Maxwell Thomas Asselmeier

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Education

Georgia Institute of Technology May 2026
Ph.D. in Robotics GPA: 4.00/4.00
President's Fellow – top 10% of incoming doctoral class
2022-2023 Herbert P. Haley Fellow

University of Illinois at Urbana-Champaign May 2021
B.S. in Mechanical Engineering GPA: 3.97/4.00
Minor in Computer Science
Chancellor's Scholar – 125 invited out of 7,500 incoming class

Research Experience

Georgia Institute of Technology Atlanta, GA
Graduate Research Assistant Aug 2021 - Present
Advisors: Ye [Zhao](#), Patricio [Vela](#) [LIDAR Group](#) // [IVALab](#)
- Design a formally guaranteed navigation framework for safety-critical legged robot platforms
- Perform robot demonstrations on the MIT Mini Cheetah and Unitree A1 quadrupeds for visitors

Institute for Human and Machine Cognition Pensacola, FL
Software Engineering Intern June 2021 – Aug 2021
Mentor: Robert [Griffin](#) [Lab](#)
- Trained a semantic segmentation model to identify key indoor objects for autonomous behaviors
- Deployed this model onboard a custom perception engine on the Boston Dynamics Atlas robot

Carnegie Mellon University Robotics Institute Summer Scholars Program Pittsburgh, PA
Undergraduate Researcher - Biorobotics Lab May 2020 – May 2021
Mentor: Howie [Choset](#) [Program](#) // [Lab](#)
- Trained a Deep-Q neural network to select modules in building a robotic arm design given a goal position in space to reach
- Implemented the soft actor-critic reinforcement learning algorithm to optimize continuous design variables for modules in a robotic arm design

Oregon State University Robots in the Real World Program Corvallis, OR
Undergraduate Researcher - mLab Jun 2019 – Nov 2019
Mentor: Ross L. [Hatton](#) [Program](#) // [Lab](#)
- Prototyped pneumatic artificial muscles to investigate the implementation of antagonistic actuator systems into a novel soft robotic arm design
- Performed experimental analysis on the strength and elasticity of this soft arm design

The Robotics, Automation, and Dance Lab Champaign, IL
Undergraduate Researcher May 2018 – Jan 2020
Mentor: Amy [LaViers](#) [Lab](#)
- Designed user studies to comprehend mechanisms and perceptions of two multidisciplinary methods of mapping movement commands to a Baxter robot
- Analyzed user study results to compare and contrast the two movement command methods

Projects

Senior Capstone Obstacle Detection for Wheelchairs Project Champaign, IL
Team Member Jan 2021 – May 2021
- Integrated RGB-D cameras on a wheelchair to enable computer-vision based obstacle detection
- Developed a haptic feedback device to alert the wheelchair user of oncoming obstacles

Teaching Experience

Engineering Ambassadors (ENG 198)   Champaign, IL
President   Aug 2019 – May 2020
- Ran weekly class meetings with 35 general members to practice technical communication skills by coordinating and leading presentations, activities, and discussions
- Conducted executive board with eight executive board members and advisory board meetings with four advisors to establish and organize objectives and events for the semester
- Conducted year-round STEM-focused presentations and hands-on activities to classes of 10 to 50 K – 12 students to foster interest in future engineering careers

Grainger Engineering First-Year Experience (ENG 100)   Champaign, IL
Engineering Learning Assistant   Aug 2018 – Dec 2020
- Instructed a sixteen-week long, twice-per-week engineering orientation class to incoming freshmen to guide in the acclimation to both college and engineering
- Participated in an eight-week training course to prepare for facilitating classes

Publications

[1] S. Feng, Z. Zhou, J. S. Smith, **M. Asselmeier**, Y. Zhao, and P. A. Vela. GPF-BG: A Hierarchical Vision-Based Planning Framework for Safe Quadrupedal Navigation. *Under Review.* 2022.

[2] **M. Asselmeier**, Y. Zhao, and P. A. Vela. Dynamic Gap: Formal Guarantees for Safe Gap-based Navigation in Dynamic Environments. *Under Review.* 2022.

[3] B. Mishra, D. Calvert, B. Ortolano, **M. Asselmeier**, L. Fina, S. McCrory, S. Hakki, and R. Griffin. Perception Engine Using a Multi-Sensor Head to Enable High-level Humanoid Robot Behaviors. *IEEE International Conference on Robotics and Automation*. 2022.

[4] **M. Asselmeier**, J. Whitman, and H. Choset. Continuous Design Variable Optimization in Modular Robot Design through Deep Reinforcement Learning. *Robotics Institute Summer Scholars Working Papers Journal*. 2020.

[5] A. Bushman, **M. Asselmeier**, J. Won, and A. LaViers. Toward Human-like Teleoperated Robot Motion: Performance and Perception of a Choreography-inspired Method in Static and Dynamic Tasks for Rapid Pose Selection of Articulated Robots. *IEEE International Conference on Robotics and Automation*. 2020.

[6] **M. Asselmeier**, R.L. Hatton, Y. Mengüç, and G. Olson. Evaluation of a Circumferential Extending Antagonist Actuator in a Soft Arm. *IEEE International Conference on Soft Robotics*. 2020.

[7] Y. Zhou, **M. Asselmeier**, and A. LaViers. Toward Expressive Multi-Platform Teleoperation: Laban-Inspired Concurrent Operation of Multiple Joints on the Rethink Robotics Baxter Robot in Static and Dynamic Tasks. *ACM International Conference on Movement and Computing.* 2019.

Presentations

Evaluation of a Circumferential Extending Antagonist Actuator in a Soft Arm. Pre-recorded virtual presentation for the IEEE International Conference on Soft Robotics. Apr 2020. Virtual.

Toward Expressive Multi-Platform Teleoperation: Laban-Inspired Concurrent Operation of Multiple Joints on the Rethink Robotics Baxter Robot in Static and Dynamic Tasks. Oral presentation at the International Conference on Movement and Computing. Oct 2019. Tempe, AZ.