Testing CSpline with the SNNS

Hofbauer Heinz
hofbauer.heinz@gmx.net

Berka Tobias
tobias_berka@yahoo.com

Stütz Thomas
arot.ts@mailexcite.com

1 Testing CSpline

While testing our cubic spline interpolation program we encountered two main problems:

1.1 The SNNS Error Surface

During early testing, the SNNS refused to calculate and draw the error surface. Somehow, this problem disappeared overnight. Our additions to the SNNS to work perfectly fine.

1.2 The Interpolated Functions Graph

Due to reasons unknown, the functions graph (which we monitored with gnuplot) show som annomalitys. A sine function created with our program has a value of $y = -1.5$ for the second and 14th point alon the x axis, even though there were specifically set to -1 / $+1$ in the point set.
Secondly, the first derivative is not smooth over the outer points of the point set, the graph being linear along the outer y value ($k = 0$). These are some problems we will discuss with R. Schwaiger in our next meeting.

2 The Two Spirals Problem

We spent some time looking for a solution for the Two Spirals Problem (using our new cubic spline activation function), experimenting with several activation functions and net architectures, but we found no reasonable solutions (but quite a lot of local minima).