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Project Proposal

Introduction

The future requirements of Interactive Entertainment (IE) are very demanding. Currently many virtual environments rely on predefined animations to convey interactions between virtual objects. In the movement towards more realistic virtual environments, newer generations of IE engines are relying more on computationally intense physics calculations to define virtual interactions. There is currently research being done at UCLA under Professor Glenn Reinman on the development of a dedicated real-time physics architecture called Parallax. Parallax's architecture is very powerful and uses multiple core processing to tackle the complex calculations for the physical interactions in future generations IE.

Objective

IE environments are made up of more than physical interactions. The Parallax's architecture may be able to donate some of its resources to other aspects of IE such as artificial intelligence and scene graphs. I would like to investigate different methods of utilizing the Parallax hardware and determining if and how it can be used as a polymorphic architecture. This work would require the creation of a suite that can test the Parallax architecture with various workloads. The performance data collected from this suite will allow analysis of Parallax's response to different distributions of its architectural resources to accomplishing different tasks.