

**CIS 730 Artificial Intelligence**  
**CIS 490 Principles of Artificial Intelligence**  
Fall 2006

**Homework 10 of 10: Machine Problem (MP10)**  
Term Project Experiments

Assigned: Sat 02 Dec 2006  
Due: Fri 08 Dec 2006 (before midnight)

The purpose of this assignment is to help you with your final project implementation phase.

This homework assignment is worth a total of 20 points.

Upload a copy of your solution to your K-State drop box before the due date.

1. **(20 points for 490, 12 points for 730) Experiment Replication Script.** Write a script in any scripting language (e.g., Unix shell script, Tcl/Tk, Perl, Ruby, Python, Lua, or VB.net) to automate the collection of experimental results for your final project report. Alternatively, write a data generator or preprocessor using a scripting language or a high-level imperative language such as C++ or Java. Examples include:
  - a) A Perl script to run *Angband* using different levels of training (the basic APWborg, trained with 1000 turns of combat data, trained with 2000, 4000, 8000, 16000)
  - b) A Python driver for training a *TAC-SCM* agent and then bringing them into new games on a running server
  - c) A Java program to generate test data for benchmarking the import module you write to map data from a particular protein database format into the unified protein interaction format. Measure the ontology reasoner and I/O costs separately.

Turn in a standalone table of results produced by this program along with your source code.

2. **(730 only, 8 points) Machine Vision.** Run the Laplacian-based edge-detector applet from <http://www.ii.metu.edu.tr/~ion528/demo/lectures/6/3/> and turn in a screenshot of the results for each of the three examples:
  - a. sagittal MRI scan ("head")
  - b. bell peppers
  - c. trinkets

**Note:** the edge detection threshold box does not work. Look at the documentation and explain what should happen with higher threshold levels.

**Class participation (required).** Think about the following question and post your answer to CIS730-L by Fri 08 Dec 2006: What might be a potential pitfall of using a conversational Turing Test, *unrestricted by language*, to test the reasoning ability of a general-purpose AI system? Give an example of an evaluation difficulty: an ambiguity, subjective aspect, or problems that the *human* examinee might have with the problem (assuming he or she **does** speak all of the test languages).