

Mauricio Ferrari

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Education

University of Central Florida

Bachelor of Science in **Computer Engineering**
Minors in **Intelligent Robotic Systems** and **Mathematics**

Orlando, FL

3.78 GPA

Technical Skills

Verilog, C, MIPS, Java, JavaScript, Apps Script, Python, PHP, React, HTML, CSS, C++, ThreeJS, Git, Vivado, Multisim, KiCad, COMSOL, Eagle, MATLAB, Simulink, Postman, Wireshark, SwaggerHub, Arduino, NodeJS, Raspberry Pi, Blender, MongoDB, Yarn

Experience

Lead Rush Labs

Orlando, FL

Software Developer Intern

May 2023 – Aug. 2023

- Refactored Apps Script functions by implementing **asynchronous programming for API calls** which reduced runtime by 33%
- Eliminated redundant code and improved **recursive functions**
- Rectified **JSON parsing issues** which increased the efficiency and reliability of OpenAI responses

University of Central Florida

Orlando, FL

CREOL Fiber Optics Laboratory – Undergraduate Research Assistant

Jan. 2022 – Aug. 2022

- Ran **simulations on COMSOL** to identify at which eigenvalues single-mode transmission occurred
- Experimented with **optical setups** to achieve optimal mode matching/light efficiency

University of Central Florida

Orlando, FL

College of Sciences, CECS – Undergraduate Teaching/Learning Assistant

Aug. 2021 – Aug. 2022

- Ordinary Differential Equations I, Calculus with Analytical Geometry I, Linear Circuits I
- Offered tutoring, held office hours, led **recitation sessions**, prepared and graded coursework

Projects

Foodie Rover

In Progress

Foodie Rover is a small autonomous vehicle doubling as a food convoy for UCF's Senior Design exhibition.

- Employing **Google Maps API** services to dynamically provide routing information
- Developing a computer vision obstacle aversion system using **TensorFlow**
- Constructing a **mobile application** to communicate directly with Foodie Rover's security system
- Operationalizing **servos, magnetometers, and GPS** modules to accurately ping location

LeetSocial

November 2023

LeetSocial is a web/mobile-app for UCF's Processes of Object-oriented Software Development that serves as a social platform for LeetCode where you can view a leaderboard compiled of your friends' statistics.

- Integrating MongoDB and Express with React and Node JS to complete a **MERN stack**
- Incorporated **GraphQL** to communicate with LeetCode API endpoints
- Employed **JSON web tokens** to store user information from the database into the local storage cache to reduce API calls

Moody Music Player

September 2023

Developed a therapy chatbot with facial recognition that could determine your mood and utilized APIs to communicate with a microcontroller that plays music for the 2023 ShellHacks hackathon.

- Programmed an ESP32 microcontroller in Arduino IDE to establish a **Wi-Fi connection and host a webserver**
- Engineered a **common-emitter amplifier** circuit to streamline current effects on a piezo active buzzer
- Utilized Postman to implement **REST APIs in JavaScript** carrying JSON data storing the mood state of the user

Contact Manager

September 2023

Created a contact manager web application following LAMP stack structure that showcased CRUD applicability for UCF's Processes of Object-oriented Software Development course.

- Assembled **APIs with PHP scripting** to transmit requests between the front-end and database
- Facilitated **API documentation** on SwaggerHub according to OpenAPI 2.0 specifications