

Assignment Two

Prepare a report/presentation on the following topics:

1. Knowledge Representation in AI
 - a. Symbolic logic representation
 - b. Formal system
 - c. Propositional logic
 - d. Predicate logic
 - e. Theorem proving
2. Knowledge Representation: First-Order Logic
 - a. Representation
 - b. Syntax and Semantics of First-Order Logic
 - c. Using First Order Logic
 - d. Knowledge Engineering in First-Order Logic
3. Knowledge Representation: Dealing with Uncertainty
 - a. Representation of Uncertainty (consider two important models: Non-deterministic models & Probabilistic models)
 - b. Sources of Uncertainty
 - c. Reasoning under Uncertainty (how to reason under uncertainty and with inexact knowledge?)
 - d. Decision making with uncertainty (Rational Behavior)
 - e. Probability Theory (Basics, Independence, Conditional Probabilities)
 - f. Approaches to Handle Uncertainty (Bayesian Approaches, Dempster-Shafer Theory, Hidden Markov Models, **Fuzzy Logic**)
4. Problems Solving with Search
 - a. Search and AI
 - b. Search and Problem Solving (Search Space: initial state, target space, possible actions)
 - c. Search Techniques
 - i. Tree Search (Backtracking Search, Breadth-First Search, Depth-First Search, Depth-First Search with Iterative Deepening)
 - ii. Dynamic Programming
 - iii. Uniform Cost Search