# Skills and Interests

**Technical Skills** Python, C, C++, Pandas, Git, Gitlab CI/CD Pipelines, Julia, QT, Tkinter, LATEX

**Languages** Two Florida Gold Biliteracy Seals in Latin & Spanish, Fluent in Spanish and Kaqchikel Maya

**Interests** Artificial Intelligence (AI), Embedded & TinyML, Data Science, Robotics, R&D Work

**Courses** Machine Learning, Information Retrieval and Data Mining, Introduction to Data Science

# Work Experience

**Charles Stark Draper Laboratory**

Jr. Safety & Mission-Critical Real Time Embedded Software Engineer Cambridge, MA (June 2022 - Present)

* Led rapid-paced internal research & development project with $50k budget to classify different types of automotive vehicles using data fusion at the edge with concealed sensors to expand TinyML capabilities.
* Created requirements in MagicDraw with UML Diagrams to standardize across different services during Sprint Planning sessions, following OOP principles for easy replication.
* set up GitLab CI pipelines for cross-compiling C++ firmware and Docker images (automatic static analysis + unit tests) and also to conform with MISRA 2023 standards.
* Created a service layer in C++ within Visual Studio Code all deployed with Linux Docker Containers focused on simulating an embedded platform, providing message bus capabilities for streaming real-time gyroscopic data to a UART driver through socket-level TCP/UDP.
* Translated mathematics libraries in C to C++ that dealt with quaternions, vector matrices, and other foundational mathematical methods for physics-based motion modeling.
* Worked within AWS environments (EC2 instances) to provide Agile project management capabilities

**NLP Logix**

Jr. Software Engineer Jacksonville, FL (February 2022 - April 2022)

* Conducted sensitivity analysis on an sklearn MLP Classifier model using Pandas to create new test features to see if removing relative mean features improved predictions of the model compared to the original dataset.

**May Mobility**

Embedded Software Engineer Ann Arbor, MI (January 2021 - October 2021)

* Wrote undergraduate thesis creating a Universal Device Verification Tool (UDVT) coded in Python and C to correct the configuration and firmware of all sensors and embedded devices, reducing update time by 40%.
* Developed the GUI for the UDVT in Tkinter for self-driving car external devices that support Python firmware; ensures easy use by on-site engineers to debug real-time firmware errors.
* Programmed C drivers and CAN-FD for multiple Electronic Control Units (ECU’s) on Polaris GEMs.

# Education

**Massachusetts Institute of Technology (MIT)** Cambridge, MA (February 2023 - May 2023)

* 18.337 Parallel Computing and Scientific Machine Learning, Dr. Alan Edelman
* Created Sentiment Analysis AI Model in Julia using Naive-Bayes to find difference in emotions in novel corpus of 750,000 word tokens of the Mayan Kaqchikel language.

**Kettering University** Flint, MI (July 2018 - June 2022)

* B.S. in Computer Science w/ concentration on AI for Autonomous Vehicles, Minor in Applied Mathematics

# Competitions, Projects, and Outreach

**WMBR Cambridge – Radio DJ and Host** (May 2023 - Present)

* Mayan Mix Masters : Hosted a range of topics regarding Mayan linguistics and music
* Community Conduit : Hosted local and international musicians and DJ’s of any genre

**SAE International AutoDrive Challenge - Mapping Lead** (July 2018 - June 2022)

- Implemented hybrid Dijsktra and A\* algorithm on a Chevy Bolt for the Route Planner

- Modified Tkinter python codebase to help with displaying map information within the Chevy Bolt

**FIRST Robotics – FIRST Alumnus, Mentor** (August 2014 - Present)