

## **Personalised stroke rehabilitation intervention using open source 3D software and the Wii Remote Plus**

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### **ABSTRACT**

The research presented in this paper proposes a novel low-cost customised Virtual Reality (VR) based, stroke rehabilitation system for the delivery of motivating rehabilitation sessions and evaluation of performance. The described system is designed to capture and monitor human upper limb motion using a low cost and commercially available accelerometer and gyroscope device, the Nintendo Wii remote and open source 3D software. This is the first project to successfully fuse the Nintendo Wii remote acceleration and gyroscope data to offer a real-time one-to-one representation of the controller in a VR environment. A pilot study established a high degree of user acceptability and high levels enjoyment using the tailor made games and personalised exercises in a chronic stroke survivor. Moreover, positive changes were demonstrated in all four outcome measures employed; of particular note were improved wrist control and greater functional use of the hand.

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**Full papers will be published in the Conference Proceedings and will be available to delegates at the conference on Sept. 10.**

**Full papers will be released on-line in the ICDVRAT archive on March 15.**