1067-60-1978 **Kandethody M Ramachandran*** (`ram@usf.edu`), Department of Mathematics and Statistics, Tampa, FL 33620-5700. *Machine learning methods in Finance.* Preliminary report.

A brief survey of reinforcement learning (RL) and other machine learning methods and its applications to the fields of asset allocation, stock trading, and inventory management will be given. There are wide varieties of financial problems such as dynamic asset allocation to derivative pricing and hedge that are being modeled as decision theoretic framework and solved by the dynamic programming algorithms. Due to lack of information on the transition probabilities as well as due to its 'curse of dimensionality', where computational time required for generation of optimal strategies grows exponentially in the number of variables involves, is inadequate in solving real world problems. Reinforcement learning methods offer sub-optimal procedures, far more efficient than DP procedures, to solve sequential decision problems. Reinforcement learning algorithms find approximate solutions to dynamic programming problems and can do so in an on-line mode. This area has seen tremendous growth in the area of artificial intelligence, but recently, increasingly used in financial data analysis. In addition, we will also look at some other machine learning methods that is being effectively used in financial analysis. (Received September 22, 2010)