



## Wearable technologies for health monitoring: Technology development to clinical implementation

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## **ABSTRACT:**

Human movement measurement provides objective information about movement disorders and thus is widely applied for clinical evaluations. Despite the accuracy of gait laboratory equipment, there is limited measurement space in most gait laboratories. In-field movement measurement using wearable sensors is preferred for clinical evaluations because it allows for long-term testing during daily life. In addition, wearable sensor technology allows for real-time clinical applications such as falling prevention and mobile health monitoring during daily life. This presentation will introduce a systematic approach to the development of wearable systems for daily activity monitoring. Examples of the developed wearable technologies, their validation against in-lab equipment, and their suitability for clinical evaluation of movement disorders will be discussed.

## SHORT BIO:



Hossein Rouhani is an assistant professor in the Department of Mechanical Engineering at the University of Alberta since July 2015. He received a PhD degree in Biotechnology and Bioengineering from the Swiss Federal Institute of Technology in Lausanne (EPFL) in 2010 where he was a postdoctoral fellow in 2011. Dr. Rouhani was then a Postdoctoral Fellow in the Institute of Biomaterials and Biomedical Engineering at the University of Toronto from 2012 to 2015. Dr.

Rouhani's fields of research are musculoskeletal biomechanics, biomedical instrumentation design, and development of wearable neuro-rehabilitative technologies. Within his translational research program, Dr. Rouhani has had several collaborative research projects with university hospitals, such as University Hospital of Lausanne, Toronto Rehabilitation Institute, and Glenrose Rehabilitation Hospital. Dr. Rouhani is a recipient of two postdoctoral fellowship awards from the Swiss National Science Foundation, an associate editor of IEEE Canadian Journal of Electrical and Computer Engineering, and an author of 37 journal papers.

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