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Topic Approval

CPS691

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Topic: Genetic Algorithms

Summary: For my software project I would like to create a genetic algorithm to simulate the survival between Neanderthals and humans in Netlogo. From my experience and research with Netlogo, the Netlogo simulation environment from Northwestern University seems ideal for testing out genetic algorithms. The Neanderthals and humans would both survive in the same world scavenging food and water, but if Neanderthals and humans come into close contact, then they would fight. The loser of the fight dies and eliminates one person from their population. They may also die off if they are not able to find food or water. Humans will have the characteristic of generally avoiding fights since they know they are easily outmatched by Neanderthals in strength. Neanderthals and humans would each have basic attributes such as intelligence, speed, and strength. Neanderthals will generally be stronger and faster for small period of sprinting, but humans will be smarter and able to run longer distances. Each species will be able to mate and pass on their attributes to their offspring, with some variations due to mutations. The goal of the simulation will be to mimic natural selection amongst Neanderthals and humans and see who wins out over long periods of time. Other things, such as overpopulation, may play into the simulation as time permits. The attributes for each species will be based off current research as to what the characteristics of each species were like in comparision to each other.