Alex Jordan

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EDUCATION

Brigham Young University — **Provo, UT**

M.S Electrical and Computer Engineering — *May 2023*

- Graduate GPA: 3.90 / 4.00

B.S. Mechanical Engineering — *April 2021*

Coursework

- Non-linear Control
- Robotic Vision
- Localization/Mapping
- Numerical Methods
- Flight Controls/Dynamics
- Optimization
- Predictive Modeling
- Mechatronics
- Software Development

EXPERIENCE

BYU Multi-Agent Intelligent Coordination and Control Lab — **Provo, UT**

Graduate Research Assistant – Precision Boat Landing — *Aug 2021 -Present*

- Leading a quadrotor precision landing project including a team of 4 undergraduate students
- Developed a novel GNSS-to-camera calibration method that achieves millimeter level accuracy via batch estimation (IEEE RA-L publication pending)
- Researching methods for sensor fusion of vision and GPS in boat-to-UAV state estimation using invariant Kalman filters on Lie Groups
- Created a localization and landing method based on Real-time Kinematic GNSS that achieved accuracy within 10 cm on a dynamic platform (AIAA SciTech publication accepted)
- Daily development with C++, Python and ROS2 for robotic state estimation and control

Lawrence Livermore National Laboratory — **Livermore, CA**

GN&C Software Intern (remote) — *April 2021 – Aug 2021*

- Contributed to the development of trajectory optimization software (Python)
- Addition of 2 major features to analysis software: Automation of non-uniform trajectory mesh discretization and addition of non-linear event constraints for complex trajectories
- Implemented 5+ unit tests for each feature added to code base
- Developed 6 trajectory example cases to prove new functionality and train new users
- Weekly participation in code reviews with focus on meeting customer needs
- Daily experience with Git, Python and Agile Scrum

BYU Rocketry — **Provo, UT**

Airbrake Control Team – Team Lead — *Aug 2020 – April 2021*

- Lead a team of nine senior engineering students to design, build and deliver an airbrake control system that alters the final altitude of an intercollegiate competition rocket
- Built simulation environment and designed the estimation and control system for the airbrakes that demonstrated final altitude accuracy of ~2 m (Python). Unable to fly due to COVID-19

Northrop Grumman — **Magna, UT**

Project Engineering Intern — *June 2019 - Apr 2020*

- Co-authored proposal for rocket motor static test that expands contract value by $1.4M+
- Reviewed 20+ rocket motor nozzles against pass/fail for static motor testing

PROJECTS

Personal Website: Developed a personal website to highlight project experience: ajordan.app

ADAS Perception: Prepared, trained and implemented a semantic segmentation Deep Neural Network for real-world lane detection with a camera mounted to my personal vehicle.

RC Autonomous Vehicle: Detect lanes and obstacles with a monocular camera for autonomous control and navigation in an RC car race.

SKILLS

- C++/CMake
- Python
- ROS/ROS2
- Controller Design
- Dynamic Modeling
- Geometric math (Lie Theory)
- OpenCV
- Microcontrollers
- Dynamic Modeling
- Agile Development
- Korean Fluency