JACKSON ISENBERG

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EDUCATION

Georgia Institute of Technology — Atlanta, GA

M.S. Robotics — August 2024 – Present

- Concentrations: Controls, Artificial Intelligence, Perception

B.S. Computer Science, Minor in Robotics — June 2020 – May 2024

- Graduated with Highest Honors
- Concentrations: Systems & Architecture, Computer Intelligence
- Coursework: Linear Controls, Deep Learning, Embedded Systems, Computer Vision, Operating Systems, Signal Processing

EXPERIENCE

Low-power, Adaptive, and Resilient Systems Lab, Georgia Tech — Atlanta, GA

Undergraduate Research Assistant — August 2022 – May 2024

- Trained and tested a deep RL model on the AWS DeepRacer stack for autonomous vehicle pathing with camera input
- Created an architecture-agnostic fault injection and resilience framework in TensorFlow for any black-box neural network

Georgia Tech Research Institute — Atlanta, GA

Student Research Assistant (TMPO Lab, CIPHER) — May 2021 – May 2024

- Designed and implemented the first real-time operating system in Rust for the ARM Cortex R4 where nearly 100% of Rust's safety features at abstraction levels above the bootloader were utilized to improve upon the critical safety of the system
- Worked on various FPGA projects related to architecture analysis and bitstream generation (secret clearance)

Research Intern (ATAS) — June – July 2020

- Created a C++ forward and inverse kinematics library for an Arduino-powered robotic arm with 5 degrees of freedom to be used as a teaching tool for introducing younger children to robotics
- Utilized AprilTags for the robot to detect objects in its vicinity that it could scan with a camera attached to its end effector

Research Intern (ATAS) — June – July 2019

- Improved the design of the battery compartments in the Kennedy Space Center piezoelectric tiles to prevent expansion over time by replacing the neoprene casing with a material that does not absorb and retain heat
- Developed and presented a liquid waste treament method for the Gates Foundation Reinvented Toilet involving a multi-stage filter and UV-C LED disinfectant system that would have a 99.9% success rate at producing safe drinking water

PROJECTS

Neuraphonic (HackGT X) — *Python, PyTorch, Scikit-Learn, Google Cloud, Twilio, MATLAB, Flask*

- Won 2nd best overall prize ($3k) out of 189 teams and accepted for the Create-X Startup Launch with $35k initial funding
- Voice-based diagnostic assistant for Parkinson's disease using signal processing and a vision transformer pipeline
- Implemented the website page using Flask and the signal-to-feature conversion with Praat for the neural network input

National Characteristics Search (Capstone Project) — *Python, SQLite*

- Produced a stand-alone application in Python that accesses characteristic data (such as total population, median income, etc.) from the U.S. Census in a way that enables quick and easy access and saves that data to a local database using SQLite
- Created in partnership with Emory Medicine to find the correlation between neighborhood characteristics and schizoprehnia

FTCLib — *Java, Kotlin, OpenCV*

- Founded and led the development of a Java library for FIRST Tech Challenge with pre-built CV pipelines, hardware wrappers, and path following to raise the floor of software for thousands of competing teams' robots across the world

EXTRACURRICULAR

HyTech Racing

Data Acquisition

- Designed schematics and fabricated PCBs to retrieve sensor data measuring vehicle motion and power efficiency
- Programmed and tested Arduino/Teensy microcontrollers over a CAN line for messages containing sensor data to be parsed into a useful, readable feedback for the chassis and power systems teams to improve their designs and prevent future failures

RoboJackets

IT Coordinator

- Managed all networks and distributed services maintained by the organization and provided to over 600 members
- Provided assistance to any members experiencing issues with their provided services, connections, or loaned devices

SKILLS

Languages	Java, Python, C/C++, Rust, Verilog, VHDL, HTML, JavaScript, MATLAB
Frameworks	NumPy, PyTorch, TensorFlow, JavaFX, React
Software	Git, AWS, Docker, ROS/ROS2, Virtual Machines, Linux