

Mike Hagenow

PHD STUDENT · UNIVERSITY OF WISCONSIN-MADISON

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Research Interests

Human-Robot Physical Interaction Modeling and Shared Control

Research focuses on answering how robotics can assist skilled human workers in completing complex and often injury-prone tasks. Broad research interests include non-linear control, applications of machine learning 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

PH.D. IN MECHANICAL ENGINEERING

Madison, WI

- Minor: Computer Science

2018 - In progress

- Advisor: Michael Zinn, Ph.D.

University of Wisconsin - Madison

M.S. IN MECHANICAL ENGINEERING

Madison, WI

2018 - 2019 (Expected)

Tufts University

B.S. IN MECHANICAL ENGINEERING

Medford, MA

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

2010 - 2014

Experience

University of Wisconsin - Madison

GRADUATE RESEARCH ASSISTANT

Madison, WI

2019 - Present

- 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

Madison, WI

2014 - 2017

- 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.

Honors & Awards

2018 **Mitchell Fellowship (Instructional Design)**, The Mitchell Institute

Portland, ME

2014 **O'Leary Design Award**, Tufts University

Medford, MA

2010 **Senator George J. Mitchell Scholarship**, The Mitchell Institute

Portland, ME

2009 **Rensselaer Medal**, Rensselaer Polytechnic Institute

Troy, NY

Publications

Journal Articles

- J1. Subramani, G., **Hagenow, M.**, Gleicher, M., and Zinn, M. Constraint inference using pose and wrench measurements. *IEEE Transactions on Robotics (TR-O)*. Submitted.

Conference Papers

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.*

Poster Presentations

P2. **M. Hagenow** and M. Zinn. Online Peer Learning Community for Controls Lab Curriculum. *Association for Distance Education and Independent Learning (ADEIL) Conference 2018.*

P1. **M. Hagenow** and M. Zinn. Inquiry-Based Labs for an Introductory Controls Class. *Midwest Robotics Workshop (TTIC) 2018.*

Teaching

Formal Instruction

2019	Instructor , ME346 - Intro to Feedback Controls	Madison, WI
2019	Teaching Assistant , ME739 - Advanced Robotics (Distance Learning)	Madison, WI
2018, 2019	Teaching Assistant , ME446 - Automatic Controls (Distance Learning)	Madison, WI
2018	Teaching Assistant , ME370 - Energy Systems Laboratory	Madison, WI
2013, 2014	Teaching Assistant , COMP11 - Intro to Computer Science	Medford, MA

Extracurricular

Tutorial Contributor	<i>Online</i>
CONTROLS TUTORIALS MATLAB SIMULINK	2018-2019
• Developing real-time simulink tutorial for Lead motor position control (In Progress). Tutorials will be hosted on the official website (http://ctms.engin.umich.edu).	
Lab Development	

INTRO TO FEEDBACK CONTROLS	Madison, WI
• Developed real time control platform using Simulink and three labs (system identification, PID, and Frequency Lead Control). Fabricated 10 control platforms using industrial connectors for improved durability.	

Technical Skills

Programming	Python, C/C++, Matlab, Java, HTML/JS
Tools	ROS, git, L ^A T _E X, CMake
Engineering	Matlab, Simulink (control system design certified), Labview, EES, Solidworks

Recent Service

2018-2019 Lab Tours (5-10 Annually) , REACH Lab	Madison, WI
2018-2019 Volunteer Tutor - Algebra/Geometry , West High School	Madison, WI
2019 Haptics Demo , Engineering EXPO	Madison, WI
2019 Event Supervisor - Mechatronics and Aerial Scrambler , Science Olympiad	WI