

Summary

Concept Learning

- Hypotheses Space
- Relations between hypotheses
- Version Space
- Find-S
- Candidate Elimination
- Bias
 - Restriction Bias
 - Preference Bias
- Generalization

Artificial Neuronal Networks

Support Vector Machines

- Single Layer Networks
- Linear Separation
- Learning based on Error Minimization
- Multi Layer Networks
 - General Classifier
 - Function Approximator
- Differentiable Threshold Functions
- Error Back-Propagation
- Convergence Properties

- Linear separation in high-dimensional space
- Maximization of margins
- Minimizing the VC-dimension \Rightarrow Optimal Generalization
- Kernels for efficient computation

- Delayed Reward
- Temporal Credit Assignment
- Value Function
- Policy
- Temporal Difference techniques

$$V(s_t) \leftarrow V(s_t) + \eta [r_{t+1} + \gamma \cdot V(s_{t+1}) - V(s_t)]$$

- Q-Learning

Methods we have not talked about

- Learning of sequences/time-series
- Unsupervised Learning
 - Self Organizing Maps
- Recurrent Neural Networks
- Rule-based methods
- Hybrid Methods

- PAC-Learnable
- Probably (δ) Approximately (ϵ) Correct
- Complexity measured in $\frac{1}{\delta}$, $\frac{1}{\epsilon}$ and n
- Number of Training Examples
- VC-dimension
- Errors During Learning