

Mohsen Alizadeh Noghani

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July 24, 2024

Education

Ph.D. in Mechanical Engineering University of Notre Dame (Notre Dame, U.S.) GPA: 3.97	2022-present
M.Sc. in Applied & Computational Mathematics & Statistics (Statistics track) University of Notre Dame (Notre Dame, U.S.) GPA: 4.00	2022-present
M.Sc. in Mechanical Engineering University of Maine (Orono, U.S.) GPA: 4.00	2019-2021
B.Sc. in Mechanical Engineering Ferdowsi University of Mashhad (Mashhad, Iran) GPA: 17.65	2013-2018

Publications

Mohsen Alizadeh Noghani, Ehsan Sharafian M., Ben Sidaway, Babak Hejrati. (2024). Increasing Thigh Extension with Haptic Feedback Affects Leg Coordination during Gait. *Under review.*

Mohsen Alizadeh Noghani, Edgar Bolivar-Nieto. (2024). Prediction of Whole-Body Center of Mass using Joint Angles and Ground Reaction Forces: A Framework for Human Intent Prediction. 2024 10th IEEE RAS/EMBS International Conference for Biomedical Robotics and Biomechatronics (BioRob). *In press.*

Jacob Bloom, **Mohsen Alizadeh Noghani, Babak Hejrati. (2023). A Wearable Upper Extremity Rehabilitation Device for Inducing Arm Swing in Gait Training. 2023 International Conference on Rehabilitation Robotics (ICORR). [\[DOI\]](#)**

Md. Tanzid Hossain, **Mohsen Alizadeh Noghani, Ben Sidaway, Babak Hejrati. (2023). Investigating the Efficacy of a Tactile Feedback System to Increase the Gait Speed of Older Adults. *Human Movement Science. [\[DOI\]](#)***

Mohsen Alizadeh Noghani, Md. Tanzid Hossein, Babak Hejrati. (2023). Modulation of Arm Swing Frequency and Gait Using Rhythmic Tactile Feedback. *IEEE Transactions on Neural Systems and Rehabilitation Engineering. [\[DOI\]](#)*

Mohsen Alizadeh Noghani, Mohsen Shahinpoor, Babak Hejrati. (2022). Design and Validation of a Smartphone-based Haptic Feedback System for Gait Training. *IEEE Robotics and Automation Letters. [\[DOI\]](#)*

Mohsen Alizadeh Noghani, Drew Browning, Vincent Caccese, Elizabeth DePoy, Stephen Gilson, Ryan Beaumont, Babak Hejrati. (2021). Design and Evaluation of the Afari: A Three-wheeled Mobility and Balance Support Device for Outdoor Exercise. *Assistive Technology. [\[DOI\]](#)*

Conference Abstracts & Presentations

Mohsen Alizadeh Noghani, Edgar Bolivar-Nieto. (2024). A Framework for Prediction of Center of Mass Trajectory. *Dynamic Walking 2024. Pensacola, FL, U.S. [\[Video abstract\]](#) [\[Poster\]](#)*

Mohsen Alizadeh Noghani, Edgar Bolivar-Nieto. (2023). Prediction of Human Center of Mass Position from Ground Reaction Forces. 2023 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS). Detroit, MI, U.S. [\[Abstract\]](#) [\[Poster\]](#)

Mohsen Alizadeh Noghani, Mohsen Shahinpoor, Babak Hejrati (2021). Design and Validation of a Smartphone-based Haptic Feedback System for Gait Training. 2021 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS). Virtual. [\[Video presentation\]](#)

Theses

Development of a Novel Haptic Feedback System for Gait Training Applications. (2021). *University of Maine.* [\[PDF\]](#)

Analysis and Optimization of a 4-UPS Parallel Robot. (2018). *Ferdowsi University of Mashhad.*

Experience

Wearable Robotics Lab, University of Notre Dame 2022-present
Research Assistant Notre Dame, IN

- Designing predictive control methods for robotic prosthetic legs

Biorobotics & Biomechanics Lab, University of Maine 2019-2022
Research Assistant Orono, ME

- Developed a wireless haptic feedback system for gait training controlled by a smartphone
- Contributed to the NIH R15 grant "A Wearable Haptic Feedback System for Home-based Gait Training for Older Adults" and the NSF CAREER grant "Interlimb Neural Coupling to Enhance Gait Rehabilitation"

Department of Mechanical Engineering, University of Maine 2019-2021
Teaching Assistant Orono, ME

- Teaching Assistant for "Robot Dynamics and Control", "Engineering Dynamics", and "Mechanism Analysis and Design"

FUM Center for Advanced Rehabilitation and Robotics Research (FUM CARE) 2017-2018
Undergraduate Research Assistant Mashhad, Iran

- Developed a real-time EtherCAT motion control system in PREEMPT_RT Linux (worst-case jitter: 37 μ s. 99.5 percentile jitter: less than 6 μ s)
- Optimized the design of a 4-UPS parallel robot for a large workspace, small size, and low power usage using the genetic algorithm

Professional Activities

Peer review

- IEEE International Conference on Robotics and Automation (ICRA)
- IEEE International Conference on Biomedical Robotics and Biomechatronics (BioRob)
- IEEE Transactions on Neural Systems and Rehabilitation Engineering
- BioMedical Engineering OnLine
- Scientific Reports

Training

- Bootlin Real-Time Linux with PREEMPT_RT [\[Certificate\]](#)
- Bootlin Embedded Linux Kernel and Driver Development [\[Certificate\]](#)

Courses

Statistics, applied mathematics, and machine learning

- Applied Probability; Applied Bayesian Statistics; Advanced Biostatistical Methods; Statistical Inference; SQL for Data Science; Applied Linear Models; Statistical Methods in Data Mining and Prediction; Deep Neural Networks; Optimization for Data Science

Computer Science and engineering

- Cluster Computing; Embedded Systems; Operating Systems; Computer Vision