



## Virtual Reality Skateboard Training

### Principal investigator:

Professor Wei-Li Hsu

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**Experience:** The research field of Dr. Hsu is the development of rehabilitation training and assistive devices after surgery of spondylosis, providing evidence of the theoretical basis and clinical efficacy of rehabilitation.

### Department website:

[https://www.mc.ntu.edu.tw/ntupt/Vcard.action?q\\_type=-1&q\\_itemCode=114](https://www.mc.ntu.edu.tw/ntupt/Vcard.action?q_type=-1&q_itemCode=114)

### Market Needs:

Balance impairment is a problem in motor disability patients and leads to an adverse effect on the quality of life. Task-specific training is required for balance improvement and neural plasticity. However, there are currently few products available that use specific virtual reality interventions, particularly balance training, based on clinical diagnoses to improve rehabilitation effectiveness.

### Our Technology:

Our virtual reality skateboard training system focuses on improving balance via task-specific training. To capture motion, the user's legs are equipped with inertial measurement units. Thus, leg movement will be synchronized with the virtual environment at the same user's speed. An inertial measurement device is also used to control the left and right direction in a virtual environment by attaching it to the skateboard. Moreover, the obstruction in the virtual system is also designed to challenge the users' ability to maintain their balance over time. The scoreboard displays the user's performance during and after the training session as virtual biofeedback.

### Strength:

Specific training, competitive pricing, patient targeting.

### Competing Products:

Nintendo Switch (Nintendo, Redmond, WA, USA), which is non-specific balance training products aimed primarily at young adults.

### Intellectual Properties:

No other patents have been applied for this invention

### Contact (do not need to fill out):

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