Design and development of physics simulations in the field of oscillations and waves suitable for k-12 and undergraduate instruction using video game technology TREVOR TOMESH, University of Wisconsin - River Falls, COLIN PRICE, University of Worcester, England — Using the scripting language for the Unreal Tournament 2004 Engine, Unreal Script, demonstrations in the field of oscillations and waves were designed and developed. Variations on Euler's method and the Runge-Kutta method were used to numerically solve the equations of motion for seven different physical systems which were visually represented in the immersive environment of Unreal Tournament 2004. Data from each system was written to an output file, plotted and analyzed. The over-arching goal of this research is to successfully design and develop useful teaching tools for the k-12 and undergraduate classroom which, presented in the form of a video game, is immersive, engaging and educational.

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