Roye Fang

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Education

University of California, Los Angeles — Anticipated **June 2023**
B.S. Computer Science, GPA: 3.602

Technical Skills

Languages: Python, C/C++, JavaScript, Bash, SQL
Technologies: Linux, Git, Flask, React.js, MySQL, Arduino, Unity

Professional Experience

The Aerospace Corporation – *Technical Intern* — **Jun 2021—Sep 2021**

- Supported the Visualization and Immersive Technologies Department, creating animations, AR/VR experiences, visualization engines, UI/UX concept design, and Unity/web apps
- Introduced a Flask RESTful API backend service and web app interface for astronomical time system translations using Earth Orientation Parameters data from MySQL database
- Designed and implemented a department portfolio website using React to centralize news, projects, capabilities, and contact information for current and prospective customers
- Improved an on-campus touchless video wall application using Unity and C# scripts to modify user viewport and display PDFs, local webpages, and an interactive calendar

Practical Experience

Institute of Electrical and Electronics Engineers – *Project Member* — **Sep 2019—Present**

- Strengthened practical programming skills in embedded systems and electrical engineering projects through Micromouse and OPS (Open Project Space)
- Soldered and programmed an autonomous maze-solving robot and developed data structures in C to record maze environment, robot positioning, and calculate Manhattan distances in order to execute flood fill algorithm using a circular queue
- Coded a “Red Light, Green Light” game between 2 Arduinos with UART protocol
- Transcribed full-length piano pieces/pop songs into code for an 8-bit Arduino music player

Projects

Tu.Can – *Full Stack Messaging Web Application* — **Jan 2021—March 2021**

- Programmed an instant message application using MERN stack with user authentication
- Built frontend components for login page, registration page, and various color themes
- Designed document schemas for accessing and storing user, chatroom, and messaging data
- Implemented API routes to update MongoDB database in real time with pusher middleware

TI-RSLK – *Autonomous Line-Following Car* — **May 2020**

- Programmed PID feedback loop in C++ for TI-RSLK robot to follow 2 arbitrary paths
- Conducted sensor fusion with test data in Excel to normalize 8 IR sensors for continuously recording robot positioning, allowing for precise and instant adjustments along the path
- Scored fastest overall completion time across both paths in a 20-person lab section

Mori – *Arduino Memory Game* — **May 2020**

- Built a memory game in Arduino/C++ by flashing strings of numbers in the console
- Programmed logic to track game state, player reaction times, and overall score
- Devised customizable settings for string length, memorizing time, and game length
- Plotted in Python to visualize relationships between game settings and player performance