CSCI/ENGR 8940 Computational Intelligence

Assignment Number 1: Due Thursday 2/20/2003 **(in class)**

The Prisoner's Dilemma

Use a genetic algorithm to solve the Prisoner's Dilemma problem described in Chapter 1 of the text book. You may download and use an existing GA (provided it is a general purpose GA not specifically written for this problem) or implement your own. A large collection of GA packages can be downloaded from www.aic.nrl.navy.mil/galist/src/. You should run your GA 5 times from different random starting populations and report the best strategy found in each run. Turn in a printout of your code and your solutions. If you use an existing package, you should only turn in a printout of the parts you modify/introduce, such as the fitness function. You should also compare your found strategies to those described in the book like D after (DD,DD,DD)..etc.

Note:

- While you should use the costs described in the book and a window of three days like in the book, your formulation need not be exactly like the book. If you have a better idea, you need not use binary representation with 70 bits. I encourage you to experiment if you feel you have a better idea.
- Since this is the first assignment, a program that works correctly and a clear report will earn the full grade regardless of optimality. However, you should run your program for a reasonable amount of time or until a stopping criterion is met (like for example that all the strategies in the population become very similar to each other). The stopping criterion is up to you.