MIDTERM HAND-IN

[This suffices as the midterm examination]

A. Midterm Requirement: 1) Select a type of neural network and write a program to implement. Run the program on data from the UC Irvine Machine Learning Repository. Hand in the program, and the results of the runs.

2) Do cross validation on the data and hand in the results.

3) Explain why you chose the type of neural network you use, and what you feel are advantages and disadvantages of it compared to other types of NNs.

B. Explanations: 1) The runs should use a **training subset** of the data and a **validation subset**, where these two sets are disjoint. The validation set is usually taken to be about 15 - 25 % of the total data set.

2) **Cross validation** is where multiple different training and validation sets are used. After training on the training set, test the NN on the validation set and record the results as number of misses (or as percentage of misses). Also record the average of all validation results.

For example:

> let there be 100 feature vectors, numbered 1, 2, ..., 100
> take the first 20 as a validation set and use the remaining 80 for training
> take the second 20 as a validation set and use the remaining 80 for training
>   ..   ..
> take the fifth 20 as a validation set and use the remaining 80 for training
> record these in tables, and also record the average number of misses over all
>   validation runs