

CSCI/ARTI 8950 Machine Learning

Assignment Number 1: Due Tuesday 1/30/2007 (in class)

1. **[15 points]**

The goal of the Tic-Tac-Toe game is to place three X's or three O's on the same row, column or diagonal on a 3 by 3 board. If you never played it or need more information about it, please visit <http://boulter.com/ttt/> or search for other sites on the web. Our objective in this problem is to learn a good strategy to play Tic-Tac-Toe.

Formulate the Tic-Tac-Toe learning as a machine learning problem. You should briefly describe:

- What exactly would be learned and how it would be represented
- How the training examples will be obtained
- Which learning algorithm will be used

2. **[10 points]** Solve problem 2.2 on page 48 of the text book.

3. **[15 points]** Solve problem 2.4 on page 48 of the text book.

4. **[10 points]** Solve problem 2.5 (parts a, b only) on page 48 of the text book.