



## Virtual reality system for fatigue detection and feedback in baseball pitchers

**PI :** Prof. Wei-Li Hsu

Department of School and Graduate Institute of Physical Therapy College of Medicine, National Taiwan University.

**Experience:** The research field of Wei-Li 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:**

Physical function of athletes will be impacted by fatigue state during exercise due to the repetitively energy consumed during exercise, and the change in physical function will be reflected in the ability of postural control. It's crucial to understand how fatigue state affects baseball pitchers' effectiveness and their performance. However, there is currently no commercially available equipment that can be used as a device to detect whether pitchers are fatigued or not. Coaches can only determine a pitcher's fatigue state based on the speed and accuracy of the ball. As a result, if the present invention is commercialized, it will become a significant gadget in the field of baseball, allowing coaches to properly replace pitchers when they are approaching fatigue.

**Our Technology:**

The virtual reality system imports the motion data of pitching recorded by the motion analysis system, and the differential values of motion before and after fatigue, such as joint angle, joint position, stride distance, and center of mass position, are displayed. The invention can display the player's fatigue state and posture in virtual space and compare it to the usual state value. Furthermore, the concept can provide feedback and diagnoses on sports injuries.

**Strength:**

High clinical useful. The invention will help baseball pitchers and coaches to improve training effectiveness and control the best state of pitchers.

**Competing Products:**

Basepara VR baseball somatosensory training system

**Intellectual Properties:**

1. No other patents have been applied for this invention

**Contact (do not need to fill out):** Center for Industry-Academia Collaboration, NTU

Tel: 02-3366-9945, E-mail: [ordiac@ntu.edu.tw](mailto:ordiac@ntu.edu.tw)

This information herein is intended for potential license of NTU technology only. Other usage of all or portion of this information in whatever form or means is strictly prohibited. Kindly contact us and we will help to achieve your goal the best we can.

