



Northeastern University

ROBOTICS FACULTY CANDIDATE



Mojtaba Sharifi

Postdoctoral Researcher
University of Alberta

Research Background and
Experience in Medical
Robotics, Human-Robot
Interaction, and Collaborative/
Assistive Devices

Thursday, January 21st
3:00 PM – 4:00 PM

Zoom Link:

<https://northeastern.zoom.us/j/91343579505>

Abstract: In this talk, Mojtaba Sharifi will go over the research projects he has done in the field of Medical Robotics, Human-Robot Interaction (HRI), and Collaborative/Assistive Robotics during the past ten years. His presentation is organized in three sections, which cover his research achievements chronologically from his MSc to the current Postdoc position. The first one is devoted to his main research area during the MSc and Ph.D. programs on the **“Control of HRI: Medical Robotic and Tele-Robotic Systems”**. After that, he will touch upon his recent contribution made on the **“Interaction Learning and Autonomy for Collaborative Robots and Assistive Exoskeletons”**, during the postdoctoral research. The last part of this presentation is dedicated to his past and ongoing projects on the **“Human Musculoskeletal Modeling & Soft Exoskeletons for Safe HRI”**, for biomedical applications. Throughout this presentation, the theoretical and experimental aspects of these studies will be elaborated on.

Speaker bio: Mojtaba Sharifi received the B.Sc. degree in Mechanical Engineering from Shiraz University, Shiraz, Iran, in 2010 and the M.Sc. degree in Mechanical Engineering from Sharif University of Technology, Tehran, Iran, in 2012. He conducted a collaborative project in the Telerobotic and Biorobotic Systems Lab of the University of Alberta, Canada, from 2015 to 2016 as a visiting doctoral researcher. Then, he earned a Ph.D. degree in the School of Mechanical Engineering at Sharif University of Technology, Tehran, Iran, in 2017. Mojtaba also performed an interdisciplinary research project on the design and fabrication of new soft robotic actuators in 2019 as a research associate at the University College London, UK. He has published more than 40 papers and chapters in high-quality journals, conferences, and books on his interdisciplinary theoretical-experimental research. His research interests include the design and implementation of autonomous control systems, physical human-robot interaction (pHRI), medical robotics (rehabilitation, surgery, and imaging), control of musculoskeletal systems, impedance control and learning, haptics, collaborative- and tele-robotics, soft robotics, wearable, and assistive mechatronic systems (exoskeleton and prosthesis). Mojtaba is the recipient of a postdoctoral fellowship award, working at the Department of Electrical and Computer Engineering and the Department of Medicine, University of Alberta, Canada. He is now investigating new autonomous control policies employing adaptive learning rules for the Central Pattern Generation (CPG) to update and personalize the human locomotion, which is to be tracked by a lower-limb powered exoskeleton with optimized torque and FES inputs. He is also leading a project that aims to design, fabricate, and implement soft robotic systems for safely assisting people with upper-limb weakness.