Taking movies beyond Avatar -- for under $150 (w/ Video)

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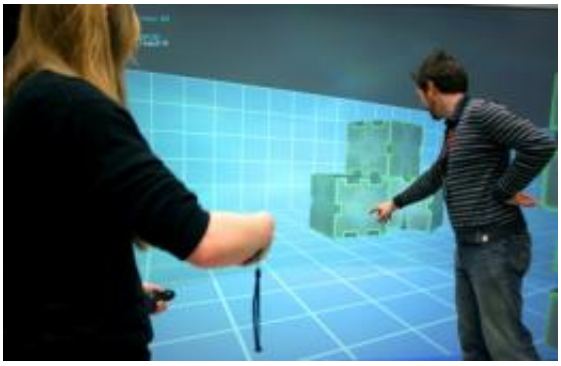


A new development in virtual cameras at the University of Abertay Dundee, UK, is developing the pioneering work of James Cameron's blockbuster Avatar using a Nintendo Wii-like motion controller – all for less than $150.

Avatar, the highest-grossing film of all time, used several completely new filming techniques to bring to life its ultra-realistic 3D action. Now computer games researchers have found a way of taking those techniques further using home computers and motion controllers.

James Cameron invented a new way of filming called Simul-cam, where the image recorded is processed in real-time before it reaches the director’s monitor screen. This allows actors in motion-capture suits to

be instantly seen as the blue Na'vi characters, without days spent creating computer-generated images.

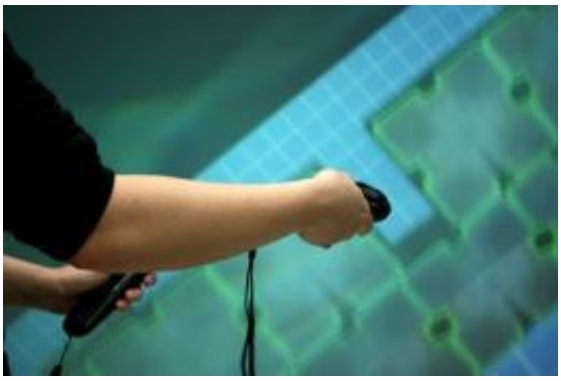
The Abertay researchers, led by computer games technology lecturer Matt Bett, have linked the power of a virtual camera – where a computer dramatically enhances what a film camera could achieve – using a motion-sensor. This allows completely intuitive, immediately responsive camera actions within any computer-generated world.

Matt said: "Avatar is a fantastic film in terms of its technical achievements. To push the boundaries of filmmaking required the creation of brand new techniques, which is staggering. What the Simul-cam technology allows is a kind of augmented reality, where the computer-generated world can be seen immediately.

"What I wanted to do was turn this on its head, and bring this power to home computers. Using a new Sixense electromagnetic motion controller , we can now manipulate a virtual camera in any virtual environment – be it a film, an animation, a computer game, or a simulation tool for teaching."

The applications of the project, dubbed Motus, are substantial. Complex films and animations could be produced at a very low cost, giving new creative tools to small studios or artists at home. Computer environments can be manipulated in the same way as a camera, opening new opportunities for games, and for education.

Project associate Erin Michno, an undergraduate Computer Games Technology student at Abertay University, added: "This tool could completely change the way people interact with computer games, and the way computer-aided learning is delivered to students around the world.



“Within games, watching and sharing replays of the action is hugely popular. What our development allows is replays to be edited exactly as if they were a film, zooming in, panning the camera, quickly and easily creating a whole movie based on your gaming. For online games enthusiasts, that would dramatically change what’s possible.

“In the classroom and lecture theatre, having this level of control for such a small price would allow some things which just aren’t possible – performing virtual operations live on screen, flying through the inside of an engine – in any school and any university.”

Motion controllers first became popular with the Nintendo Wii games console, and more recently with the launch of PlayStation Move. The Abertay researchers built their new system using the Sixense Truemotion Devkit, a more advanced version of these technologies which will be manufactured by Razer.

This tool uses electromagnetic sensors to capture the controller’s position to a precise single millimetre accuracy, and unlike other controllers still works even when an object is in the way. It will work on any home PC, and is expected to retail for under £100 from early 2011.

A patent application for the invention and unique applications of the technology has been recently filed in the UK.

Provided by University of Abertay Dundee