

# Kolloquium

## Biomedizinische Technik und verwandte Gebiete

**Wintersemester 2022/2023**

**Tag, 27.10.2022, 17:00 – 17:45 Uhr**

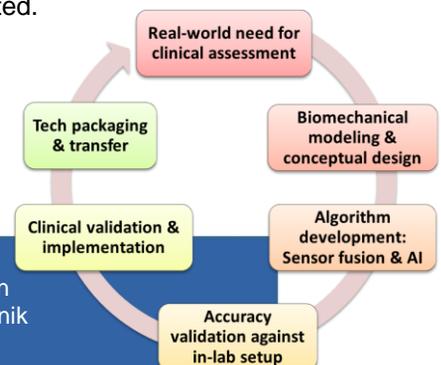
Dr. Hossein Rouhani

(Moderation: Univ.-Prof. Dr. rer.nat. Catherine Dißtelhorst-Klug, Lehr- und Forschungsgebiet Rehabilitations- und Präventionstechnik / RPE  
Institut für Angewandte Medizintechnik / AME im Helmholtz-Institut für Biomedizinische Technik der RWTH Aachen)

**„ Wearable biomedical technology: Applications in neuromuscular function evaluation, rehabilitation, athletic performance assessment, and ergonomic risk assessment “**

### Abstract:

Wearable technologies have been introduced in the past few decades and commercialized for several applications, mainly fitness and entertainment. Yet, their application as a biomedical device has been limited due to a lack of accuracy validation for in-field measurement and reliability for clinical evaluation. In this presentation, we will describe a systematic approach to the development of wearable biomedical devices for real-world applications. This approach includes biomechanical modelling and algorithm development, in-lab assessment for accuracy validation, and in-field experimentation for clinical evaluation. The development and implementation of several wearable technologies for instrumented functional tests and remote health monitoring in the long-term will be introduced. The applications of these technologies in clinical outcome evaluation for neuro-musculoskeletal conditions, rehabilitation technologies, athletic performance assessment, and ergonomic risk assessment, in collaboration with clinical settings and industry partners, are presented.



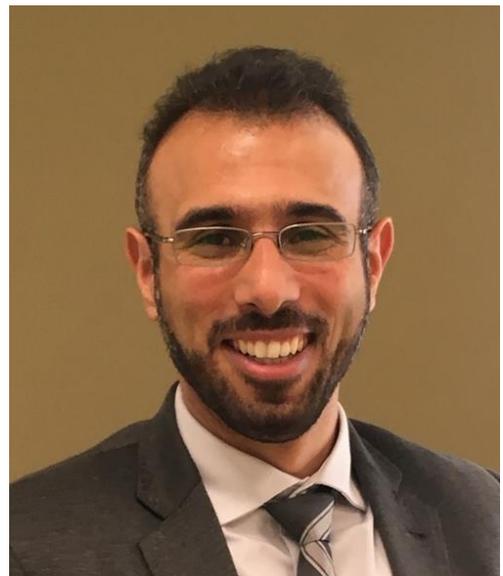
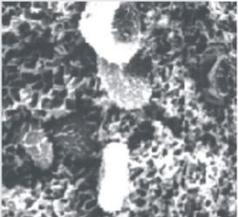
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## Biomedizinische Technik und verwandte Gebiete

*Wintersemester 2022/2023*

Bio:

Dr. Hossein Rouhani is an Associate Professor in the Department of Mechanical Engineering at the University of Alberta and a Research Affiliate at the Glenrose Rehabilitation Hospital (Edmonton). He is also the founder and director of the Neuromuscular Control & Biomechanical Laboratory. He received an MSc degree in Mechanical Engineering from the University of Tehran, Iran, and a PhD degree in Biotechnology and Bioengineering from the Swiss Federal Institute of Technology in Lausanne (EPFL). Dr. Rouhani was then a Postdoctoral Fellow at the Institute of Biomedical Engineering at the University of Toronto. Dr. Rouhani's fields of research are in-field health monitoring using innovative wearable technologies and rehabilitative and assistive technology development. Within his translational research program, Dr. Rouhani has had several collaborative research projects with university hospitals to implement his developed wearable technologies in clinical research at these hospitals. He is an associate editor of IEEE Canadian Journal of Electrical and Computer Engineering, Transactions of Canadian Society of Mechanical Engineering (CSME) and Frontiers in Sports and Active Living and an Academic Editor of PLOS ONE. Dr. Rouhani was a co-chair of Alberta Biomedical Engineering Conference (2017-2019), was the Congress Chair of 2022 CSME International Congress and is Chair of the CSME Technical Committee for Biomechanics and Biomedical Engineering.



**Veranstalter:** Direktorium des Helmholtz-Instituts für Biomedizinische Technik der RWTH Aachen  
**Ort:** Helmholtz-Institut für Biomedizinische Technik der RWTH Aachen (Seminarraum 2.70)  
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