Landon Shumway

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EDUCATION

Brigham Young University June 2025
Master of Science: Electrical and Computer Engineering (June 2025) – GPA 4.0/4.0 Provo, UT
Bachelor of Science: Mechanical Engineering (April 2023)

- Minor: Computer Science, Mathematics
- Summa cum laude (GPA 4.0/4.0), BYU Academic Scholarship Recipient

Relevant Coursework: Nonlinear Systems Theory, Multi-Agent Autonomy and Control, Machine Learning and Dynamic Optimization, Robotic Localization and Mapping, CAE Software Development, Algorithm Design

RELEVANT EXPERIENCE

MAGICC Lab – Brigham Young University January 2021 – Present
Robotics Researcher – Path Planning Provo, UT

- Explored novel guidance laws for multi-agent pursuit-evasion differential games
- Generated time-synchronized, dynamically feasible B-spline trajectories for multi-agent interception scenarios
- Developed a custom, modular aerial simulation environment in Python for multi-agent cooperation scenarios
- Incorporated a flight control system and extended Kalman filter for the maritime landing protocol of a UAV
- Implemented sensor integration of a GNSS receiver, IMU, and camera onto a UAV using ROS/ROS2 to enable real-time data synchronization for improved navigation
- Transitioned control/estimation algorithms for UAV systems from Software-in-the-Loop (SITL) to Hardware-in-the-Loop (HITL) and full hardware implementation to ensure robust real-world performance
- Facilitated research in GNC for hypersonic vehicles with team members from 3 universities

The Boeing Company May 2023 – August 2023
Robotics Software Intern Auburn, WA

- Led a team of five engineering interns on a collaborative proof-of-concept robotics integration project
- Programmed a 6 DOF ABB robot to deburr various sheet metal parts to match manufacturing standards and prevent safety hazards for shop workers
- Presented a live demonstration of a robotic manufacturing process to 20+ stakeholders
- Integrated and tested a safety system for a full-sized robot cell on the factory floor

SISU Cinema Robotics May 2022 – August 2022
Robotics Software Intern Round Rock, TX

- Designed and showcased a mixed-reality Unreal Engine/Cinema Robot proof-of-concept for 16,000+ attendees at the CineGear expo in Los Angeles (https://www.youtube.com/watch?v=uxY--SRlNtA)
- Architected a software regression testing process and trained 11 engineers on its use and maintenance
- Utilized Agile/Scrum and XP methodologies to develop software using PLC ladder logic, NSIS, and LabVIEW for cinematography robotics on a highly collaborative team of 10 software developers
- Engineered mechanical mounting solutions for robot-mounted cinema cameras with CAD and 3D printing
- Prototyped integration of high-end cinema camera synchronization with 6-axis industrial robotic arms
- Led continuous education training on interfacing cinema robots with Unreal Engine for 11 engineers

PUBLICATIONS

- L. Shumway and R. W. Beard, "Time-Synchronized B-Spline Path Planning for Multi-Agent UAV Systems with Fixed Speed Profiles," *2025 International Conference on Unmanned Aircraft Systems (ICUAS)*, 2025.
- D. Christensen, L. Shumway, R. W. Beard, and T. W. McLain, "Non-Uniform B-spline Trajectory Optimization Using Control Point Representation Transformations," *2025 American Control Conference (ACC)*, 2025.

SKILLS/MISCELLANEOUS

- Proficiency in C++, Python, Java, MATLAB, Linux, SolidWorks, Catia, G-code, LabVIEW, 3D Printing
- Spanish fluency (rated Advanced High on Oral Proficiency Interview)
- Student pilot (in process of gaining private pilot license)
- US Citizen