
臺灣大學應用力學研究所
演 講 公 告

主 講 人：李昶儒 副教授

國立清華大學 工業工程與工程管理系

講 題： 人因工程動作感測應用於智慧生活

Ergonomic sensing applied to smart living

摘 要： 如附件

主 持 人： 李尉彰副教授

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Ergonomic sensing applied to smart living

The incorporation of ergonomic motion sensing within motion analysis is garnering growing interest. This approach marries foundational ergonomics knowledge—spanning human body measurements, biomechanics, and motion analysis—with cutting-edge wearable sensors and machine learning techniques to conduct an in-depth examination of individuals' behaviors and movements in everyday settings. Utilizing an array of sensors and devices, motion sensing accurately records changes in human body movements and posture. Inertial Measurement Units (IMUs), integrating accelerometers, gyroscopes, and magnetometers, measure orientation, acceleration, and angular velocity, playing a crucial role in monitoring and analyzing human motion for ergonomic assessments, which include evaluating posture, gait, and musculoskeletal stress to identify potential ergonomic risk factors. Nevertheless, the fusion of IMUs into ergonomic research introduces several hurdles, including confirming the precision and dependability of data, navigating the complexity of data analysis, and refining the size and positioning of devices to avoid disrupting the user's natural movements. The purpose of this presentation is to demystify IMUs and delineate their application in practical ergonomic studies.

Yun-Ju Lee (Member IEEE) received her PhD in Biomechanics from VU University Amsterdam, Netherlands. She is an Associate Professor in the Department of Industrial Engineering and Engineering Management at National Tsing Hua University, Taiwan. Her research interests are sensor/sensing, gait biometrics, biomechanics, ergonomics, and motion analysis. Dr. Lee also actively involved in investigating changes in gait performance and inertial measurement unit applications in various populations.