Thesis Summary

Catastrophic interference: solutions and relation with other connectionist problems

The thesis addresses the problem of catastrophic interference in feed-forward neural networks . The thesis is divided into two subproblems, the first of which is how to preserve the information stored in a given weight and architecture, when introducing a new pattern. This problem is solved with the creation of LMD algorithm ("Learning with Minimal Degradation"), based on the relationship discovered between the conditional minimization in the space of weights that represents the minimization problem without constraints of some function space activations of hidden units.

The second subproblem is the codification of a set of learning so that is resistant to shocks that may cause the introduction of new information. We show that the solution of this problem lies in the minimum cost function when you add a regularizing and outlines an algorithm that can perform this minimization.
Finally it is shown, based on the MDL principle ("Minimum Description Length"), the regularized should always be added to the cost function for good generalization.