Haptic Challenge: An I-FORCE Computer Game

Force feedback, a new technology that is about to revolutionize the video game industry, is not just an incremental improvement over existing computer game paradigms. It is a fundamental step forward that will unleash an entirely new mode of "feel-based" gaming interactions.

Force feedback brings video games to the next level of play, moving beyond mere sights and sounds and immersing users in a physical reality that is as compelling and satisfying as the real world. Traditional game controllers can only track a user's actions. They cannot convey physical interactions. For example, a player using a traditional controller can command the motion of a race car or a spacecraft through simple manual gestures, but when the user's actions cause the spacecraft to collide with an asteroid or cause the race car to slam into a barrier wall, a standard interface has no means of conveying such physical information back to the user.

With a force feedback joystick, impacts with asteroids are not simply shown visually on the screen. POW, they are displayed physically as real forces imparted on the user's hand. When a player slams a race car into the barrier wall, a force feedback joystick produces a physical sensation that represents the collision. When a player drives a race car into a bale of hay, SQUISH, the joystick produces a sensation that represents a collision with a soft surface. If the race car goes off the road and onto the dirt, the joystick produces sensations that represent driving over a rough texture. When a player wields a sword or swings a racquet, a force feedback system can realistically emulate weight, inertia, and dynamic impacts.

Haptic Challenge is a multi-user gaming environment focused on the sense of feel. Two players engage in a 3D game scenario in which they propel a virtual puck at the opponent's goal. They are armed with virtual paddle controllers in a full dynamic simulation that allows them to feel the puck interacting with the paddle with such realistic fidelity that they can actually take advantage of fine manual dexterity to put spin on the puck. Force feedback is so central to this experience that the game simply could not be played without it.

While force feedback has traditionally been restricted to research labs and high-end applications, Immersion Corporation's I-FORCE hardware architecture has dramatically reduced the costs of the technology and brought it to arcade games and home computer games.

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