Lucas Plant

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Education

Georgia Institute of Technology | Atlanta, GA *Expected Graduation: May 2026*
BS Electrical Engineering | Minor in Computing Intelligence (AI/ML) **GPA 4.00**
Specialization in Robotics, Control Systems, and Signal Processing
Awards: Eagle Scout, Faculty Honors/Deans list
Professional Organizations: Electrify GT, SHPE, Brazilian Student Association, GT Grand Challenges
Relevant Coursework: Control System Design, Machine Learning, Digital Signal Processing, Random Signals, Robotics and Perception, Numerical Methods of Optimization, Automation and Robotics, Data Structures and Algorithms

Experience

Dynamics and Control Systems Laboratory Atlanta Georgia
Undergraduate Research Assistant *August 2024 – Present*
DCSL is a lab at Georgia Tech Researching visual SLAM, motion planning, and control systems for aerospace robotics

- Developing a **distributed multi-agent visual SLAM** pipeline for **satellites** in orbit
- Designed and implemented an **Extended Kalman Filter** to fuse **IMU** and **VICON** measurements for state estimation
- Applied rotational dynamics, **signal processing**, and regression techniques experimentally determine IMU alignment
- Developed embedded C/MATLAB drivers for digital IMUs, increasing sampling rate by 5x
- Wrote firmware to control thrusters with **PWM** signals and telemeter pressure data to the main computer
- Integrated a **trajectory generator** into an open-source Blender-based **satellite simulator** for testing SLAM algorithms

SpaceX Hawthorne, CA
Falcon Avionics Testing – Engineering Intern *May – August 2024 and 2025*

- Redesigned hardware and software for **power management** and **serial communication** in **Redundant IMU** test systems
- Refactored automated thermal test infrastructure, **saving 350 hours** of lead/chamber time per year
- Identified and implemented **improvements for programming firmware,** reducing engineering debug time in production
- Developed a low cost **ethernet** test system to measure latency with **nanosecond** accuracy
- Created a portable testing system for **root cause analysis**, hardware development, and radiation testing
- Diagnosed and fixed critical production blocking problems under tight operational timelines

Tesla Palo Alto, CA
Vehicle Software – Firmware Integration Intern – Steering Team *August 2023 – December 2023*

- Developed analysis tools to evaluate **closed loop tracking performance** of steering controllers under autopilot control
- Created new **calibration** routines for steering force **sensors** increasing the reliability of vehicles
- Conducted **systems-level** testing to evaluate vehicle software and identify **root causes** in development firmware
- Collaborated to bring up a new **HIL** (Hardware In the Loop) table to test steering software integration and testing
- Worked with suppliers to roll out big fixes and firmware improvements in a timely manner.

Projects and Involvement

Laboratory for Intelligent Decision and Autonomous Robots *(LIDAR)* *January 2026 – Present*

- Training a **learned world model** for **task-level planning** and control on a Unitree G1 **humanoid robot**

Senior Capstone Design *January 2026 – Present*

- Designing trajectory generation and **control algorithms** for autonomous **quadrotor landing** on a moving platform
- Using ARUCO tags for visual **state estimation** relative to the moving platform

Personal Projects

- Developed Web based **simulator** for visualizing and testing **dynamical systems** and **control systems**
- Created a GUI for visualizing **digital signal** processing concepts such as windowing and sampling
- Programmed the SO101 robot arm to track an ARUCO tag using the **manipulator Jacobian** and **PID** based visual servoing

Engineering Clubs (HyTech Racing and Yellow Jacket Space Program) *August 2022 – January 2024*

- Designed, manufactured, and debugged **PCBs** with several tools for rockets and racecars.

Skills and Awards

- **Programming:** Python, C/C++, MATLAB, Java, Fortran, SQL, Arduino
- **Software:** ROS2, MuJoCo, IsaacSim, OpenCV, Pytorch, Altium, Wireshark, Vector CAN tools, Simulink
- **Hardware:** PCB Design, Soldering, Breadboarding, Harnessing, Oscilloscopes, NI tools
- **Languages:** English (native), Portuguese (conversational), Spanish (beginning conversational), French (beginning)