedding and detection. In *Advances in Image and Video Technology: Proceedings of the 3rd Pacific-Rim Symposium on Image and Video Technology, PSIVT '09*, volume 5414 of *Lecture Notes in Computer Science*, pages 340–348, Tokyo, Japan, January 2009. Springer.

[443] Peter Meerwald and Andreas Uhl. Robust watermarking of H.264-encoded video: Extension to SVC. In *Proceedings of the Sixth International Conference on Intelligent Information Hiding and Multimedia Signal Processing, IIH-MSP '10*, pages 82–85, Darmstadt, Germany, October 2010.

[444] Peter Meerwald and Andreas Uhl. Robust watermarking of H.264/SVC-encoded video: quality and resolution scalability. In H.-J. Kim, Y. Shi, and M. Barni, editors, *Proceedings of the 9th International Workshop on Digital Watermarking, IWDW '10*, volume 6526 of *Lecture Notes in Computer Science*, pages 159–169, Seoul, Korea, October 2010. Springer.

[445] Peter Meerwald and Andreas Uhl. Watermark detection for video bookmarking using mobile phone camera. In B. De Decker and I. Schaumüller-Bichl, editors, *Proceedings of the 11th Joint IFIP TC6 and TC11 Conference on Communications and Multimedia Security, CMS '10*, volume 6109 of *Lecture Notes in Computer Science*, pages 64–74, Linz, Austria, May 2010. Springer.

[446] Peter Meerwald and Andreas Uhl. Watermark detection on quantized transform coefficients using product Bernoulli distributions. In *Proceedings of the ACM Multimedia and Security Workshop, MM&Sec '10*, pages 175–180, Rome, Italy, September 2010.

[447] Peter Meerwald and Andreas Uhl. Watermarking of raw digital images in camera firmware and detection. *IPSJ Transactions on Computer Vision and Applications*, 2:16–24, March 2010.

[448] Peter Meerwald and Andreas Uhl. An efficient robust watermarking method integrated in H.264/SVC. *Transactions on Data Hiding and Multimedia Security VII*, 7110:1–14, 2012.

[449] A. Meixner and A. Uhl. Security enhancement of visual hashes through key dependent wavelet transformations. In F. Roli and S. Vitulano, editors, *Image Analysis and Processing - ICIAP 2005*, volume 3617 of *Lecture Notes on Computer Science*, pages 543–550, Cagliari, Italy, September 2005. Springer-Verlag.

[450] Albert Meixner and Andreas Uhl. Analysis of a wavelet-based robust hash algorithm. In Edward J. Delp and Ping W. Wong, editors, *Security, Steganography, and Watermarking of Multimedia Contents VI*, volume 5306 of *Proceedings of SPIE*, pages 772–783, San Jose, CA, USA, January 2004. SPIE.

[451] Albert Meixner and Andreas Uhl. Robustness and security of a wavelet-based CBIR hashing algorithm. In *Proceedings of ACM Multimedia and Security Workshop, MM-SEC '06*, pages 140–145, Geneva, Switzerland, September 2006.

[452] Tobias Mitterreiter, Jutta Hämmerle-Uhl, and Andreas Uhl. Morphing-attacks against binary fingervein templates. In *Image Analysis and Processing. ICIAP 2023 Workshops (Recent Advances in Digital Security: Biometrics and Forensics (BioFor'23))*, pages 1–12, Cham, 2023. Springer International Publishing.

[453] B. Mühlbacher, T. Stütz, and A. Uhl. JPEG2000 Part 2 wavelet packet subband structures in fingerprint recognition. In P. Frossard, H. Li, F. Wu, B. Girod, S. Li, and G. Wei, editors, *Visual Communications and Image Processing 2010 (VCIP'10)*, number 7744 in Proceedings of SPIE, pages 77442C–1 – 77442C–10, Huang Shan, China, July 2010. SPIE.

[454] Isabella Nicka, Andreas Uhl, Miriam Landkammer, Michael Linortner, and Johannes Schuiki. Towards a distant viewing of depicted materials in medieval paintings. In *Digital Humanities 2023. Collaboration as Opportunity (DH2023)*, Graz, Austria, 2023. Zenodo.

[455] R. Norcen, M. Podesser, A. Pommer, H.-P. Schmidt, and A. Uhl. Confidential storage and transmission of medical image data. *Computers in Biology and Medicine*, 33(3):277 – 292, 2003.

[456] R. Norcen, P. Schneider, and A. Uhl. Matching pursuit projection — a parallelization. In G. Okša, R. Trobec, A. Uhl, M. Vajteršic, R. Wyrzykowski, and P. Zinterhof, editors, *Proceedings of the International Workshop on Parallel Numerics (Parnum 2000)*, pages 165–178, Bratislava, Slovakia, September 2000.

[457] R. Norcen, P. Schneider, and A. Uhl. Approaching real-time processing for matching pursuit image coding. In S. Panchanathan, V. Bove, and S.I. Sudharsanan, editors, *Media Processors 2002*, volume 4674 of *SPIE Proceedings*, pages 84–90, January 2002.

[458] R. Norcen and A. Uhl. Granularity and programming paradigms in parallel MPP image coding. In G.R. Jourbert, A. Murli, F. Peters, and M. Vanneschi, editors, *Parallel Computing: Fundamentals and Applications. Proceedings of the International Conference ParCo 2001*, pages 330–337. Imperial College Press, 2002.

[459] R. Norcen and A. Uhl. Hybrid video coding employing the wavelet transform and MPP. In *CD-ROM Proceedings of the 5th IEEE Nordic Signal Processing Symposium (NORSIG 2002)*, Tromso-Trondheim, Norway, October 2002. IEEE Norway Section. file cr1040.pdf.

[460] R. Norcen and A. Uhl. Parallel VTC image coding in MPEG-4. In R. Trobec, P. Zinterhof, M. Vajteršic, and A. Uhl, editors, *Parallel Numerics '02 – Theory and Applications (Proceedings of the International Workshop)*, pages 235–244, Bled, Slovenia, October 2002.

[461] R. Norcen and A. Uhl. Encryption of wavelet-coded imagery using random permutations. In *Proceedings of the IEEE International Conference on Image Processing (ICIP'04)*, Singapore, October 2004. IEEE Signal Processing Society.

[462] R. Norcen and A. Uhl. Robust authentication of the JPEG2000 bitstream. In *CD-ROM Proceedings of the 6th IEEE Nordic Signal Processing Symposium (NORSIG 2004)*, Espoo, Finland, June 2004. IEEE Norway Section.

[463] R. Norcen and A. Uhl. Robust visual hashing using JPEG2000. In D. Chadwick and B. Preneel, editors, *Eighth IFIP TC6/TC11 Conference on Communications and Multimedia Security (CMS'04)*, pages 223–236, Lake Windermere, GB, September 2004. Springer-Verlag.

[464] R. Norcen and A. Uhl. High performance JPEG2000 and MPEG-4 VTC on SMPs using OpenMP. *Parallel Computing (Special Issue on OpenMP)*, 31(10-12):1082–1098, 2005.

[465] R. Norcen and A. Uhl. Performance analysis of block-based permutations in securing JPEG2000 and SPIHT compression. In S. Li, F. Pereira, H.-Y. Shum, and A. G. Tescher, editors, *Visual Communications and Image Processing 2005 (VCIP'05)*, volume 5960 of *SPIE Proceedings*, pages 944–952, Beijing, China, July 2005. SPIE.

[466] Roland Norcen and Andreas Uhl. Experiments in JPEG2000-based intra coding for H.26L. In T. Ebrahimi and T. Sikora, editors, *Visual Communications and Image Processing 2003 (VCIP'03)*, volume 5150 of *SPIE Proceedings*, pages 745–751, Lugano, Switzerland, July 2003. SPIE.

[467] Roland Norcen and Andreas Uhl. Performance and quality issues in matching pursuit residue coding. In *Picture Coding Symposium 2003 (PCS'03)*, pages 433–438, Saint Malo, France, April 2003.

[468] Roland Norcen and Andreas Uhl. Performance issues in MPEG-4 VTC image coding. In T. Ebrahimi and T. Sikora, editors, *Visual Communications and Image Processing 2003 (VCIP'03)*, volume 5150 of *SPIE Proceedings*, pages 880–890, Lugano, Switzerland, July 2003. SPIE.

[469] Roland Norcen and Andreas Uhl. Selective encryption of the JPEG2000 bitstream. In A. Lioy and D. Mazzocchi, editors, *Communications and Multimedia Security. Proceedings of the IFIP TC6/TC11 Sixth Joint Working Conference on Communications and Multimedia Security, CMS '03*, volume 2828 of *Lecture Notes on Computer Science*, pages 194 – 204, Turin, Italy, October 2003. Springer-Verlag.

[470] Roland Norcen and Andreas Uhl. Wavelet-based still image coding standards on SMPs using OpenMP. In G.R. Joubert, W.E. Nagel, F.J. Peters, and W.V. Walter, editors, *Parallel Computing: Software Technology, Algorithms, Architectures, and Applications. Proceedings of the 10^{th} ParCo Conference in Dresden, 2003*, pages 827–833. Elsevier B.V., 2004.

[471] G. Okša, R. Trobec, A. Uhl, M. Vajteršic, R. Wyrzykowski, and P. Zinterhof, editors. *Proceedings of the International Workshop: Parallel Numerics 2000*, Bratislava, Slovakia, September 2000.

[472] S. Panchanathan and A. Uhl, editors. *Proceedings of the Workshop on Parallel and Distributed Computing in Image Processing, Video Processing, and Multimedia (PDIVM 2000), in: Parallel and Distributed Processing (Proceedings of 15 IPDPS'2000 Workshops, J. Rolim and others (Eds.))*, volume 1800 of *Lecture Notes on Computer Science*. Springer-Verlag, 2000.

[473] S. Panchanathan and A. Uhl, editors. *Proceedings of the Workshop on Parallel and Distributed Computing in Image Processing, Video Processing, and Multimedia (PDIVM 2001), in: Proceedings of the 15th International Parallel and Distributed Processing Symposium IPDPS'01 (Abstracts and CD-ROM)*. IEEE Computer Society Press, 2001.

[474] S. Panchanathan and A. Uhl, editors. *Proceedings of the Workshop on Parallel and Distributed Computing in Image Processing, Video Processing, and Multimedia (PDIVM 2002), in: Proceedings of the 16th International Parallel and Distributed Processing Symposium IPDPS'02 (Abstracts and CD-ROM)*. IEEE Computer Society Press, 2002.

[475] S. Panchanathan and A. Uhl, editors. *Proceedings of the Workshop on Parallel and Distributed Image Processing, Video Processing, and Multimedia (PDIVM 2003), in: Proceedings of the 17th International Parallel and Distributed Processing Symposium IPDPS'03 (Abstracts and CD-ROM)*. IEEE Computer Society Press, 2003.

[476] Matthias Paulitsch, Andreas Vorderleitner, and Andreas Uhl. Temporal image forensics: Using cnns for a chronological ordering of line-scan data. In *Computational Science and Its Applications – ICCSA 2021*, volume 12950 of *LNCS*, pages 147–162, Cham, 2021. Springer International Publishing.

[477] Georg Penn, Gerhard Pötzelsberger, Martin Rohde, and Andreas Uhl. Customisation of paillier homomorphic encryption for efficient binary biometric feature vector matching. In *Proceedings of the International Conference of the Biometrics Special Interest Group (BIOSIG'14)*, Darmstadt, Germany, September 2014.

[478] R. Pfarrhofer, P. Bachhiesl, M. Kelz, H. Stögner, and A. Uhl. Distributed optimization of fiber optic network layout using MATLAB. In A. Lagana et al., editors, *The 2004 International Conference on Computational Science and its Applications - ICCSA 2004*, volume 3045 of *Lecture Notes in Computer Science*, pages 538–547, Assisi, Italy, May 2004. Springer Verlag, Berlin, Germany.

[479] R. Pfarrhofer, P. Bachhiesl, M. Kelz, H. Stögner, and A. Uhl. MDICE - a MATLAB toolbox for efficient cluster computing. In G.R. Joubert, W.E. Nagel, F.J. Peters, and W.V. Walter, editors, *Parallel Computing: Software Technology, Algorithms, Architectures, and Applications. Proceedings of the 10^{th} ParCo Conference in Dresden, 2003*, pages 535–542. Elsevier B.V., 2004.

[480] R. Pfarrhofer and A. Uhl. Observations on data distribution and scalability of parallel and distributed image processing applications. *WSEAS Transactions on Computers*, 3(3):563–568, 2004.

[481] R. Pfarrhofer and A. Uhl. Selective image encryption using JBIG. In J. Dittmann, S. Katzenbeisser, and A. Uhl, editors, *Communicationa and Multimedia Security (Proceedings of CMS 2005)*, volume 3677 of *Lecture Notes on Computer Science*, pages 98–107, Salzburg, Austria, September 2005. Springer-Verlag.

[482] Emanuela Piciucco, Emanuele Maiorana, Christof Kauba, Andreas Uhl, and Patrizio Campisi. Cancelable biometrics for finger vein recognition. In *Proceedings of the 1st Workshop on Sensing, Processing and Learning for Intelligent Machines (SPLINE 2016)*, pages 1–6, Aalborg, Denmark, 2016.

[483] M. Podesser, H.-P. Schmidt, and A. Uhl. Selective bitplane encryption for secure transmission of image data in mobile environments. In *CD-ROM Proceedings of the 5th IEEE Nordic Signal Processing Symposium (NORSIG 2002)*, Tromso-Trondheim, Norway, October 2002. IEEE Norway Section. file cr1037.pdf.

[484] A. Pommer, C. Hufnagl, and A. Uhl. Fractal motion compensation. In S.A. Rajala and M. Rabbani, editors, *Visual Communications and Image Processing '98*, volume 3309 of *SPIE Proceedings*, pages 1050–1061. The International Society of Optical Engineers, January 1998.

[485] A. Pommer and A. Uhl. Multimedia soft encryption using NSMRA wavelet packet methods: Parallel attacks. In G. Okša, R. Trobec, A. Uhl, M. Vajteršic, R. Wyrzykowski, and P. Zinterhof, editors, *Proceedings of the International Workshop on Parallel Numerics (Parnum 2000)*, pages 179–190, Bratislava, Slovakia, September 2000.

[486] A. Pommer and A. Uhl. Wavelet packet methods for multimedia compression and encryption. In *Proceedings of the 2001 IEEE Pacific Rim Conference on Communications, Computers and Signal Processing*, pages 1–4, Victoria, Canada, August 2001. IEEE Signal Processing Society.

[487] A. Pommer and A. Uhl. Application scenarios for selective encryption of visual data. In J. Dittmann, J. Fridrich, and P. Wohlmacher, editors, *Multimedia and Security Workshop, ACM Multimedia*, pages 71–74, Juan-les-Pins, France, December 2002.

[488] A. Pommer and A. Uhl. Selective encryption of wavelet packet subband structures for obscured transmission of visual data. In *Proceedings of the 3rd IEEE Benelux Signal Processing Symposium (SPS 2002)*, pages 25–28, Leuven, Belgium, March 2002. IEEE Benelux Signal Processing Chapter.

[489] A. Pommer and A. Uhl. Selective encryption of wavelet packet subband structures for secure transmission of visual data. In J. Dittmann, J. Fridrich, and P. Wohlmacher, editors, *Multimedia and Security Workshop, ACM Multimedia*, pages 67–70, Juan-les-Pins, France, December 2002.

[490] A. Pommer and A. Uhl. Selective encryption of wavelet-packet encoded image data — efficiency and security. *ACM Multimedia Systems (Special issue on Multimedia Security)*, 9(3):279–287, 2003.

[491] A. Pommer and A. Uhl. Lightweight protection of visual data using high-dimensional wavelet parametrization. In F. Roli and S. Vitulano, editors, *Image Analysis and Processing - ICIAP 2005*, volume 3617 of *Lecture Notes on Computer Science*, pages 645–652, Cagliari, Italy, September 2005. Springer-Verlag.

[492] A. Pommer and A. Uhl. *A web-based tool for MPEG encryption experiments*, volume 189 of *books@ocg.at*, pages 147–161. Austrian Computer Society, Salzburg, Austria, 2005.

[493] Mario Preishuber, Thomas Hütter, Stefan Katzenbeisser, and Andreas Uhl. Depreciating motivation and empirical security analysis of chaos-based image and video encryption. *IEEE Transactions on Information Forensics and Security*, 13(9):2137–2150, 2018.

[494] Bernhard Prommegger, Christof Kauba, Michael Linortner, and Andreas Uhl. Longitudinal finger rotation - deformation detection and correction. *IEEE Transactions on Biometrics, Behavior, and Identity Science*, 1(2):123–138, 2019.

[495] Bernhard Prommegger, Christof Kauba, and Andreas Uhl. Longitudinal finger rotation - problems and effects in finger-vein recognition. In *Proceedings of the International Conference of the Biometrics Special Interest Group (BIOSIG'18)*, pages 1–11, Darmstadt, Germany, 2018.

[496] Bernhard Prommegger, Christof Kauba, and Andreas Uhl. Multi-perspective finger-vein biometrics. In *2018 IEEE 9th International Conference on Biometrics Theory, Applications and Systems (BTAS)*, pages 1–9, Los Angeles, California, USA, 2018.

[497] Bernhard Prommegger, Christof Kauba, and Andreas Uhl. Different views on the finger score-level fusion in multi-perspective finger vein recognition. In Andreas Uhl, Christoph Busch, Sebastien Marcel, and Raymond Veldhuis, editors, *Handbook of Vascular Biometrics*, chapter 10, pages 261–305. Springer Nature Switzerland AG, Cham, Switzerland, 2019.

[498] Bernhard Prommegger, Christof Kauba, and Andreas Uhl. On the extent of longitudinal finger rotation in publicly available finger vein data sets. In *Proceedings of the 12th IAPR/IEEE International Conference on Biometrics (ICB'19)*, pages 1–8, Crete, Greece, 2019.

[499] Bernhard Prommegger and Andreas Uhl. Perspective multiplication for multi-perspective enrolment in finger vein recognition. In *Proceedings of the International Conference of the Biometrics Special Interest Group (BIOSIG'19)*, pages 107–117, Darmstadt, Germany, 2019.

[500] Bernhard Prommegger and Andreas Uhl. Rotation invariant finger vein recognition. In *2019 IEEE 10th International Conference on Biometrics Theory, Applications and Systems (BTAS)*, pages 1–9, Tampa, Florida, USA, 2019.

[501] Bernhard Prommegger and Andreas Uhl. Advanced multi-perspective enrolment in finger vein recognition. In *Proceedings of the 8th International Workshop on Biometrics and Forensics (IWBF'20)*, pages 1–6, Porto, Portugal, 2020.

[502] Bernhard Prommegger and Andreas Uhl. A fully rotation invariant multi-camera finger vein recognition system. *IET Biometrics*, 10(3):275–289, 2021.

[503] Bernhard Prommegger, Georg Wimmer, and Andreas Uhl. Rotation detection in finger vein biometrics using cnns. In *Proceedings of the 25th International Conference on Pattern Recognition (ICPR)*, pages 6531–6537, 2020.

[504] Bernhard Prommegger, Georg Wimmer, and Andreas Uhl. Rotation Tolerant Finger Vein Recognition using CNNs. In *Proceedings of the IEEE 20th International Conference of the Biometrics Special Interest Group (BIOSIG 2021)*, pages 1–8, Darmstadt, Germany, 2021.

[505] Bernhard Prommegger, Georg Wimmer, and Andreas Uhl. Cross sensor finger vein recognition. In *2022 International Conference of the Biometrics Special Interest Group (BIOSIG'22)*, pages 1–5, 2022.

[506] E. Pschernig and A. Uhl. Parallel algorithms for overlapped block-matching motion compensation. In R. Trobec, P. Zinterhof, M. Vajteršic, and A. Uhl, editors, *Parallel Numerics '02 – Theory and Applications (Proceedings of the International Workshop)*, pages 221–233, Bled, Slovenia, October 2002.

[507] E. Pschernig and A. Uhl. Parallel algorithms for overlapped block-matching motion compensation. *Parallel and Distributed Computing Practices*, 5(3):337–344, 2002.

[508] E. Pschernig and A. Uhl. Parallel overlapped block-matching motion compensation using MPI and OpenMP. In G.R. Joubert, W.E. Nagel, F.J. Peters, and W.V. Walter, editors, *Parallel Computing: Software Technology, Algorithms, Architectures, and Applications. Proceedings of the 10^{th} ParCo Conference in Dresden, 2003*, pages 193–199. Elsevier B.V., 2004.

[509] C. Rathgeb, A. Uhl, and P. Wild. Iris-biometric fuzzy commitment schemes under image compression. In *Proceedings of the 18th Iberoamerican Congress on Pattern Recognition (CIARP'13)*, volume 8259 of *Springer LNCS*, pages 374–381, Havana, Cuba, 2013.

[510] C. Rathgeb, A. Uhl, and P. Wild. Effects of severe image compression on iris segmentation performance (best poster award). In *Proceedings of the IAPR/IEEE International Joint Conference on Biometrics (IJCB'14)*, 2014.

[511] Christian Rathgeb, Angelika Botaljov, Fabian Stockhardt, Sergey Isadskiy, Luca Debiasi, Andreas Uhl, and Christoph Busch. Prnu-based detection of facial retouching. *IET Biometrics*, 9(4):154–164, 2020.

[512] Christian Rathgeb, Nicolas Buchmann, Heinz Hofbauer, Harald Baier, Andreas Uhl, and Christoph Busch. Methods for accuracy-preserving acceleration of large-scale comparisons in cpu-based iris recognition systems. *IET Biometrics*, 7(4):356–364, 2018.

[513] Christian Rathgeb, Heinz Hofbauer, Andreas Uhl, and Christoph Busch. TripleA: Accelerated accuracy-preserving alignment for iris-codes. In *Proceedings of the 9th IAPR/IEEE International Conference on Biometrics (ICB'16)*, pages 1–8, 2016.

[514] Christian Rathgeb and Andreas Uhl. Context-based texture analysis for secure revocable iris-biometric key generation. In *Proceedings of the 3rd International Conference on Imaging for Crime Detection and Prevention, ICDP '09*, London, UK, December 2009.

[515] Christian Rathgeb and Andreas Uhl. An iris-based interval-mapping scheme for biometric key generation. In *Proceedings of the 6th International Symposium on Image and Signal Processing and Analysis, ISPA '09*, Salzburg, Austria, September 2009.

[516] Christian Rathgeb and Andreas Uhl. Systematic construction of iris-based fuzzy commitment schemes. In M. Tistarelli and M.S. Nixon, editors, *Proceedings of the 3rd International Conference on Biometrics 2009 (ICB'09)*, volume 5558 of *LNCS*, pages 940–949, Alghero, Italy, June 2009. Springer Verlag.

[517] Christian Rathgeb and Andreas Uhl. Adaptive fuzzy commitment scheme based on iris-code error analysis (second best student paper award). In *Proceedings of the 2nd European Workshop on Visual Information Processing (EUVIP'10)*, pages 41–44, Paris, France, 2010.

[518] Christian Rathgeb and Andreas Uhl. Attacking iris recognition: An effcient hill-climbing technique. In *Proceedings of the 20th International Conference on Pattern Recognition (ICPR'10)*, pages 1217–1220, Istanbul, Turkey, 2010.

[519] Christian Rathgeb and Andreas Uhl. Context-based template matching in iris recognition. In *Proceedings of the IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP'10)*, pages 842–845, Dallas, TX, USA, March 2010.

[520] Christian Rathgeb and Andreas Uhl. Iris-biometric hash generation for biometric database indexing. In *Proceedings of the 20th International Conference on Pattern Recognition (ICPR'10)*, pages 2848–2851, Istanbul, Turkey, 2010.

[521] Christian Rathgeb and Andreas Uhl. Privacy preserving key generation for iris biometrics. In B. De Decker and I. Schaumller-Bichl, editors, *Proceedings of the 11th Joint IFIP TC6 and TC11 Conference on Communications and Multimedia Security, CMS '10*, volume 6102 of *IFIP Advances in Information and Communication Technology, Springer LNCS*, pages 191–200, Linz, Austria, May 2010.

[522] Christian Rathgeb and Andreas Uhl. Secure iris recognition based on local intensity variations. In *Proceedings of the International Conference on Image Analysis and Recognition (ICIAR'10)*, volume 6112 of *Springer LNCS*, pages 266–275, Povoa de Varzim, Portugal, June 2010.

[523] Christian Rathgeb and Andreas Uhl. Two-factor authentication or how to potentially counterfeit experimental results in biometric systems. In *Proceedings of the International Conference on Image Analysis and Recognition (ICIAR'10)*, volume 6112 of *Springer LNCS*, pages 296–305, Povoa de Varzim, Portugal, June 2010.

[524] Christian Rathgeb and Andreas Uhl. Context-based biometric key-generation for iris. *IET Computer Vision (Special Issue on Future Trends in Biometric Processing)*, 5:389–397, 2011.

[525] Christian Rathgeb and Andreas Uhl. The state-of-the-art in iris biometric cryptosystems. In J. Yang and L. Nanni, editors, *State of the art in Biometrics*, pages 179–202. InTech, 2011.

[526] Christian Rathgeb and Andreas Uhl. Statistical attack against iris-biometric fuzzy commitment schemes. In *Proceedings of the IEEE Computer Society and IEEE Biometrics Council Workshop on Biometrics (CVPRW'11)*, pages 25–32, Colorado Springs, CO, USA, June 2011.

[527] Christian Rathgeb and Andreas Uhl. A survey on biometric cryptosystems and cancelable biometrics. *EURASIP Journal on Information Security*, 2011(3), 2011.

[528] Christian Rathgeb and Andreas Uhl. Iris-biometric fuzzy commitment schemes under signal degradation. In A. Elmoataz, D. Mammass, O. Lezoray, F. Nouboud, and D. Aboutajdine, editors, *Proceedings of the 5th International Conference on Image and Signal Processing (ICISP'12)*, volume 7340 of *Springer LNCS*, pages 217–225, Agadir, Morocco, June 2012.

[529] Christian Rathgeb and Andreas Uhl. Statistical attack against fuzzy commitment scheme. *IET Biometrics*, 1(2):94–104, 2012.

[530] Christian Rathgeb, Andreas Uhl, and Christoph Busch. Ageing effects and implications for biometric template protection. In Michael Fairhurst, editor, *Age Factors in Biometric Processing*, chapter 4.3, pages 321–341. IET, London, UK, 2013.

[531] Christian Rathgeb, Andreas Uhl, and Peter Wild. Incremental iris recognition: A single-algorithm serial fusion strategy to optimize time complexity. In *Proceedings of the 4th IEEE International Conference on Biometrics: Theory, Application, and Systems 2010 (IEEE BTAS'10)*, pages 1–6, Washington DC, DC, USA, September 2010. IEEE Press.

[532] Christian Rathgeb, Andreas Uhl, and Peter Wild. Iris-biometric comparators: Minimizing trade-offs costs between computational performance and recognition accuracy. In *Proceedings of the 4th International Conference on Imaging for Crime Detection and Prevention, ICDP '11*, pages 1–6, London, UK, November 2011.

[533] Christian Rathgeb, Andreas Uhl, and Peter Wild. On combining selective best bits of iris-codes. In C. Vielhauer, J. Dittmann, A. Drygajlo, and M. Fairhust, editors, *Proceedings of the Biometrics and ID Management Workshop (BioID'11)*, volume 6583 of *Springer LNCS*, pages 227–237, Brandenburg on the Havel, Germany, March 2011.

[534] Christian Rathgeb, Andreas Uhl, and Peter Wild. Reliability-balanced feature level fusion for fuzzy commitment scheme (best poster paper award). In *Proceedings of the International Joint Conference on Biometrics (IJCB'11)*, pages 1–7, Washington DC, DC, USA, October 2011.

[535] Christian Rathgeb, Andreas Uhl, and Peter Wild. Shifting score fusion: On exploiting shifting variation in iris recognition. In *Proceedings of the 26th ACM Symposium on Applied Computing (SAC'11)*, pages 1–5, TaiChung, Taiwan, March 2011.

[536] Christian Rathgeb, Andreas Uhl, and Peter Wild. Iris-biometric comparators: Exploiting comparison scores towards an optimal alignment under gaussian assumption. In *Proceedings of the 5th IAPR/IEEE International Conference on Biometrics (ICB'12)*, pages 1–6, New Delhi, India, March 2012.

[537] Christian Rathgeb, Andreas Uhl, and Peter Wild. *Iris Recognition: From Segmentation to Template Security*, volume 59 of *Advances in Information Security*. Springer Verlag, 2013.

[538] Christian Rathgeb, Andreas Uhl, Peter Wild, and Heinz Hofbauer. Design decisions for an iris recognition sdk. In Kevin Bowyer and Mark J. Burge, editors, *Handbook of Iris Recognition*, Advances in Computer Vision and Pattern Recognition. Springer, second edition edition, 2016.

[539] M. Reichl, J. Hämmerle, and A. Uhl. Fractal quantizers for the wavelet transform domain. In *Proceedings of the International Picture Coding Symposium (PCS'97)*, volume 143 of *ITG-Fachberichte*, pages 207–212. VDE-Verlag, Berlin, Offenbach, September 1997.

[540] M. Reichl and A. Uhl. Predictive and direct fractal quantization of the wavelet packet domain. In *Visual Communications and Image Processing '98*, volume 3309 of *SPIE Proceedings*, pages 1062–1071. The International Society of Optical Engineers, January 1998.

[541] M. Reisecker and A. Uhl. Wavelet-packet subband structures in the evolution of the JPEG2000 standard. In *CD-ROM Proceedings of the 6th IEEE Nordic Signal Processing Symposium (NORSIG 2004)*, Espoo, Finland, June 2004. IEEE Norway Section.

[542] Oliver Remy, Jutta Hmmerle-Uhl, and Andreas Uhl. Fingervein sample image quality assessment using natural scene statistics. In *2022 International Conference of the Biometrics Special Interest Group (BIOSIG'22)*, pages 1–6, 2022.

[543] Oliver Remy, Sebastian Strumegger, Jutta Hämmerle-Uhl, and Andreas Uhl. Comparative compression robustness evaluation of digital image forensics. In *Computational Science and Its Applications – ICCSA 2022*, volume 13376 of *LNCS*, pages 236–246, Cham, 2022. Springer International Publishing.

[544] Mara Rhepp, Herbert Stögner, and Andreas Uhl. Comparison of JPEG and JPEG2000 in low-power confidential image transmission. In *Proceedings (CD-ROM) of the European Signal Processing Conference, EUSIPCO '04*, Vienna, Austria, September 2004. paper cr1360.

[545] Eduardo Ribeiro, Michael Häfner, Georg Wimmer, Toro Tamaki, J.J.W. Tischendorf, S. Yoshida, S. Tanaka, and Andreas Uhl. Exploring texture transfer learning for colonic polyp classification via convolutional neural networks. In *14th International IEEE Symposium on Biomedical Imaging (ISBI'17)*, April 2017.

[546] Eduardo Ribeiro and Andreas Uhl. Exploring texture transfer learning via convolutional neural networks for iris super resolution. In Arslan Brömme, Christoph Busch, Christian Rathgeb, and Andreas Uhl, editors, *Proceedings of the 2017 International Conference of the Biometrics Special Interest Group (BIOSIG'17), Darmstadt, Germany 2017*, LNI. GI / IEEE, 2017.

[547] Eduardo Ribeiro, Andreas Uhl, and Fernando Alonso-Fernandez. Iris super-resolution using CNNs: is photo-realism important to iris recognition? *IET Biometrics*, 1(8):69–78, 2018.

[548] Eduardo Ribeiro, Andreas Uhl, Fernando Alonso-Fernandez, and Reuben A. Farrugia. Exploring deep learning image super-resolution for iris recognition. In *Proc. of the 25th European Signal Processing Conference (EUSIPCO 2017), Kos Island, Greece, August 28 - September 2, 2017*, 2017.

[549] Eduardo Ribeiro, Andreas Uhl, and Michael Häfner. Colonic polyp classification with convolutional neural networks. In *Proceedings of the 29th IEEE International Symposium on Computer-Based Medical Systems (CBMS'16)*, pages 253–258, June 2016.

[550] Eduardo Ribeiro, Andreas Uhl, Georg Wimmer, and Michael Häfner. Exploring deep learning and transfer learning for colonic polyp classification. *Computational and Mathematical Methods in Medicine*, 2016:Article ID 6584725, 2016.

[551] Eduardo Ribeiro, Andreas Uhl, Georg Wimmer, and Michael Häfner. Transfer learning for colonic polyp classification using off-the-shelf cnn features (best paper award, 3rd place). In *Proceedings of the 3rd International Workshop on Computer-Assisted and Robotic Endoscopy (CARE'16)*, volume 10170 of *Springer LNCS*, pages 1–13, 2016.

[552] M. Rieger, J. Hämmerle-Uhl, and A. Uhl. Efficient iris sample data protection using selective jpeg2000 encryption of normalised texture. In *Proceedings of the 6th International Workshop on Biometrics and Forensics (IWBF'18)*, pages 1–7, Sassari, Italy, 2018.

[553] M. Rieger, J. Hämmerle-Uhl, and A. Uhl. Selective JPEG2000 Encryption of Iris Data: Protecting Sample Data vs. Normalised Texture. In *Proceedings of the IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP'19)*, pages 2602–2606, Brighton, UK, 2019.

[554] M. Rieger, J. Hämmerle-Uhl, and A. Uhl. Security assessment of partially encrypted visual data: Using iris recognition as generic measure (most outstanding iwbf'20 oral presentation award). In *Proceedings of the 8th International Workshop on Biometrics and Forensics (IWBF'20)*, pages 1–6, Porto, Portugal, 2020.

[555] M. Rieger, J. Hämmerle-Uhl, and A. Uhl. Security assessment of partially encrypted visual data: Iris recognition on protected samples. In *2021 IEEE International Conference on Image Processing (ICIP'21)*, pages 3008–3012, Anchorage, AK, USA, 2021.

[556] Muhammad Salman and Andreas Uhl. Countering Anti-Forensics of SIFT-Based Copy-Move Detection. In *Proceedings of the 25th International Conference on Pattern Recognition (ICPR)*, pages 2701–2707, 2020.

[557] Muhammad Salman and Andreas Uhl. Evaluating Counter Measures against SIFT Keypoint Forensics. In *Proceedings of the Joint Austrian Computer Vision and Robotics Workshop (ACVRW'20)*, pages 166 – 171, Graz, Austria, 2020.

[558] T. Schell and A. Uhl. Customized evolutionary optimization of subband structures for wavelet packet image compression. In N. Mastorakis, editor, *Advances in Fuzzy Systems and Evolutionary Computation*, pages 293–298, Puerto de la Cruz, S, February 2001. World Scientific Engineering Society.

[559] T. Schell and A. Uhl. New models for generating optimal wavelet-packet-tree-structures. In *Proceedings of the 3rd IEEE Benelux Signal Processing Symposium (SPS 2002)*, pages 225–228, Leuven, Belgium, March 2002. IEEE Benelux Signal Processing Chapter.

[560] T. Schell and A. Uhl. Wavelet packet image coding revisited. In *CD-ROM Proceedings of the 5th IEEE Nordic Signal Processing Symposium (NORSIG 2002)*, Tromso-Trondheim, Norway, October 2002. IEEE Norway Section. file cr1090.pdf.

[561] T. Schell and A. Uhl. Optimization and assessment of wavelet packet decompositions with evolutionary computation. *EURASIP Journal on Applied Signal Processing*, 2003(8):806–813, 2003.

[562] T. Schell, A. Uhl, and P. Zinterhof. Measures of uniform distribution in wavelet based image compression. *Monte Carlo Methods and Applications*, 10(3-4):587–598, 2004.

[563] Ulrich Scherhag, Luca Debiasi, Christian Rathgeb, Christoph Busch, and Andreas Uhl. Detection of face morphing attacks based on prnu analysis. *IEEE Transactions on Biometrics, Behavior, and Identity Science (TBIOM)*, 1(4):302–317, 2019.

[564] W. Ch. Schmid and A. Uhl. Parallel quasi-Monte Carlo integration using leaped (t,s)-sequences. In M. Vajtersic, P. Zinterhof, R. Trobec, and R. Wyrzykowski, editors, *Proceedings of the International Workshop Parallel Numerics 1999 (ParNum'99)*, volume 99-1 of *Technical Report Series of the ACPC*, pages 89–102, 1999.

[565] W. Ch. Schmid and A. Uhl. Parallel quasi-Monte Carlo integration using (t,s)-sequences. In P. Zinterhof, M. Vajtersic, and A. Uhl, editors, *Parallel Computation. Proceedings of ACPC'99*, volume 1557 of *Lecture Notes on Computer Science*, pages 96–106. Springer-Verlag, 1999.

[566] W. Ch. Schmid and A. Uhl. Techniques for parallel quasi-Monte Carlo integration with digital sequences and associated problems. *Mathematics and Computers in Simulation*, 55:249–257, 2001.

[567] Kevin Schörgnhofer, Thomas S. Dafir, and Andreas Uhl. Multi-sample compression of finger vein images using H.265 video coding. In *Proceedings of the 12th IAPR/IEEE International Conference on Biometrics (ICB'19)*, pages 1–8, Crete, Greece, 2019.

[568] Rudolf Schraml, Johann Charwat-Pessler, Karl Entacher, Alexander Petutschnigg, and Andreas Uhl. Roundwood tracking using log end biometrics. In *Proceedings of the Annual GIL Meeting (GIL'2016)*, LNI, pages 189–192. Gesellschaft fr Informatik, 2016.

[569] Rudolf Schraml, Johann Charwat-Pessler, Alexander Petutschnigg, and Andreas Uhl. Towards the applicability of biometric wood log traceability using digital log end images. *Computers and Electronics in Agriculture*, 119:112–122, 2015.

[570] Rudolf Schraml, Johann Charwat-Pessler, and Andreas Uhl. Temporal and longitudinal variances in wood log cross-section image analysis. In *IEEE International Conference on Image Processing (ICIP'14)*, Paris, FR, October 2014.

[571] Rudolf Schraml, Luca Debiasi, Christof Kauba, and Andreas Uhl. On the feasibility of classification-based product package authentication. In *IEEE Workshop on Information Forensics and Security (WIFS'17)*, page 6, Rennes, FR, December 2017.

[572] Rudolf Schraml, Luca Debiasi, and Andreas Uhl. Real or fake: Mobile device drug packaging authentication. In *Proceedings of the 6th ACM Workshop on Information Hiding and Multimedia Security (IH&MMSec 2018)*, pages 121–126, 2018.

[573] Rudolf Schraml, Karl Entacher, Alexander Petutschnigg, Timothy Young, and Andreas Uhl. Matching score models for hyperspectral range analysis to improve wood log traceability by fingerprint methods. *Mathematics*, 8(7):10, 2020.

[574] Rudolf Schraml, Heinz Hofbauer, Ehsaneddin Jalilian, Dinara Bekkozhayeva, Mohammadmehdi Saberioon, Petr Cisar, and Andreas Uhl. Towards fish individuality-based aquaculture. *IEEE Transactions on Industrial Informatics*, 17(6):4356–4366, 2021.

[575] Rudolf Schraml, Heinz Hofbauer, Alexander Petutschnigg, and Andreas Uhl. Tree log identification based on digital cross-section images of log ends using fingerprint and iris recognition methods. In *Proceedings of the 16th International Conference on Computer Analysis of Images and Patterns (CAIP'15)*, LNCS, pages 752–765. Springer Verlag, 2015.

[576] Rudolf Schraml, Heinz Hofbauer, Alexander Petutschnigg, and Andreas Uhl. On rotational pre-alignment for tree log end identification using methods inspired by fingerprint and iris recognition. *Machine Vision and Applications*, 27(8):1289–1298, 2016.

[577] Rudolf Schraml, Alexander Petutschnigg, and Andreas Uhl. Validation and reliability of the discriminative power of geometric wood log end features. In *Proceedings of the IEEE International Conference on Image Processing (ICIP'15)*, pages 3665–3669, 2015.

[578] Rudolf Schraml and Andreas Uhl. Pith estimation on rough log end images using local fourier spectrum analysis. In *Proceedings of the 14th Conference on Computer Graphics and Imaging (CGIM'13)*, Innsbruck, AUT, February 2013.

[579] Rudolf Schraml and Andreas Uhl. Similarity based cross-section segmentation in rough log end images. In L. Iliadis et al., editors, *Proceedings of the 10th Artificial Intelligence Applications and Innovations Conference (AIAI'14)*, volume 436 of *Springer IFIP AICT*, pages 614–621, Rhodes, GR, September 2014.

[580] Rudolf Schraml, Georg Wimmer, Heinz Hofbauer, Ehsaneddin Jalilian, Andreas Uhl, Dinara Bekkozhayeva, and Petr Cisar. Cnn-based fish iris identification. In *Proceedings of the 30th European Signal Processing Conference (EUSIPCO 2022)*, Belgrad, Serbia, 2022.

[581] A. Schuchter and A. Uhl. Low cost JPEG2000 based video coding system. In Y. He, J. Ostermann, S.U. Lee, and J. Chen, editors, *Proceedings of the International Picture Coding Symposium (PCS'06)*, April 2006.

[582] A. Schuchter and A. Uhl. Embedded low complexity JPEG2000 videocoding system. In *Proceedings of the 2007 IEEE/ACM/IFIP Workshop on Embedded Systems for Real-Time Multimedia (ESTImedia)*, pages 77–82, Salzburg, Austria, October 2007. IEEE Press.

[583] A. Schuchter and A. Uhl. Hardware-based JPEG2000 video coding system. In N. Kehtarnavaz and M.F. Carlsohn, editors, *Real-Time Image Processing 2007*, number 6496 in Proceedings of SPIE, pages 64960G–1 – 64960G–10, San Jose, CA, USA, January 2007. SPIE.

[584] Arthur Schuchter and Andreas Uhl. Block selective motion estimation for low-complexity video coding. In *Proceedings of the 16th International Conference on Digital Signal Processing (DSP '09)*, Santorini, Greece, July 2009.

[585] Arthur Schuchter and Andreas Uhl. Differential frame analysis and selective motion estimation approach for an inter-frame JPEG2000 video coding system. In *Stereology and Image Analysis – ECS10: Proceedings of the 10th European Congress of ISS*, pages 415–420, Milano, Italy, June 2009.

[586] Arthur Schuchter and Andreas Uhl. Embedded hardware low cost JPEG2000 video coding system: Hardware coder for surveillance type videos. *Journal of Real-Time Image Processing*, pages DOI: 10.1007/s11554–009–0131–3, 2009.

[587] Arthur Schuchter and Andreas Uhl. A wavelet filter evaluation for an inter-frame jpeg2000 adaptive video coding system. Technical Report 2009-01, Department of Computer Sciences, University of Salzburg, Austria, January 2009.

[588] Arthur Schuchter and Andreas Uhl. Fast motion estimation approaches for surveillance-type videos in an inter-frame jpeg 2000-based adaptive video coding system. *IET Image Processing*, 6(1):31–42, 2012.

[589] Johannes Schuiki, Christof Kauba, Heinz Hofbauer, and Andreas Uhl. Cross-sensor micro-texture material classification and smartphone acquisition do not go well together. In *Proceedings of the 11th International Workshop on Biometrics and Forensics (IWBF'23)*, pages 1–6, Barcelona, Spain, 2023.

[590] Johannes Schuiki, Christof Kauba, Heinz Hofbauer, and Andreas Uhl. Limiting factors in smartphone-based cross-sensor microstructure material classification. In *22th International Workshop on Digital-forensics and Watermarking (IWDW'23)*, volume 0000 of *Springer LNCS*, pages 000–000, Jinan, China, 2023.

[591] Johannes Schuiki, Miriam Landkammer, Michael Linortner, Isabella Nicka, and Andreas Uhl. Towards using natural images of wood to retrieve painterly depictions of the wood of christ's cross. In *Image Analysis and Processing. ICIAP 2023 Workshops (Fine Art Pattern Extraction and Recognition (FAPER'23))*, pages 1–12, Cham, 2023. Springer International Publishing.

[592] Johannes Schuiki, Michael Linortner, Georg Wimmer, and Andreas Uhl. Attack detection for finger and palm vein biometrics by fusion of multiple recognition algorithms. *IEEE Transactions on Biometrics, Behavior, and Identity Science*, 4(4):544 – 555, 2022.

[593] Johannes Schuiki, Michael Linortner, Georg Wimmer, and Andreas Uhl. Extensive threat analysis of vein attack databases and attack detection by fusion of comparison scores. In Sebastien Marcel, Julian Fierrez, and Nicholas Evans, editors, *Handbook of Biometric Anti-Spoofing: Presentation Attack Detection and Vulnerability Assessment*, pages 467–487. Springer Nature Singapore, Singapore, 2023.

[594] Johannes Schuiki, Bernhard Prommegger, and Andreas Uhl. Confronting a variety of finger vein recognition algorithms with wax presentation attack artefacts. In *Proceedings of the 9th IEEE International Workshop on Biometrics and Forensics (IWBF'21)*, pages 1–6, Rome, Italy, 2021.

[595] Johannes Schuiki, Georg Wimmer, and Andreas Uhl. Vulnerability assessment and presentation attack detection using a set of distinct finger vein recognition algorithms. In *2021 IEEE International Joint Conference on Biometrics (IJCB)*, pages 1–7, Shenzhen (China), 2021.

[596] R. Schürer and A. Uhl. An evaluation of adaptive numerical integration algorithms on parallel systems. *Parallel Algorithms and Applications*, 18(1–2):13–26, 2003.

[597] Ana F. Sequeira, James Ferryman, Lulu Chen, Chiara Galdi, Jean-Luc Dugelay, Valeria Chiesa, Andreas Uhl, Bernhard Prommegger, Christof Kauba, Simon Kirchgasser, Artur Grudzien, Marcin Kowalski, Lukasz Szklarski, Patryk Maik, and Piotr Gmitrowicz. Protect multimodal db: a multimodal biometrics dataset envisaging border control. In *Proceedings of the International Conference of the Biometrics Special Interest Group (BIOSIG'18)*, pages 1–8, Darmstadt, Germany, 2018.

[598] Sanjay Shekhawat, Heinz Hofbauer, Bernhard Prommegger, and Andreas Uhl. Efficient fingervein sample image encryption. In *Proceedings of the 8th International Workshop on Biometrics and Forensics (IWBF'20)*, pages 1–6, Porto, Portugal, 2020. Shortlisted for best paper award.

[599] Champskud J. Skrepth and Andreas Uhl. Selective encryption of visual data: Classification of application scenarios and comparison of techniques for lossless environments. In B. Jerman-Blazic and T. Klobucar, editors, *Advanced Communications and Multimedia Security, IFIP TC6/TC11 Sixth Joint Working Conference on Communications and Multimedia Security, CMS '02*, pages 213 – 226, Portoroz, Slovenia, September 2002. Kluver Academic Publishing.

[600] Champskud J. Skrepth and Andreas Uhl. Robust hash-functions for visual data: An experimental comparison. In F. J. Perales et al., editors, *Pattern Recognition and Image Analysis, Proceedings of IbPRIA 2003, the First Iberian Conference on Pattern Recognition and Image Analysis*, volume 2652 of *Lecture Notes on Computer Science*, pages 986–993, Puerto de Andratx, Mallorca, Spain, June 2003. Springer Verlag, Berlin, Germany.

[601] Dominik Söllinger, Luca Debiasi, and Andreas Uhl. Can you really trust the sensor's prnu? how image content might impact the finger vein sensor identification performance. In *Proceedings of the 25th International Conference on Pattern Recognition (ICPR)*, pages 7782–7789, 2021.

[602] Dominik Söllinger, Robert Jöchl, Simon Kirchgasser, and Andreas Uhl. Can point-cloud based neural networks learn fingerprint variability? In *Proceedings of the IEEE 21th International Conference of the Biometrics Special Interest Group (BIOSIG 2022)*, pages 1–8, Darmstadt, Germany, 2022.

[603] Dominik Söllinger, Simon Kirchgasser, Andrey Makrushin, Jana Dittmann, and Andreas Uhl. Protocol based similarity evaluation of publicly available synthetic and real fingerprint datasets. In *2023 IEEE International Joint Conference on Biometrics (IJCB'23)*, pages 1–8, Ljubljana (Slovenia), 2023.

[604] Dominik Söllinger, Babak Maser, and Andreas Uhl. PRNU-based finger vein sensor identification: On the effect of different sensor croppings. In *Proceedings of the 12th IAPR/IEEE International Conference on Biometrics (ICB'19)*, pages 1–8, Crete, Greece, 2019.

[605] Dominik Söllinger, Pauline Trung, and Andreas Uhl. Non-reference image quality assessment and natural scene statistics to counter biometric sensor spoofing. *IET Biometrics*, 7(4):314–324, 2018.

[606] Dominik Söllinger and Andreas Uhl. Optimizing contactless to contact-based fingerprint comparison using simple parametric warping models. In *2021 IEEE International Joint Conference on Biometrics (IJCB)*, pages 1–7, 2021.

[607] Herbert Stögner, Andreas Uhl, and Georg Weinhandel. Experiments on improving lossless compression of biometric iris sample data. In B. Zovko-Cihlar, N. Behlilovic, and M. Hadzialic, editors, *Proceedings of the 18th International Conference on Systems, Signals and Image Processing (IWSSIP'11)*, pages 217 – 220, 2011.

[608] Thomas Stütz, Florent Autrusseau, and Andreas Uhl. Non-blind structure-preserving substitution watermarking of H.264/CAVLC inter-frames. *IEEE Transactions on Multimedia*, 16(5):1337–1349, 2014.

[609] Thomas Stütz, Bernhard Mühlbacher, and Andreas Uhl. Best wavelet packet bases in a JPEG2000 rate-distortion sense: The impact of header data. In *Proceedings of the IEEE International Conference on Multimedia & Expo, ICME '10*, pages 19–24, Singapore, July 2010. IEEE.

[610] Thomas Stütz, Vinod Pankajakshan, Florent Autrusseau, Andreas Uhl, and Heinz Hofbauer. Subjective and objective quality assessment of transparently encrypted JPEG2000 images. In *Proceedings of the ACM Multimedia and Security Workshop (MMSEC '10)*, pages 247–252, Rome, Italy, September 2010. ACM.

[611] Thomas Stütz and Andreas Uhl. Image confidentiality using progressive JPEG. In *Proceedings of Fifth International Conference on Information, Communication and Signal Processing, ICICS '05*, pages 1107–1111, Bangkok, Thailand, December 2005. IEEE.

[612] Thomas Stütz and Andreas Uhl. On format-compliant iterative encryption of JPEG2000. In *Proceedings of the Eighth IEEE International Symposium on Multimedia (ISM'06)*, pages 985–990, San Diego, CA, USA, December 2006. IEEE Computer Society.

[613] Thomas Stütz and Andreas Uhl. Transparent image encryption using progressive JPEG. In S.K. Katsikas et al., editors, *Information Security. Proceedings of the 9th Infomation Security Conference (ISC'06)*, volume 4176 of *Lecture Notes on Computer Science*, pages 286–298. Springer Verlag, September 2006.

[614] Thomas Stütz and Andreas Uhl. Evaluation of compression codecs and selective encryption schemes for GVid. In J. Volkert, T. Fahringer, D. Kranzlmüller, and W. Schreiner, editors, *Proceedings of the 2nd Austrian Grid Symposium*, volume 221 of *books@ocg.at*, pages 28–41, Innsbruck, Austria, 2007. Austrian Computer Society.

[615] Thomas Stütz and Andreas Uhl. On efficient transparent JPEG2000 encryption. In *Proceedings of ACM Multimedia and Security Workshop, MM-SEC '07*, pages 97–108, New York, NY, USA, September 2007. ACM.

[616] Thomas Stütz and Andreas Uhl. Format-compliant encryption of H.264/AVC and SVC. In *Proceedings of the Eighth IEEE International Symposium on Multimedia (ISM'08)*, pages 446–451, Berkeley, CA, USA, December 2008. IEEE Computer Society.

[617] Thomas Stütz and Andreas Uhl. On JPEG2000 error concealment attacks. In *Advantages in Image and Video Technology: Proceedings of the 3rd Pacific-Rim Symposium on Image and Video Technology, PSIVT '09*, Lecture Notes in Computer Science, pages 851–861, Tokyo, Japan, January 2009. Springer.

[618] Thomas Stütz and Andreas Uhl. Efficient format-compliant encryption of regular languages: Block-based cycle-walking. In B. De Decker and I. Schaumller-Bichl, editors, *Proceedings of the 11th Joint IFIP TC6 and TC11 Conference on Communications and Multimedia Security, CMS '10*, volume 6109 of *IFIP Advances in Information and Communication Technology*, pages 81–92, Linz, Austria, May 2010. Springer.

[619] Thomas Stütz and Andreas Uhl. (In)secure multimedia transmission over RTP. In *Proceedings of the 18th European Signal Processing Conference, EUSIPCO '10*, Aarlborg, Danmark, August 2010. EURASIP.

[620] Thomas Stütz and Andreas Uhl. Efficient wavelet packet basis selection in JPEG2000. In *Proceedings of the IEEE International Conference on Image Processing, ICIP '11*, pages 317–320, Brussels, Belgium, September 2011.

[621] Thomas Stütz and Andreas Uhl. Efficient and rate-distortion optimal wavelet packet basis selection in JPEG2000. *IEEE Transactions on Multimedia*, 14(2):264–277, 2012.

[622] Thomas Stütz and Andreas Uhl. Efficient anisotropic wavelet packet basis selection in JPEG2000. In *Proceedings of the IEEE International Conference on Acoustics, Speech and Signal Processing, ICASSP '12*, pages 777–780, Kyoto, Japan, March 2012.

[623] Thomas Stütz and Andreas Uhl. A survey of H.264 AVC/SVC encryption. *IEEE Transactions on Circuits and Systems for Video Technology*, 22(3):325–339, 2012.

[624] F. Tischler and A. Uhl. Communication patterns in MPI-based parallel block-matching. In R. Trobec, P. Zinterhof, M. Vajteršic, and A. Uhl, editors, *Parallel Numerics '02 – Theory and Applications (Proceedings of the International Workshop)*, pages 211–220, Bled, Slovenia, October 2002.

[625] F. Tischler and A. Uhl. Granularity levels in parallel block-matching motion compensation. In D. Kranzlmüller, P. Kacsuk, J. Dongarra, and J. Volkert, editors, *Recent advances in Parallel Virtual Machine and Message Passing Interface (EuroPVM/MPI) - 9th European PVM/MPI Users Group Meeting*, volume 2474 of *Lecture Notes on Computer Science*, pages 183 – 190. Springer-Verlag, September 2002.

[626] F. Tischler and A. Uhl. Dynamic granularity switching in parallel block-matching motion compensation. In M. Danelutto, D. Laforenza, and M. Vanneschi, editors, *Parallel Processing. Proceedings of EuroPar'04*, volume 3149 of *Lecture Notes on Computer Science*, pages 768–775. Springer-Verlag, September 2004.

[627] F. Tischler and A. Uhl. Limitations of cluster computing in a communication intensive multimedia application. In R. Trobec, P. Zinterhof, M. Vajteršic, and A. Uhl, editors, *Parallel Numerics '05 – Theory and Applications (Proceedings of the International Workshop)*, pages 129–139, Portoroz, Slovenia, April 2005.

[628] R. Trobec, P. Zinterhof, M. Vajteršic, and A. Uhl, editors. *Parallel Numerics (Theory and Applications) 2002*, Bled, Slovenia, October 2002.

[629] A. Uhl. Zwei Vermutungen in der Theorie der Kettenbrüche und deren Bedeutung in der numerischen Analysis. Master's thesis, University of Salzburg, 1992.

[630] A. Uhl. Compact image coding using wavelets and wavelet packets based on non-stationary and inhomogeneous multiresolution analyses. In A.F. Laine and M. Unser, editors, *Mathematical Imaging: Wavelet applications in signal and image processing II*, volume 2303 of *SPIE Proceedings*, pages 378–388, 1994.

[631] A. Uhl. Digital image compression using non-stationary and inhomogeneous multiresolution analyses. In A. Bovik, editor, *Proceedings of the first IEEE international conference on image processing*, pages III/378–382. IEEE Press, 1994.

[632] A. Uhl. Parallel compact coding of satellite images with wavelet packets using PVM. In V.K. Prasanna, V.P. Bhaktar, L.M. Patnaik, and S.K. Tripathi, editors, *Parallel Processing – Proceedings of the International Workshop on Parallel Processing*, pages 382–387. Tata-McGraw Hill, 1994.

[633] A. Uhl. Adapted wavelet analysis an moderate parallel distributed memory MIMD architectures. In A. Ferreira and J. Rolim, editors, *Parallel Algorithms for Irregulary Structured Problems*, volume 980 of *Lecture Notes in Computer Science*, pages 275–284. Springer, 1995.

[634] A. Uhl. The best basis and local discriminant bases algorithms on moderate parallel MIMD architectures. In G. DePietro, A. Giordano, M. Vajtersic, and P. Zinterhof, editors, *Proceedings of the International Workshop Parallel Numerics '95*, pages 99–112, 1995.

[635] A. Uhl. A parallel wavelet image block-coding algorithm. In S. Sahni, V.K. Prasanna, and V.P. Bhaktar, editors, *High Performance Computing – Proceedings of the International Conference on High Performance Computing*, pages 61–66. Tata-McGraw Hill, 1995.

[636] A. Uhl. Vector and parallel wavelet transforms for the analysis of time varying signals. In R.S. Schreiber et al., editors, *Proceedings of the seventh SIAM conference on parallel processing for scientific computing*, pages 9–14, 1995.

[637] A. Uhl. Adaptive quadtree based wavelet packet image block-coding on MIMD parallel architectures. In R. Trobec, M. Vajtersic, P. Zinterhof, J. Slic, and B. Robic, editors, *Proceedings of the International Workshop on Parallel Numerics (Parnum'96)*, pages 102–112, 1996.

[638] A. Uhl. Adaptive wavelet image block coding. In H.H. Szu, editor, *Wavelet Applications III*, volume 2762 of *SPIE Proceedings*, pages 127–135, Orlando, FL, USA, April 1996.

[639] A. Uhl. Image compression using non-stationary and inhomogeneous multiresolution analyses. *Image and Vision Computing*, 14(5):365–371, 1996.

[640] A. Uhl. Parallel algorithms for using non-stationary MRA in image compression. In L. Bougne, P. Fraigniaud, A. Mignotte, and Y. Robert, editors, *Parallel Processing. Proceedings of EuroPar'96*, volume 1124 of *Lecture Notes on Computer Science*, pages 151–154. Springer, 1996.

[641] A. Uhl. Wavelet image block coding - adaptive methods and parallel implementation. In *Proceedings of the International Picture Coding Symposium (PCS'96)*, pages 669–674, Melbourne, Australia, March 1996.

[642] A. Uhl. Wavelet packet best basis selection on moderate parallel MIMD architectures. *Parallel Computing*, 22(1):149–158, 1996.

[643] A. Uhl. *Wavelets: adaptive and parallel methods in image coding and signal processing.* PhD thesis, University of Salzburg, 1996.

[644] A. Uhl. Generalized wavelet decompositions in image compression: arbitrary subbands and parallel algorithms. *Optical Engineering*, 36(5):1480–1487, 1997.

[645] A. Uhl. Parallel computing in cryptoanalysis: Experiences in a graduate students' project. In R. Wyrzykowski, H. Piech, B. Mochnacki, M. Vajtersic, and P. Zinterhof, editors, *Proceedings of the International Workshop on Parallel Numerics (Parnum'97)*, pages 85–91, Zakopane, Poland, September 1997.

[646] A. Uhl. On the significance of the zerotree hypothesis for wavelet-based image coding. In Johannes R. Sveinsson, editor, *Proceedings of the 7th Nordic Signal Processing Symposium (NORSIG 2006)*, pages 166–169, Reykavik, Iceland, June 2006. IEEE.

[647] A. Uhl and A. Bruckmann. Double tree wavelet image compression on parallel MIMD computers. In *Proceedings of the sixth International Conference on Image Processing and its Applications (IPA'97)*, volume 443 of *IEE Conference Publications*, pages 179–183, Dublin, Ireland, July 1997.

[648] A. Uhl and J. Hämmerle. Image compression on a workstationcluster using PVM. In A. Bode, J. Dongarra, and V. Sunderam, editors, *Parallel Virtual Machine – EuroPVM'96*, volume 1156 of *Lecture Notes on Computer Science*, pages 301–304. Springer, 1996.

[649] A. Uhl and J. Hämmerle. Fractal image compression on MIMD architectures I: Basic algorithms. *Parallel Algorithms and Applications*, 11(3–4):187–204, 1997.

[650] A. Uhl and J. Hämmerle. Issues in implementing block-based image compression techniques on parallel MIMD architectures. In J. Biemond and E.J. Delp, editors, *Visual Communications and Image Processing '97*, volume 3024 of *SPIE Proceedings*, pages 494–501, San Jose, February 1997.

[651] A. Uhl and Ch. Obermair. Transparent encryption of JPEG2000 bitstreams. In P. Podhradsky et al., editors, *Proceedings EC-SIP-M 2005 (5th EURASIP Conference focused on Speech and Image Processing, Multimedia Communications and Services)*, pages 322–327, Smolenice, Slovak Republic, 2005.

[652] A. Uhl and A. Pommer. Are parameterised biorthogonal wavelet filters suited (better) for selective encryption? In Jana Dittmann and Jessica Fridrich, editors, *Multimedia and Security Workshop 2004*, pages 100–106, Magdeburg, Germany, September 2004.

[653] A. Uhl and A. Pommer. *Image and Video Encryption. From Digital Rights Management to Secured Personal Communication*, volume 15 of *Advances in Information Security.* Springer-Verlag, 2005.

[654] A. Uhl, A. Vécsei, and G. Wimmer. Complex wavelet transform variants in a scale invariant classification of celiac disease. In J. Vitria, J. M. Sanches, and M. Hernandez, editors, *Proceedings of the 5th Iberian Conference on Pattern Recognition and Image Analysis (IbPRIA 2011)*, volume 6669 of *LNCS*, pages 742–749, Las Palmas de Gran Canaria, Spain, June 2011. Springer Verlag.

[655] A. Uhl, A. Vécsei, and G. Wimmer. Fractal analysis for the viewpoint invariant classification of celiac disease. In *Proceedings of the 7th International Symposium on Image and Signal Processing (ISPA 2011)*, pages 727 –732, Dubrovnik, Croatia, September 2011.

[656] A. Uhl and P. Wild. Fusion of iris segmentation results. In *Proceedings of the 18th Iberoamerican Congress on Pattern Recognition (CIARP'13)*, volume 8259 of *Springer LNCS*, pages 310–317, Havana, Cuba, 2013.

[657] Andreas Uhl. State of the art in vascular biometrics. In Andreas Uhl, Christoph Busch, Sebastien Marcel, and Raymond Veldhuis, editors, *Handbook of Vascular Biometrics*, chapter 1, pages 3 – 61. Springer Nature Switzerland AG, Cham, Switzerland, 2019.

[658] Andreas Uhl. Venen biometrie – stand der technik. *Datenschutz und Datensicherheit*, 1:16 – 22, 2020.

[659] Andreas Uhl. Eye-based vascular patterns. In Sushil Jajodia, Pierangela Samarati, and Moti Yung, editors, *Encyclopedia of Cryptography, Security and Privacy*, pages 1 – 4. Springer Berlin Heidelberg, Berlin, Heidelberg, Germany, 2021.

[660] Andreas Uhl. Hand-based vascular patterns. In Sushil Jajodia, Pierangela Samarati, and Moti Yung, editors, *Encyclopedia of Cryptography, Security and Privacy*, pages 1 – 5. Springer Berlin Heidelberg, Berlin, Heidelberg, Germany, 2021.

[661] Andreas Uhl, Christoph Busch, Sebastien Marcel, and Raymond Veldhuis. *Handbook of Vascular Biometrics*. Advances in Computer Vision and Pattern Recognition. Springer Nature Switzerland AG, Cham, Switzerland, 2019.

[662] Andreas Uhl and Yvonne Höller. Iris-sensor authentication using camera PRNU fingerprints. In *Proceedings of the 5th IAPR/IEEE International Conference on Biometrics (ICB'12)*, pages 1–8, New Delhi, India, March 2012.

[663] Andreas Uhl and Christian Rathgeb. Biometric encryption. In Sushil Jajodia, Pierangela Samarati, and Moti Yung, editors, *Encyclopedia of Cryptography, Security and Privacy*, pages 1 – 6. Springer Berlin Heidelberg, Berlin, Heidelberg, Germany, 2021.

[664] Andreas Uhl and Peter Wild. Personal identification using eigenfeet, ballprint and foot geometry biometrics. In *Proceedings of the First IEEE International Conference on Biometrics: Theory, Application, and Systems 2007 (IEEE BTAS'07)*, pages 1–6. IEEE Press, October 2007.

[665] Andreas Uhl and Peter Wild. Footprint-based biometric verification. *Journal of Electronic Imaging*, 17:011016, doi:10.1117/1.2892674, 2008.

[666] Andreas Uhl and Peter Wild. Personal recognition using single-sensor multimodal hand biometrics. In A. Elmoataz, O. Lezoray, F. Nouboud, and D. Mammass, editors, *Image and Signal Processing. Proceedings of ICISP 2008*, volume 5099 of *LNCS*, pages 396–404. Springer Verlag, 2008.

[667] Andreas Uhl and Peter Wild. Comparing verification performance of kids and adults for fingerprint, palmprint, hand-geometry and digitprint biometrics. In *Proceedings of the 3rd IEEE International Conference on Biometrics: Theory, Application, and Systems 2009 (IEEE BTAS'09)*, pages 1–6. IEEE Press, October 2009.

[668] Andreas Uhl and Peter Wild. Parallel versus serial classifier combination for multibiometric hand-based identification. In M. Tistarelli and M.S. Nixon, editors, *Proceedings of the 3rd International Conference on Biometrics 2009 (ICB'09)*, volume 5558 of *LNCS*, pages 950–959. Springer Verlag, 2009.

[669] Andreas Uhl and Peter Wild. Single-sensor multi-instance fingerprint and eigenfinger recognition using (weighted) score combination methods. *International Journal on Biometrics (Special Issue on Multimodal Biometric and Biometric Fusion)*, 1(4):442–462, 2009.

[670] Andreas Uhl and Peter Wild. Combining face with face-part detectors under gaussian assumption. In *Proceedings of the International Conference on Image Analysis and Recognition (ICIAR'12)*, LNCS, pages 80–89, Aveiro, Portugal, 2012.

[671] Andreas Uhl and Peter Wild. Multi-stage visible wavelength and near infrared iris segmentation framework. In *Proceedings of the International Conference on Image Analysis and Recognition (ICIAR'12)*, LNCS, pages 1–10, Aveiro, Portugal, 2012.

[672] Andreas Uhl and Peter Wild. Weighted adaptive hough and ellipsopolar transforms for real-time iris segmentation. In *Proceedings of the 5th IAPR/IEEE International Conference on Biometrics (ICB'12)*, pages 1–8, New Delhi, India, March 2012.

[673] Andreas Uhl and Peter Wild. Ageing effects in fingerprint biometrics. In Michael Fairhurst, editor, *Age Factors in Biometric Processing*, chapter 2.4, pages 153–170. IET, London, UK, 2013.

[674] Andreas Uhl and Peter Wild. Experimental evidence of ageing in hand biometrics. In *Proceedings of the International Conference of the Biometrics Special Interest Group (BIOSIG'13)*, Darmstadt, Germany, September 2013.

[675] Andreas Uhl and Georg Wimmer. A systematic evaluation of the scale invariance of texture recognition methods. *Pattern Analysis and Applications*, 18:945–969, 2015.

[676] Andreas Unterweger, Jan De Cock, and Andreas Uhl. Bit-stream-based scrambling for regions of interest in h.264/avc videos with drift reduction. In *Proceedings of the sixth International Conference on Image Processing Theory, Tools and Applications (IPTA'16)*, pages paper P17, 6 pages, 2016.

[677] Andreas Unterweger and Andreas Uhl. Length-preserving Bit-stream-based JPEG Encryption. In *MM&Sec'12: Proceedings of the 14th ACM Multimedia and Security Workshop*, pages 85–89. ACM, September 2012.

[678] Andreas Unterweger and Andreas Uhl. Slice groups for post-compression region of interest encryption in H.264/AVC and its scalable extension. *Signal Processing: Image Communication*, 29(10):1158–1170, November 2014.

[679] Andreas Unterweger and Andreas Uhl. Slice Groups for Post-Compression Region of Interest Encryption in SVC. In *IH&MMSec'14: Proceedings of the 2014 ACM Information Hiding and Multimedia Security Workshop*, pages 15–22, Salzburg, Austria, June 2014. ACM.

[680] Andreas Unterweger, Kevin Van Ryckegem, Dominik Engel, and Andreas Uhl. Building a Post-Compression Region-of-Interest Encryption Framework for Existing Video Surveillance Systems – Challenges, obstacles and practical concerns. *Multimedia Systems*, 22(5):617–639, 2015.

[681] M. Vajteršic, R. Trobec, P. Zinterhof, and A. Uhl, editors. *Parallel Numerics 2005 (Theory and Applications)*, Portoroz, Slovenia, April 2005.

[682] A. Vécsei, G. Amann, S. Hegenbart, M. Liedlgruber, and A. Uhl. Automated marsh-like classification of celiac disease in children using an optimized local texture operator. *Computers in Biology and Medicine*, 41(6):313–325, June 2011.

[683] A. Vécsei, T. Fuhrmann, M. Liedlgruber, L. Brunauer, H. Payer, and A. Uhl. Automated classification of duodenal imagery in celiac disease using evolved fourier feature vectors. *Computer Methods and Programs in Biomedicine*, 95:S68 – S78, 2009.

[684] A. Vécsei, T. Fuhrmann, and A. Uhl. Towards automated diagnosis of celiac disease by computer-assisted classification of duodenal imagery. In *Proceedings of the 4th International Conference on Advances in Medical, Signal and Information Processing (MEDSIP '08)*, pages 1–4, Santa Margherita Ligure, Italy, 2008. paper no P2.1-009.

[685] Andreas Vorderleitner, Jutta Hämmerle-Uhl, and Andreas Uhl. Hand vein spoof gans: Pitfalls in the assessment of synthetic presentation attack artefacts. In *Proceedings of the 2023 ACM Workshop on Information Hiding and Multimedia Security*, IH&MMSec '23, page 133138, New York, NY, USA, 2023. Association for Computing Machinery.

[686] Georg Weinhandel, Herbert Stögner, and Andreas Uhl. Experimental study on lossless compression of biometric sample data. In *Proceedings of the 6th International Symposium on Image and Signal Processing and Analysis, ISPA '09*, Salzburg, Austria, September 2009.

[687] Peter Wild, James Ferryman, and Andreas Uhl. Impact of (segmentation) quality on long vs. short-timespan assessments in iris recognition performance. *IET Biometrics*, 4(4):227 – 235, 2015.

[688] Peter Wild, Heinz Hofbauer, James Ferryman, and Andreas Uhl. Segmentation-level fusion for iris recognition. In *Proceedings of the International Conference of the Biometrics Special Interest Group (BIOSIG'15)*, page 12, Darmstadt, Germany, 2015.

[689] Peter Wild, Heinz Hofbauer, James Ferryman, and Andreas Uhl. Quality-based iris segmentation-level fusion. *EURASIP Journal on Information Security*, 2016(25), 2016.

[690] Peter Wild, Heinz Hofbauer, James Ferryman, and Andreas Uhl. Robust iris image segmentation. In Christian Rathgeb and Christoph Busch, editors, *Iris and Periocular Biometrics*, chapter 3, pages 57–83. IET, London, UK, 2016.

[691] Georg Wimmer, Michael Gadermayr, Roland Kwitt, Andreas Häfner, Dorit Merhof, and Andreas Uhl. Evaluation of i-scan virtual chromoendoscopy and traditional chromoendoscopy for the automated diagnosis of colonic polyp. In *Proceedings of the 3rd International Workshop on Computer-Assisted and Robotic Endoscopy (CARE)*, volume 10170 of *Springer LNCS*, pages 59–71, 2016.

[692] Georg Wimmer, Michael Gadermayr, Roland Kwitt, Michael Häfner, Toru Tamaki, Shigeto Yoshida, Shinji Tanaka, Dorit Merhof, and Andreas Uhl. Training of polyp staging systems using mixed imaging modalities. *Computers in Biology and Medicine*, 102:251 – 259, 2018.

[693] Georg Wimmer, Michael Gadermayr, Andreas Vcsei, and Andreas Uhl. Improving endoscopic decision support systems by translating between imaging modalities. In *Simulation and Synthesis in Medical Imaging (SASHIMI'20)*, volume 12417 of *LNCS*, page 131141, Cham, Switzerland, 2020. Springer International Publishing.

[694] Georg Wimmer, Michael Gadermayr, Gernot Wolkersdoerfer, Roland Kwitt, Toru Tamaki, Jens Tischendorf, Michael Haefner, Shigeto Yoshida, Shinji Tanaka, Dorit Merhof, and Andreas Uhl. Quest for the best endoscopic imaging modality for computer-assisted colonic polyp staging. *World J Gastroenterol*, 25(10):1197–1209, 2019.

[695] Georg Wimmer, Michael Haefner, and Andreas Uhl. Improving cnn training on endoscopic image data by extracting additionally training data from endoscopic videos. *Computerized Medical Imaging and Graphics*, 86:101798, 2020.

[696] Georg Wimmer, Michael Häfner, and Andreas Uhl. Cnn training using additionally training data extracted from frames of endoscopic videos. In *Proceedings of the OAGM Workshop 2018 (OAGM'18)*, 2018.

[697] Georg Wimmer, Bernhard Prommegger, and Andreas Uhl. Finger vein recognition and intra-subject similarity evaluation of finger veins using the cnn triplet loss. In *Proceedings of the 25th International Conference on Pattern Recognition (ICPR)*, pages 400–406, 2020.

[698] Georg Wimmer, Rudolf Schraml, Heinz Hofbauer, Alexander Petutschnigg, and Andreas Uhl. Two-stage cnn-based wood log recognition. In *Computational Science and Its Applications – ICCSA 2021*, volume 12955 of *LNCS*, pages 115–125, Cham, 2021. Springer International Publishing.

[699] Georg Wimmer, Rudolf Schraml, Heinz Hofbauer, Alexander Petutschnigg, and Andreas Uhl. An analysis of the use of hyperspectral data for roundwood tracking. In *Computational Science and Its Applications - ICCSA 2022 Workshops*, volume 13379 of *Springer LNCS*, page 294307, Malaga, 2022.

[700] Georg Wimmer, Rudolf Schraml, Heinz Hofbauer, Alexander Petutschnigg, and Andreas Uhl. Robustness of texture-based roundwood tracking. *European Journal of Wood and Wood Products*, 81:669 – 683, 2023.

[701] Georg Wimmer, Rudolf Schraml, Lukas Lamminger, Alexander Petutschnigg, and Andreas Uhl. Cross-modality wood log tracing. In *Proceedings of the 23rd IEEE International Symposium on Multimedia (ISM 2021)*, pages 191–195, 2021.

[702] Georg Wimmer, Rudolf Schraml, Alexander Petuschnigg, and Andreas Uhl. Roundwood tracking from the forest to the sawmill using filter approaches to highlight the annual ring pattern. In *24th IEEE International Symposium on Multimedia (ISM 2022)*, 2022.

[703] Georg Wimmer, Toru Tamaki, J.J.W. Tischendorf, Michael Häfner, Shinji Tanaka, Shigeto Yoshida, and Andreas Uhl. Directional wavelet based features for colonic polyp classification. *Medical Image Analysis*, 31:16–36, 2016.

[704] Georg Wimmer, Andreas Uhl, and Andreas Vecsei. Evaluation of domain specific data augmentation techniques for the classification of celiac disease using endoscopic imagery. In *2017 IEEE 19th International Workshop on Multimedia Signal Processing (MMSP)*, pages 1–6, Oct 2017.

[705] Georg Wimmer, Andreas Vécsei, and Andreas Uhl. Cnn transfer learning for the automated diagnosis of celiac disease (best reviewed papers session). In *Proceedings of the sixth International Conference on Image Processing Theory, Tools and Applications (IPTA'16)*, page 6 pages, 2016.

[706] Georg Wimmer, Andreas Vecsei, and Andreas Uhl. Convolutional neural network architectures for the automated diagnosis of celiac disease. In *Proceedings of the 3rd International Workshop on Computer-Assisted and Robotic Endoscopy (CARE)*, volume 10170 of *Springer LNCS*, pages 104–113, 2016.

[707] Georg Wimmer, Anndreas Vecsei, and Andreas Uhl. A novel filterbank especially designed for the classification of colonic polyps. In *Proceedings of the 23rd International Conference on pattern Recognition (ICPR)*, pages 2150–2155, 2016.

[708] Georg Wimmer, Andreas Vcsei, Michael Hfner, and Andreas Uhl. Fisher encoding of convolutional neural network features for endoscopic image classification. *Journal of Medical Imaging*, 5:5 – 5 – 11, 2018.

[709] P. Zinterhof, M. Vajtersic, and A. Uhl, editors. *Parallel Computation. Proceedings of the 4th International Conference of the ACPC (ACPC'99)*, volume 1557 of *Lecture Notes on Computer Science*. Springer-Verlag, 1999.