

# Maxwell Thomas Asselmeier

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## Education

### Georgia Institute of Technology

*PhD in Robotics*

*NSF Graduate Research Fellow – 2,555 offered out of 12,664 applicants*

August 2026

GPA: 3.83/4.00

### University of Illinois at Urbana-Champaign

*Bachelor of Science, Mechanical Engineering*

*Minor, Computer Science*

*Chancellor's Scholar – 125 invited out of 7,500 incoming students*

May 2021

GPA: 3.97/4.00

## Research Experience

### Georgia Institute of Technology

*Graduate Research Assistant*

*Advisors: Ye [Zhao](#), Patricio [Vela](#)*

Atlanta, GA

Aug 2021 - Present

- Develop a computationally efficient framework for perception-informed legged navigation that is designed for complex, partially observable and previously seen environments
- Experimentally verify our autonomy stack onboard a series of quadrupedal hardware platforms including the MIT Mini Cheetah, Unitree Go1, and Unitree Go2

### Institute for Human and Machine Cognition

*Software Engineering Intern*

*Mentor: Robert Griffin*

Pensacola, FL

June 2021 – Aug 2021

- Benchmarked state of the art semantic segmentation models for indoor object classification and finetuned pre-trained models using manually labeled door datasets
- Deployed segmentation models on a custom perception engine and sensing suite onboard a Boston Dynamics Atlas robot for high-level task-conditioned object classification including door opening and human following

### Carnegie Mellon University Robotics Institute Summer Scholars Program

*Undergraduate Researcher - Biorobotics Lab*

*Mentor: Howie [Choset](#)*

Pittsburgh, PA

May 2020 – May 2021

[Program](#) // [Lab](#)

- Trained a Deep-Q neural network in the PyBullet physics simulation to select and refine modules to append to a robotic arm design in order to reach a goal position
- Implemented an actor-critic reinforcement learning algorithm to optimize continuous design variables for modules being added to a robotic arm design

### Oregon State University Robots in the Real World Program

*Undergraduate Researcher - mLab*

*Mentor: Ross L. [Hatton](#)*

Corvallis, OR

Jun 2019 – Nov 2019

[Program](#) // [Lab](#)

- Prototyped pneumatic artificial muscles to investigate the implementation of antagonistic actuator systems into soft robotic arms
- Authored an accepted conference paper to detail the manufacturing, assembly, and experimental validation of the proposed circumferential pneumatic actuators

### The Robotics, Automation, and Dance Lab

*Undergraduate Researcher*

*Mentor: Amy [LaViers](#)*

Champaign, IL

May 2018 – Jan 2020

[Lab](#)

- Designed and reviewed user studies to comprehend mechanisms and perceptions of two separate, multidisciplinary ways to map movement commands to a robot
- Authored an accepted conference paper analyzing findings from preliminary user studies

## Projects

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### Senior Capstone Obstacle Detection for Wheelchairs Project

Champaign, IL

*Team Member*

Jan 2021 – May 2021

- Integrated RGB and depth image streams for neural network-based wheelchair obstacle detection onboard a microcontroller
- Developed a haptic feedback device to alert the wheelchair user of oncoming obstacles

### Automated Vegetable Slicer Course Project

Champaign, IL

*Team Member*

Aug 2019 – Dec 2019

- Built a device that constrained, moved, and sliced a vegetable using one 12 V DC motor through the application of rigid body kinematics theory and mechanism design

## Teaching Experience

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### Engineering Ambassadors (ENG 198)

Champaign, IL

*President*

Aug 2019 – May 2020

- Ran weekly class meetings with 35 general members to practice technical communication skills through presentations and discussions
- Led executive board and advisor meetings with eight executive board members and four advisors to establish and organize objectives and events for the semester
- Conducted 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 engineering orientation class twice per week to incoming freshmen to guide in the acclimation to college as well as engineering
- Participated in an eight-week training course to prepare for facilitating classes

## Publications

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**Max Asselmeier**, Dhruv Ahuja, Abdel Zaro, Ahmad Abuaish, Ye Zhao, and Patricio A. Vela. Dynamic Gap: Safe Gap-based Navigation in Dynamic Environments. Submitted, 2024.

**Max Asselmeier**, Jane Ivanova, Ziyi Zhou, Patricio A. Vela, and Ye Zhao. Hierarchical Experience-informed Navigation for Multi-modal Quadrupedal Rebar Grid Traversal. *IEEE International Conference on Robotics and Automation (ICRA)*, 2024.

Shiyu Feng, Ziyi Zhou, Justin S. Smith, **Max Asselmeier**, Ye Zhao, and Patricio A. Vela. GPF-BG: A Hierarchical Vision-Based Planning Framework for Safe Quadrupedal Navigation. *IEEE International Conference on Robotics and Automation (ICRA)*. 2023.

Bhavyansh Mishra, Duncan Calvert, Brendon Ortolano, **Max Asselmeier**, Luke Fina, Stephen McCrory, Hakki Erhan Sevil, and Robert Griffin. Perception engine using a multi-sensor head to enable high-level humanoid robot behaviors. *IEEE International Conference on Robotics and Automation (ICRA)*. 2022.

**Max Asselmeier**, Julian Whitman, and Howie Choset. Continuous Design Variable Optimization in Modular Robot Design through Deep Reinforcement Learning. *Robotics Institute Summer Scholars Working Papers Journal*. 2020.

Allison Bushman, **Max Asselmeier**, Justin Won, Amy 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 (ICRA)*. 2020.

**Max Asselmeier**, Ross L Hatton, Yiğit Mengüç, Gina Olson. Evaluation of a Circumferential Extending Antagonist Actuator in a Soft Arm. *IEEE International Conference on Soft Robotics (RoboSoft)*. 2020.

Yichen Zhou, **Max Asselmeier**, Amy LaViers. Toward expressive multi-platform teleoperation: Laban-inspired concurrent operation of multiple joints on the rethink robotics baxter robot in static and dynamic tasks. *6th International Conference on Movement and Computing (MOCO)*. 2019.

## **Presentations**

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**Max Asselmeier**, Jane Ivanova, Ziyi Zhou, Patricio A. Vela, and Ye Zhao. Hierarchical Experience-informed Navigation for Multi-modal Quadrupedal Rebar Grid Traversal. *IEEE International Conference on Robotics and Automation (ICRA)*, May 2024. Yokohama, Japan.

**Max Asselmeier**, Ross L Hatton, Yiğit Mengüç, Gina Olson. Evaluation of a Circumferential Extending Antagonist Actuator in a Soft Arm. *IEEE International Conference on Soft Robotics (RoboSoft)*. April 2020. Virtual.

Yichen Zhou, **Max Asselmeier**, Amy LaViers. Toward expressive multi-platform teleoperation: Laban-inspired concurrent operation of multiple joints on the rethink robotics baxter robot in static and dynamic tasks. *6th International Conference on Movement and Computing (MOCO)*. October 2019. Tempe, Arizona.