CAP 6671: AI Techniques

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Please submit this homework to **gitars@eecs.ucf.edu** and include your email address in the writeup. This writeup should be completed without assistance and be about 2 pages. Please correctly cite the sources that you use. This assignment is graded on a 6 point scale. You will receive a bonus point if you format your document in latex and correctly use any of the latex equation features. Your writeup will be graded on both writing style and research content.

Most of the intelligent systems described in this class rely on a specific computational technique from search, planning, or learning to make them intelligent. In this assignment, you will select a technique or model in the list below, research it, and write a detailed summary about it.

Your writeup should include the following sections: overview, method, applications, references and draw from at least three different sources. The bulk of the writeup should center on the method; please include sufficient pseudocode or equations so the reader can understand how the method works.

The list of potential topics is given below; they correspond to techniques in the papers that we have read and will be reading in the course. This is the complete list of topics that will be accepted.

- Graphplan

- Markov Decision Processes

- Partially Observable Markov Decision Processes

- Stochastic Search Approximation

- Monte Carlo Planning (e.g. UCT)

- Reinforcement Learning (any variant)

- Path Planning (e.g., A*, RRT)

- Monte Carlo Localization

- Simultaneous Localization and Mapping (any technique)

- Hidden Markov Models

- Dynamic Bayes Networks

- Optimization (any technique)

- Game Theory (any topic)

- Auction Theory (any topic)