

May 2026

Ava Lakmazaheri, PhD

Incoming Assistant Professor at Worcester Polytechnic Institute

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ACADEMIC POSITIONS

Assistant Professor of Biomedical Engineering & Robotics Engineering Starting Jan 2027
Worcester Polytechnic Institute, Worcester, MA

Postdoctoral Fellow of Bioengineering Sep 2025 – Present
Harvard University, Cambridge, MA

EDUCATION

PhD in Mechanical Engineering Sep 2020 – Aug 2025
Stanford University, Stanford, CA
Thesis: Toward co-adaptive human-exoskeleton interaction

BS in Mechanical Engineering Aug 2016 – May 2020
Olin College of Engineering, Needham, MA

RESEARCH AREAS

Biomechanics of Locomotion · Motor Control and Learning · Wearable Robotics · Adaptive Controls · Computational Modeling and Simulation · Rehabilitation Engineering · Human-Centered Design

PUBLICATIONS

Lakmazaheri, A. and Collins, S.H. (2025). Biofeedback speeds adaptation to exoskeleton gait assistance. *Transactions on Neural Systems and Rehabilitation Engineering*.

Lakmazaheri, A. and Collins, S.H. (2025). Characterizing expert exoskeleton-assisted gait: insights to accelerate exoskeleton mastery. *IEEE Transactions on Medical Robotics and Bionics*. [Invited journal publication.]

Lakmazaheri, A.*, Song, S.*, Vuong, B.B., Biskner, B., Kado, D.M. and Collins, S.H. (2024). Optimizing exoskeleton assistance to improve walking speed and energy economy for older adults. *Journal of NeuroEngineering and Rehabilitation*, 21(1), p.1. *Contributed equally.

Franks, P.W., Bryan, G.M., Martin, R.M., Reyes, R., **Lakmazaheri, A.**, and Collins, S.H. (2021). Comparing optimized exoskeleton assistance of the hip, knee, and ankle in single and multi-joint configurations. *Wearable Technologies*, 2, p.e16.

Adler, J.M., **Lakmazaheri, A.**, O'Brien, E., Palmer, A., Reid, M., Tawes, E. (2021). Identity integration in people with acquired disabilities: A qualitative study. *Journal of Personality*, 89(1), pp.84–112.

Mason, A.E., Adler, J.M., Puterman, E., **Lakmazaheri, A.**, Brucker, M., Aschbacher, K., Epel, E.S. (2019). Stress resilience: Narrative identity may buffer the longitudinal effects of chronic caregiving stress on mental health and telomere shortening. *Brain, Behavior, and Immunity*, 77, pp.101–109.

PRESENTATIONS

INVITED TALKS

From Lab to Life: Use and Non-Use of Mobility Devices and the Need for Human-Centered Design (2026). Communication, Culture, and Technology, **Georgetown University**, Washington D.C.

Enhancing Mobility with Human-Centered Biomechanics and Wearable Robotics (2026). Department of Biomedical Engineering, **Worcester Polytechnic Institute**, Worcester, MA.

Learning to Coordinate Human and Robotic Motion (2025). Robotics Community Consortium, **Harvard University**, Boston, MA.

Toward Co-Adaptive Human-Exoskeleton Interaction (2025). Department of Mechanical and Industrial Engineering, **Northeastern University**, Boston, MA.

Training for Adaptability: Integrating Motor Learning Frameworks into Coaching Practice (2025). Stanford Athletics, **Stanford University**, Stanford, CA.

Toward Co-Adaptive Human-Exoskeleton Interaction (2025). Bioengineering, **Harvard University**, Boston, MA.

Techniques for Training and Optimization in Human-Exoskeleton Interaction (2025). Department of Biomedical Engineering, **University of Delaware**, Newark, DE.

Turning Brainwaves into Action (2015). **TEDxYouth**. Zhengzhou, China.

PODIUM PRESENTATIONS

Learning from Experts: Accelerating Exoskeleton Training with Biofeedback (2025). **IEEE International Conference on Rehabilitation Robotics**, RehabWeek, Chicago, IL.

Optimizing Musculotendon Parameters to Simulate Walking with Ankle-Foot Orthoses in Children with Cerebral Palsy (2019). Center for Neurotechnology Symposium, **University of Washington**, Seattle, WA.

POSTER PRESENTATIONS

How Competing Movement Objectives Reshape Motor Coordination (2026). **World Congress of Biomechanics**, Vancouver, Canada.

Inferring Motor Control Objectives from Human Locomotion (2026). **Kempner Institute for the Study of Natural and Artificial Intelligence**, Cambridge, MA.

Optimizing Exoskeleton Assistance to Improve Walking Speed and Energy Economy for Older Adults (2023). **American Society of Biomechanics**, Knoxville, TN. [Thematic poster and oral presentation.]

Exploring Steady-State Visual Evoked Potentials with Video Stimuli (2019). **Society for Neuroscience**, Chicago, IL.

Brain-Actuated Robotics: Controlling a Humanoid Using Electroencephalography (2016). **London International Youth Science Forum**, London, England.

TEACHING EXPERIENCE

Co-Instructor · Harvard University Biomechanics and Assistive Robotics (BE 124), 35 undergraduate students	2026
Instructor · Stanford University Motor Learning Workshop, 18 undergraduate students	2025
Guest Lecturer · Harvard University Advanced Biomechanics and Assistive Robotics (ENG-SCI 224), 10 graduate students	2025
Guest Lecturer and Teaching Assistant · Stanford University Mechanical Systems Design (ME 104), 61 undergraduate students	2024
Guest Lecturer · Olin College of Engineering Neurotechnology, Brains, and Machines (ENGR 3635), 24 undergraduate students	2023
Teaching Assistant · Olin College of Engineering Advanced Linear Algebra (MTH 2220), 30 undergraduate students	2018

MENTORSHIP

3 PhD Students · Harvard University Advising on dissertation research, including project ideation, data analysis, and technical writing.	2025 – Present
1 Master's Student · Stanford University Oversaw research progress and integration into ongoing lab projects; supported contribution on co-authored publication.	2021 – 2022
3 Undergraduate Students · Howard University & Olin College of Engineering Supporting research design, career planning, and academic writing; student outcomes include placement in NSF Research Experience for Undergraduates and MIT Summer Research Program.	2024 – Present
1 High School Student · Shrewsbury High School Supporting research project ideation and design for International Science and Engineering Fair. Student awarded national STEM research award and was accepted into Massachusetts Academy of Math & Science at WPI.	2023 – Present

FELLOWSHIPS & AWARDS (\$744,600)

American Postdoctoral Research Leave Fellowship (\$50,000, declined) American Association of University Women	2026
Harvard Postdoctoral Fellowship (\$192,300) Gordon and Betty Moore Foundation	2025
Rising Star in Mechanical Engineering Massachusetts Institute of Technology	2025
Best Student Paper Award IEEE International Conference on Rehabilitation Robotics	2025
Stanford Graduate Fellowship (\$300,000) Stanford University	2023 – 2025
NeuroTech Fellowship (\$7,500) Stanford University	2022 – 2023
Graduate Research Fellowship (\$160,000) National Science Foundation	2021 – 2023
Enhancing Diversity in Graduate Education Fellowship (\$12,800) Stanford University	2021 – 2025
Undergraduate Research Fellowship (\$6,000) National Science Foundation	2019
Clare Boothe Luce Research Fellowship (\$7,000) Henry Luce Foundation	2017
Intel Science Talent Search Semifinalist (\$1,000) Society for Science & the Public	2016
Best of Category/First Place, Robotics & Intelligent Machines (\$8,000) Intel International Science and Engineering Fair	2015

SERVICE & OUTREACH

Ad-Hoc Reviewer Science Robotics IEEE Transactions on Robotics IEEE Robotics and Automation Letters Journal of Gerontology: Medical Sciences Journal of Experimental Biology IEEE International Conference on Biomedical Robotics and Biomechatronics IEEE International Conference on Rehabilitation Robotics IEEE International Conference on Intelligent Robots and Systems	2023 – Present
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National Biomechanics Day	2026
Supported outreach activities engaging high school students in interactive biomechanics demonstrations and panels about college and careers in STEM.	
Stanford Research Conference	2025
Volunteer judge in Experimental Life Sciences and Computational Sciences for undergraduate researchers across the nation. Provided formal individual feedback of poster presentations.	
Faculty Search Committee (Teaching Track) · Stanford Mechanical Engineering	2023
Read application packets, interviewed candidates, reviewed seminars, and recommended hiring.	
Stanford Biomechatronics Laboratory Outreach	2021 – 2025
Provided demonstrations of laboratory research to local older adults and underrepresented K-12 and undergraduate students interested in STEM.	
Health Matters · Stanford Medicine	2021
Led booth at community event, demonstrating exoskeletons and sharing information with older adults about assistive devices to enhance mobility.	

MEMBERSHIPS & AFFILIATIONS

American Society of Mechanical Engineers
 American Society for Engineering Education
 Society of Women in Engineering
 Sigma Xi (Scientific Research Honor Society)
 Stanford Mechanical Engineering Women & Gender Minorities Group
 Stanford Wu Tsai Center for Mind, Brain, Computation and Technology