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

Homework 9 of 10: Problem Set (PS9)
Machine Learning and Classification

Assigned: Tue 28 Nov 2006
Due: Fri 01 Dec 2006 (before midnight)

The purpose of this assignment is to develop your basic understanding of machine learning

This homework assignment is worth a total of 20 points.
Each problem is worth 4 points for CIS 730 students and 7 points for CIS 490 students.
Upload a copy of your solution (scanned or typed) to your K-State drop box before the due date.

1. **(8 points for 490, 12 points for 730) Learning Behaviors for Game-Playing Agents (Adapted from Problem 18.1, p. 676 R&N 2e).** Consider the general problem of a game-playing agent such as the Angband agent learning to exercise good behavior **from scratch** in its domain. Explain how this process fits into the general learning model, identifying each of the components of the model as appropriate.

2. **(730 only, 8 points) Parity (Adapted from Problem 18.2, p. 676 R&N 2e).** Repeat exercise MP9-1 for the case of learning to control the TAC-SCM agent or extract a protein-protein interaction ontology. Is your approach one of supervised, unsurpervised, semi-supervised, or reinforcement learning?

Class participation (required). Post any unclear points about machine learning or genetic and evolutionary computation to CIS730-L by Fri 01 Dec 2006.