Jaysen Spurlock and Paul Blasi
Natural Computing, Semester Project Proposal

For the semester project, Paul and Jaysen would like to construct a user-guided evolution game. This game will have several components, and involve many areas of Natural Computing.

Core Idea The game's basic idea is a multiplayer evolution engine. Each player will take charge of a species, and will have the ability to decide what the reproduction of individuals is based on.

Visuals The visuals for this game will be kept minimal, as the main focus is on the algorithms involved. Each individual will be represented as a pixel in the world, and there will be windows to show all players' stats, as well as modify the user's stats.

Individuals Individuals will have a number of attributes that influence how they act in the world. These are the attributes that the user will have control over; that is, the user's control will influence how likely an individual is to reproduce, but will not directly decide how likely the individual is to survive - survival will depend on the individual's actions in the world, as well as the other species that exist.

The individuals themselves may take the form of BNF representations, which will construct the decision algorithms. Reproduction would then take place based on certain factors, such as proximity and "attractiveness" (which is decided by the user). Reproduction would be crossover-based.

Available attributes will be on a tradeoff scale: that is, as the user moves away from one attribute (such as herd mentality) they inherently move toward another (such as loner mentality). In this example, a user can decide to have their individuals seek one another out or avoid one another.

Server To fulfill the multiplayer aspect of this game, a central server will be used that clients may connect to (which may be private or public). The server will handle interactions between individuals, while clients will handle decisions that individuals make at each step.