Fall 2010

CS 409/609: Principles of Artificial Intelligence

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INFORMATION
SYLLABUS
ASSIGNMENTS

TENTATIVE SYLLABUS (SUBJECT TO REVISION ACCORDING TO PROGRESS)

Day	Topic	Reading	Optional Reading
9/08/10	General Introduction to AI	RN 1	Artificial Intelligence at WikiPedia; Computing Machinery and Intelligence by A. Turing
9/13/10	Search Problems	RN 3.1-3.3	
9/15/10	Blind Search	RN 3.4	
9/20/10	A* Search and Heuristic Functions	RN 3.4-3.6	A* Search at WikiPedia
9/22/10	Local Search	RN 4.1-4.5	
9/27/10	Local Search; Searching in Games	RN 6	
9/29/10	Searching in Games	RN 5	
10/04/10	Game Theory	RN 17.6-17.7	Game Theory at WikiPedia; The Tragedy of the Commons by G. Hardin; News; Traveler's Dilemma at WikiPedia Traveler's Dilemma at Scientific American
10/06/10	Summary of Search and Game Theory; Matlab Tutorial; Uncertainty and Probability	RN 13	Matlab Manual; Matlab Answers at MIT; Matrix Operations; File Operations; Plotting/Graphing
10/11/10	Recitation for Homework and Exam; Probabilistic Reasoning using Bayesian Networks	RN 14.1-14.3	Bayesian Network at WikiPedia;
10/13/10	Midterm		
10/18/10	Inference in Bayesian Networks	RN 14.4-14.5	Judea Pearl's classic paper; Belief Propagation at WikiPedia;

10/20/10	Learning with Maximum Likelihood	RN 20.1-20.2	
10/25/10	Learning with Hidden Variables	RN 20.3	
10/27/10	Hidden Markov Models; Speech Recognition	RN 15.3	HMM at WikiPedia; HMM tutorial by L. Rabiner;
11/01/10	Neural Networks	RN 18.7	
11/03/10	Decision Trees	RN 18.3	
11/08/10	Decision Theory; Markov Decision Processes	RN 16.1-16.3; 17.1-3	Markov Decision Process at WikiPedia;
11/10/10	Reinforcement Learning	RN 21.1-21.6	Reinforcement Learning at WikiPedia
11/15/10	Statistical Machine Translation	RN 23.4	Machine Translation at WikiPedia; Machine Translation from Jurafsky and Martin's *Speech and Language Processing*; Google Translator