ABS. ONLY

175003

N94-22451

A Neural Network Prototyping Package within IRAF

D. Bazell (STScI), I. Bankman (JHU APL)

In this paper we outline our plans for incorporating a Neural Network Prototyping Package into the IRAF environment. The package we are developing will allow the user to choose between different types of networks and to specify the details of the particular architecture chosen.

Neural networks consist of a highly interconnected set of simple processing units. The strengths of the connections between units are determined by weights which are adaptively set as the network "learns". In some cases learning can be a separate phase of the use cycle of the network while in other cases the network learns continuously.

Neural networks have been found to be very useful in pattern recognition and image processing applications. They can form very general "decision boundaries" to differentiate between objects in pattern space and they can perform complicated transformations on inputs. They can also be used for associative recall of patterns based on partial cues and for adaptive filtering.

We discuss the different architectures we plan to use and give examples of what they can do.