The Mind: Graphics and Physics Hybrid Engine for Video Games

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One of the pillars of modern economics is videogames; they have been one of the main entertainment systems in the past four decades. The videogames are made up of two parts: the graphics and the physics engine. The former controls all the visual, aural and narrative, and the later emulates physical laws, immersion and gives a more realistic experience. Havok is a physics engine that was created to complement graphics engines. Nevertheless, given that graphics engines are developed by different companies, compatibility problems arise when both engines are combined, causing errors and low technical quality. The Mind involves the development of a single hybrid physical and graphics engine through the C# programming language, graphics Blender 3D modelers and Autocad. To achieve this, the best-known graphics engines available were studied, and the best features of these were chosen for The Mind. Three videogames were created, to understand how graphics engines work; the first two were developed in RPG Maker VX Ace and the third in UDK. Furthermore, a fourth attempt was developed in Blender Game, emulating physical features (gravity, collisions and brittleness) by coding in the software built-in language. Functional heterogeneity was observed in meshes; therefore, new tests must be performed under better technical conditions. The Mind will be finished when it does not present incompatibilities between graphical and physical features, which facilitates game development and best technical quality. Finally, this hybrid engine could be applied in other fields such as architecture and civil engineering.

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