IMPLEMENTING A DOWNHILL SKIING EXERGAME VIA UNREAL ENGINE 4.9

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ABSTRACT

This paper documents the design and implementation of a therapeutic downhill skiing exergame created via Unreal Engine 4.9 through the use of biomechanics and continuum mechanics. This exergame is designed for an existing FES project to stimulate compliance in Spinal Cord Injury (SCI) patients during an otherwise repetitive tiring rehabilitative therapy program. The completed game is capable of obtaining user input through force sensors, an Xbox Kinect 2.0 or a mouse and keyboard.

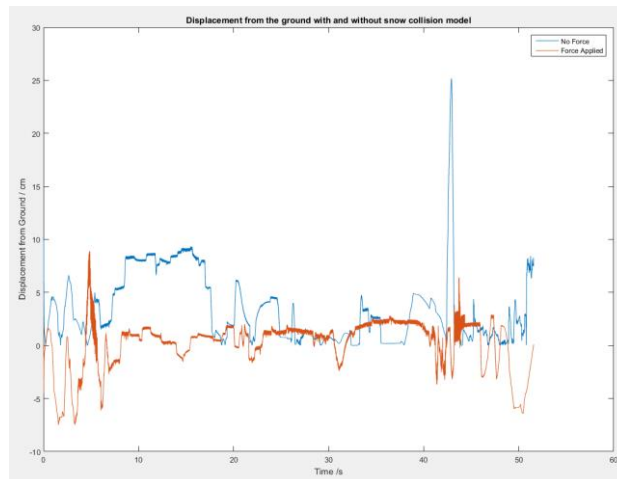**Figure 1.** Skiing Character and Landscape

Figure 2. Character Displacement with/without model