Project for SYDE 422 - Machine Intelligence

Project Title:	Investigation of Opposite Weights on Feed-Forward Neural Learning Algorithms
Project Description:	Backpropagation is the most famous algorithm for training feed- forward neural networks, however, there also exist a variety of faster methods. Of course, the major difference between these algorithms is the manner in which they update the network weights. The purpose of this project is to examine the notion of <i>opposite weights</i> and their influence on popular learning al- gorithms such as Levenberg-Marquardt, Resilient Propagation and a few flavors of conjugate gradient based methods (all are already programmed in MATLab libraries). Firstly, the manner in which opposite weights are generated and considered will need to be determined. Then, experiments will be conducted and will involve examining the initial learning conditions, generalization ability and the network architecture. The applications to be uti- lized will involve common classification problems, although you are also free to suggest other ideas.
Deliverables:	Source code (well documented!), program results and a report outlining the findings.
Deadline:	April 20, 2007
Contact:	Mario Ventresca, mventres@pami.uwaterloo.ca