

CS325 Artificial Intelligence – Spring 2013

Final Exam Study Guide

April 24, 2013

Verbal and Simple Knowledge Questions

Expect knowledge questions like I ask in the homeworks and entry/exit surveys for ALL the materials we covered in the lectures since the beginning of the semester (see class notes). If you have doubts about answering the questions BEFORE the final, post them on Piazza and I will try to answer them.

Detailed Questions that Require Working Knowledge

For the problem solving questions in the final, I will focus on the second half of the semester – the material that didn't make it into the midterm. I will heavily re-use homework questions, but notice that there were two modules (robotics and natural language processing) that you didn't get any homeworks for. I will include problems from these modules in the final. Study the questions I demonstrated in lectures and ones available on the videos for possibilities.

Here's a short list of the topics I plan to use for the problems:

1. Planning under Uncertainty: Markov Decision Processes (MDPs), Value Iteration, Reinforcement Learning
2. State Estimation and Time Series Prediction: Hidden Markov Models and Particle Filters
3. Computer Vision: Projection, Invariance, Extracting and Detecting Features, Depth, Stereo, Alignment, Camera Tracking
4. Robotics: Autonomous Robot Navigation, Kinematic and Dynamic States, Monte Carlo Estimation, Planning
5. Natural Language Processing: Language Models, Bag of Words, Bayesian and N -gram Markovian Probabilistic Models, Segmentation, Spelling Correction, Sentence Structure, Parsing, Grammars, Machine Translation

Good luck in your preparations.

-Cengiz Gunay, Ph.D.