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Karl Sims
Reflection 2

Artist Description

Karl Sims is an exciting and a foundationary figure in the fields of both digital arts and computer science. He is best known for his work with artificial simulations of life, procedural animations, and evolutionary simulations. Surprisingly, despite his many interesting works and large influence, his name doesn't seem to come up as much as others in his field.

Karl was born in 1962 and would later study computer graphics at MIT. Eventually he started working at bigresearch institutions like the Thinking Machines Corporation and the MIT Media Lab. Sims won a pretty nice amount of awards in relation to his occupation, even having received an Emmy. His particular interest is in how virtual organisms could learn and evolve, driven not by human design but by simulated natural selection.

Sims has a variety of interesting projects that play with both interactive and visual elements, with both his previous and more modern works seemingly incorporating a large amount of natural and chaotic elements presented in an ordered nature. An example is actually his most recent interactive work that is listed on his website, "Flow", which utilizes very advanced and realistic fluid simulations to allow users to create temporary art pieces with their image that is mirrored back to them in a screen. These simulations are incredibly naturalistic, creating shapes and forms you might see in different liquids.

Although Karl is not a game developer, his works have been very impressive in the scope of exploring the study of Emergent Behavior. Emergent Behavior is a term that refers to actions that aren't programmed, but emerge due to the natural outcome of complex interactions. This study into unpredictability has led to a great deal of success in creating creatures that truly feel alive in popular games such as "Spore" and "Rain World".

Sims' works showcase him as not only an artist, but a curator. Though he sets the rules, the results are meant to be independent and unpredictable, creating a clash between human intention and machine evolution.

Project Discussion

One of Sim's most fascinating and, in my opinion, important projects is his "Evolved Virtual Creatures" project. This project involves combining the simulated concepts of Darwinian evolution with a set of blocky 3 dimensional virtual creatures. These creatures can evolve over time, modifying their bodies and movement strategies through genetic algorithms.

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Karl had 4 specific types of challenges that he decided to assign to these creatures. They consisted of swimming, jumping, following, and competing, with the “best” creature for the task eventually being picked based on its amount of success in trials. It took the creatures many generations and “mutations”, but eventually new and unpredictable behaviors began to emerge.

Even the more simple variations of movement that said creatures would perform, things such as twitching, are performed in a strangely organic way. Each organism would try to evolve from its predecessors failures, often creating direct countermeasures to tactics used by their competition.

The striking unpredictability of the changes these false lifeforms would evolve showcased a great similarity to the creatures of our own world. Unlike most games, where a programmer grants a creature the ability to act in a way, these creatures would be granted the ability to procedurally analyze and react to the world around them.

An interesting and entertaining result of this unpredictable behaviour and simulated environment is the creatures often learning ways to cheat the system. A blooper video shows how one creature placed through short 10 second simulations with the aim of moving far quickly, would break the intended results of this experiment by simply making itself as tall as possible and dropping forwards.

Another even more mischievous critter would later simply take to abusing the physics system to easily take first place in the high jump challenge. It would find a way to glitch its own limb into its main body, allowing it to jump up with incredible strength and speed, far outdoing any of its competitors despite the simple and blatant cheating at hand.