

Michael Williamson Tabango

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EDUCATION

P.h.D., Mechanical Engineering, Purdue University, West Lafayette, IN Expected May 2026
Specialization: Human-Machine Interactions
Advisor: Dr. Neera Jain
Funding: Ross Fellowship

B.S., Mechanical Engineering, Brigham Young University, Provo, UT Apr 2022

RESEARCH EXPERIENCE

Graduate Research Assistant, Purdue University June 2022-Present
Cognitive State Modeling Project

- Developed a novel method for matching fixations to dynamic Areas of Interest (AOIs).
- Defined the experimental protocol for a between subject experiment.
- Wrote scripts to import and analyze raw data from psychophysiological sensors.
- Mentored undergraduate student working on driving simulation development and sensor integration.
- Interviewed undergraduate students and assisted in making hiring decisions.
- Prepared materials for annual report to sponsor.
- Submitted an IRB protocol for human subject studies.
- Submitted poster for student conference outlining experimental design.

Undergraduate Research Assistant, Brigham Young University Oct 2020-April 2022

LLNL Boat Landing Project

- Developed a trajectory following lab demo for use in motion capture room.
- Assisted with flight tests.
- Implemented complementary filter to estimate attitude of platform and tuned using motion capture data as ground truth.
- Tuned multirotor controllers.
- Assisted new students with learning ROS and other onboarding procedures.
- Wrote sections of a conference paper disseminating results.

Archer Aviation Project

- Researched various signals of opportunity localization solutions for project sponsored by Archer Aviation with the objective of developing a localization solution for use in urban landings that is robust to GPS failure.
- Produced plots demonstrating feasibility of method with simulated data.
- Selected hardware for multirotor to be used by Archer project to test our EKF in hardware and built it.

WORK EXPERIENCE

Civil Engineering Department Aug 2020-May 2021
Teaching Assistant Provo, UT

- Taught Recitations twice a week.
- Held exam reviews and TA hours.
- Audited student self-graded homework.

Capstone Aug 2021-April 2022
Rocket Attitude Control Team Provo, UT

- Researched various methods of rocket attitude control and used a design matrix to make a final decision to use canard fins.
- Wrote estimation and controls algorithms that would run on Raspberry Pi.
- Successfully launched system three times.

PUBLICATIONS

1. A. D. Jordan, M. Rydalch, T. McLain, and **M. Williamson**, "Precision Maritime Localization and Landing with Real-time Kinematic GNSS," *AIAA Scitech Forum*, National Harbor, MD, USA, Jan 23-27, 2023. <https://arc.aiaa.org/doi/abs/10.2514/6.2023-0488>.

SKILLS

- **Programming Languages:** Python, MATLAB, C++, Bash, ROS
- **Sensor Fusion:** Asymptotic observers, EKFs, UKFs, grid mapping, EKF SLAM, computer vision-based localization.