Artificial Intelligence: Evolution and Genetic Algorithms

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The main goal of the project was presenting options of artificial intelligence (namely genetic algorithms) on simple but complex example. The example being the simulation of robots with goal of evolving to maximize speed and travelled distance. In addition I created another, smaller program applying genetic algorithms to optimization of ballistic simulation. Secondary task was analysis of results from the first program and drawing conclusions about optimal structure of robots for the fastest movement in the simulated environment and behaviour of genetic algorithms under different values of constants. Results suggest that algorithm tries to minimize number of robot's parts and size of them. Also part of the results is the fact that huge mutation rate creates big jumps in advancement of robots while lower values of mutation rate create softer transition. There are possible enhancements, improvements and real applications stated in the projects.

Awards Won: