Modelling Gravitational Fields: A Desktop Virtual Reality Simulation

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Abstract
Kepler’s World is a desktop Virtual Environment for the exploration of planetary orbits. The model provides students with the opportunity to examine the elliptical nature of planet orbits, to verify that a planet sweeps out equal areas in equal times and to observe the relationship between planet period and mean distance from the Sun.

While the 3D model initially shows the four innermost planets of our solar system, the model is adaptable, allowing students to add or delete planets as needed. Initial implementation in the classroom has been promising, allowing students to pose their own questions, seek their own solutions and finally test against the model. Students have used the model to add moons to planets as well as investigate binary star systems.

The model was constructed to give a 3D representation running on standard desktop computers, however it can be extended to enable stereoscopic viewing with the addition of appropriate hardware.

Biography
A degree in Engineering from Sydney University led naturally into a career in teaching science for the past 17 years. With qualifications in Education and Information Technologies, Paul is putting these two loves together to create software for the education field.