MEGAN EBERS

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EDUCATION

UNIVERSITY OF WASHINGTON — Seattle, WA
Ph.D., Mechanical Engineering — *Expected June 2023*
M.S., Applied Mathematics — *Expected June 2021*
M.S., Mechanical Engineering — *June 2020*

COLORADO SCHOOL OF MINES, — Golden, CO
B.S., Mechanical Engineering, Magna Cum Laude — *May 2018*
Minor: Biomechanical Engineering

AWARDS & HONORS

National Science Foundation Graduate Research Fellow — *Spring 2019*
"Predicting Locomotor Response to Exoskeleton Augmentation: Data-Driven Motor Control"
Sigma Xi Scientific Research Honor Society — *Fall 2018*
E-Days Engineer Award — *Spring 2018*
Michael R. and Patricia K. Starzer Endowment Scholar — *Fall 2015*
Don L. and Patricia Warner Scholarship Fund for the Board of Trustees Honors Scholar — *Fall 2014*
Mines Presidential Merit Scholar — *Fall 2014*

RESEARCH

Altered Control in Bipedal Locomotion — *Sept 2018 – present*
Ability & Innovation Lab, University of Washington
Co-advisor: Katherine M. Steele
Kutz Research Group, University of Washington
Co-advisor: J. Nathan Kutz
Data-driven approaches to predict changes in movement after brain injury

Exoskeleton Emulation — *Aug 2016 – May 2017*
Biomechatronics Research Laboratory, Colorado School of Mines
Advisor: Dr. Ozkan Celik
Development of lower extremity exoskeleton emulator aiding stroke-recovery patients with hemiparesis

TEACHING & MENTORING

Graduate Mentor, Ability & Innovation Lab, University of Washington
Qilang (Damon) Ding - UW ME senior undergraduate student — *Sept 2019 – June 2020*
UWIN Innovation Undergrad Fellowship awarded Fall 2019

Solid Mechanics Tutor, Colorado School of Mines — *Spring 2018*

PEER-REVIEWED JOURNAL ARTICLES

Megan R. Ebers, Michael C. Rosenberg, J. Nathan Kutz, Katherine M. Steele. *Discrepancy modeling of ankle exoskeleton walking can improve response predictions.* 2021 (*in preparation)*

Megan R. Ebers, J. Nathan Kutz, Katherine M. Steele. *Discrepancy Modeling Framework: Data-driven discrepancy modeling for learning and disambiguating between deterministic and random effects.* 2021 (*in preparation)*

PEER-REVIEWED CONFERENCE ABSTRACTS

Dynamic Walking (virtual) — *June 2021*
Discrepancy Modeling of Ankle Exoskeleton Walking Can Improve Response Predictions

American Society of Biomechanics (virtual) *August 2020*
Biomechanically-Constrained Machine Learning for the Identification of Mechanistic Discrepancies

Dynamic Walking (virtual) *May 2020*
Discrepancy Modeling in Bipedal Dynamics

International Society of Biomechanics *August 2018*
Do Simulated Synergies Accurately Represent Muscle Coordination?

Northwest Biomechanics Symposium *May 2018*
Evaluating Altered Muscle Synergies Following Surgical Intervention in Cerebral Palsy Using Matrix Factorization Algorithms

Rocky Mountain American Society of Biomechanics *March 2017*
The Design and Validation of a Passive Foot Prosthesis with Adjustable Plantarflexion

PROFESSIONAL EXPERIENCE

Medtronic Boulder, CO
Specialty Exploration Mechanical Engineering Intern *Summer 2018*
Creation and development of new, minimally-invasive technologies for surgical innovations

Medtronic Louisville, CO
Neurosurgical Navigation Hardware Test Engineering Intern *Summer 2017*
Explored feasibility of automating optical hardware accuracy testing for neurosurgical navigation

Prytime Medical Devices, Inc Lakewood, CO
Engineering Intern *Autumn 2017*
Developed REBOA (Resuscitative Endovascular Balloon Occlusion of the Aorta) catheter and pulsatile simulator

Procter and Gamble Cincinnati, OH
R&D Process Engineering Intern *Summer 2016*
Optimized material characterization product design and process capability of Swiffer Surface Care substrates

Procter and Gamble Cincinnati, OH
R&D Products Research Intern *Summer 2015*
Researched and developed consumer-friendly claims and methods for Gain laundry detergent

OUTREACH

Engineering Discovery Days, University of Washington *Spring 2019*
STEM Mentor for High School girls, Holdingford Jr./Sr. High, MN *Winter 2016 – Summer 2019*

SKILLS & COURSEWORK

Computer: Matlab, OpenSim, LaTeX, SolidWorks (Associate Certified), Creo (Pro-E), Nessus, ABAQUS, Minitab, Mastercam CAD/CAM, Solidworks Flow Simulation, Computational Fluid Dynamics

Coursework: *Graduate Level:* Mechanical Engineering Analysis I & II (ODEs, PDEs); Scientific Computing; Bio-Inspired Robotics; Biomechanics of Human Movement; Computational Methods for Data Analysis; Inferring Structure of Complex Systems; Automatic Controls; Linear Systems Theory; Machine Learning Control; Applied Complex Analysis; Advanced Methods for ODEs; Advanced Methods for PDEs; Mathematical Analysis of Biology and Medicine; Numerical Optimization (*in progress*)