Mike Hagenow

mhagenow [at] wisc.edu | +1 608 556 6394 | hageneaux.com | He/Him/His

RESEARCH INTERESTS

HUMAN-ROBOT PHYSICAL INTERACTION MODELING AND SHARED CONTROL/AUTONOMY

Research focuses on answering how shared control and shared autonomy in robotics can assist skilled workers in completing complex and often injury-prone tasks. Broad research interests include non-linear control, applications of learning models (e.g., DMPs, NNs) in human-robot interaction models, and dynamics of physical interaction. Co-advised by Michael Zinn, Michael Gleicher, and Bilge Mutlu (NASA ULI).

EDUCATION

UNIVERSITY OF WISCONSIN - MADISON | PhD in Mechanical Engineering

In Progress | Madison, WI

• Minor: Computer Science • Advisor: Michael Zinn, Ph.D.

UNIVERSITY OF WISCONSIN - MADISON | MS in Mechanical Engineering

Dec 2019 | Madison, WI

• Phi Kappa Phi

TUFTS UNIVERSITY | BS in Mechanical Engineering

May 2014 | Medford, MA

• Tau Beta Pi • Dean's List (7/7 eligible semesters)

EXPERIENCE

UW-MADISON | Graduate Research Assistant

2019 – Present | Madison, WI

- NSF grant exploring communication in human robot interaction.
- NASA University Leadership Initiative focused on aircraft manufacturing and development of shared robotic assistants for physically demanding and challenging tasks.

EPIC SYSTEMS | Manager - MyChart - Technical Services

2014 – 2017 | Verona, WI

- Managed 5-6 direct reports. Development and planning lead for Clinical Data for MyChart. Responsible for technical support for several large hospital contracts. VB Development of internal tools for accounting.

PUBLICATIONS

Up-to-date publications on Google Scholar

JOURNAL ARTICLES

- **J2. Hagenow, M.**, Senft, E., Radwin, R., Gleicher, M., Mutlu, B. and Zinn, M. "Informing Real-time Corrections in Corrective Shared Autonomy Through Expert Demonstrations," IEEE Robotics and Automation Letters, Submitted.
- **J1. Hagenow, M.**, Senft, E., Radwin, R., Gleicher, M., Mutlu, B. and Zinn, M. "Corrective Shared Autonomy for Addressing Task Variability," IEEE Robotics and Automation Letters, Accepted For Publication.

REFEREED CONFERENCE PAPERS

- **C2. Hagenow, M.**, Zhang, B., G., Mutlu, B., Zinn, M., and Gleicher, M. "Recognizing Orientation Slip in Human Demonstrations," IEEE International Conference on Robotics and Automation (ICRA), Accepted For Publication.
- **C1.** W. Hu, Q. Fan, A. H. Nicholas, **M. C. Hagenow**, and A. T. Ohta. "Bubble micro-manipulator for co-operative micro-manipulation," 9th IEEE International Conference on Nano/Micro Engineered and Molecular Systems (IEEE-NEMS), Honolulu, HI, Apr. 2014.

HONORS & AWARDS

PHI KAPPA PHI
• 2019 • UW-Madison

MITCHELL FELLOWSHIP (INSTRUCTIONAL DESIGN)
• 2018 • The Mitchell Institute

O'LEARY DESIGN AWARD
• 2014 • Tufts University

SENATOR GEORGE J. MITCHELL SCHOLARSHIP
• 2010 • The Mitchell Institute

RENSSELAER MEDAL
• 2009 • Rensselaer Polytechnic Institute

TEACHING

FORMAL INSTRUCTION

Guest Lecturer, ME739 - Advanced Robotics
• 2020 • UW-Madison
Instructor of Record, ME346 - Intro to Feedback Controls
• 2019 • UW-Madison
Teaching Assistant, ME739 - Advanced Robotics*
• 2019 • UW-Madison
Teaching Assistant, ME346 - Intro to Feedback Controls
• 2018 • UW-Madison
Teaching Assistant, ME446 - Automatic Controls*
• 2018-2019 • UW-Madison
Teaching Assistant, ME370 - Energy Systems Laboratory
• 2018 • UW-Madison
Teaching Assistant, COMP11 - Intro to Computer Science
• 2013-2014 • Tufts University

* Distance Learning

EXTRACURRICULAR

Teaching-As-Research Project (Delta Program)
• 2019 • How does problem-based learning instruction of loop-shaping in the frequency domain affect student adaptive expertise and student perceived value of material?
Tutorial Contributor (CTMS)
• 2018-2021 • Developing tutorial for Lead motor position control (In Progress). Tutorials will be hosted on the official website (http://ctms.engin.umich.edu).
Lab Development
• 2018 • Developed real time control platform using Simulink and three labs (system identification, PID, and Frequency Domain Lead Control). Fabricated 10 control platforms using industrial connectors and hardware (B&R Automation). Co-authored posters at the 2018 Midwest Robotics Workshop (TTIC) and 2018 ADEIL Conference.

REFEREE SERVICES

JOURNAL

IEEE Robotics and Automation Letters (RAL)
• 2020

CONFERENCE

IEEE International Conference on Robotics and Automation (ICRA)
• 2021

TECHNICAL SKILLS

PROGRAMMING:
• Python • C/C++ • CUDA • Java • HTML/CSS/JS

TOOLS:
• ROS • V-REP • git • LaTeX • CMake

ROBOTIC PLATFORMS:
• Franka Emika Panda • Rethink Sawyer • UR3/UR5 • Kinova Mico/Jaco

ENGINEERING:
• Solidworks • Matlab • Simulink (control system design certified) • Labview • EES

RECENT SERVICE

Workshop Volunteer, New Engineering Orientation
• 2019-2021 • UW-Madison
REACH Lab Tours (3-5 Annually)
• 2018-2021 • UW-Madison
Volunteer Tutor - Algebra/Geometry
• 2018-2019 • West High School

Alumni Interviewer
• 2017-2019 • Tufts University
Event Supervisor - Mechatronics & Aerial Scrambler
• 2019 • Science Olympiad