# Matthew Leung

916-698-3370 | m2leung@ucsd.edu | mleung2019.github.io | linkedin.com/in/matthew-k-leung | github.com/mleung2019

## Education

**University of California, San Diego** — La Jolla, CA
*Bachelor of Science in Computer Engineering* — *September 2022 – Present*

- GPA: 3.98

## Experience

**Full-Stack Intern** — July 2021 – September 2021
*PilotCity*

- Engineered a Grammarly-styled Google Chrome extension to localize and simplify private and user policies, achieving Flesch-Kincaid grade level scores of 65+
- Leveraged natural language processing to provide real-time edits and suggestions for improved clarity, shortening revision times by 20%
- Facilitated code reviews and closed 20+ pull requests from other interns
- Directed a team of 5 front-end developers and collaborated with other teams

## Projects

**RealTime Display** | *ESP-32, C++, FreeRTOS, Python, Flask, Onshape* — September 2025 – December 2025

- Built an all-in-one LED display with a clock, weather monitor, Spotify visualizer, and live sports tracker
- Harnessed OS-level synchronization (FreeRTOS mutexes and task coordination) to safely manage concurrent network fetches, rendering, input handling, and display updates
- Implemented a modular client-server architecture that allows developers to easily create/add their own widgets
- Delivered a production-ready product with intuitive user input controls in a sleek 3D printed casing

**Lava LiDAR Game** | *Arduino, Python, C++* — April 2025 – June 2025

- Integrated a LiDAR sensor with an Arduino Uno via I2C communication to enable real-time player tracking in an interactive, movement-based game
- Developed a serial communication pipeline to stream LiDAR data from an Arduino Uno to a Python-based game engine for responsive motion control
- Applied knowledge of embedded systems, serial data protocols, and sensor integration to bridge hardware and software components in a real-time application
- Awarded 1st place at UCSD's IEEE Quarterly Projects Showcase (Spring 2025)

**Procedural City Generator** | *Godot, C#, GLSL* — August 2023 – January 2025

- Constructed a Godot project that enable users to explore a procedurally infinite, customizable city
- Revamped the city's visual experience by incorporating day and night cycles with adaptive lighting and producing 15+ custom building textures with fragment shaders
- Engineered a robust architecture that enables users to quickly customize the generated environment to their liking

**Triton Workout Planner** | *React, MongoDB, TypeScript, Bootstrap* — September 2024 – December 2024

- Integrated frontend and backend systems and set up a robust client-server architecture, supporting features such as workout plan creation, goal setting, and progress tracking
- Authored 10+ test cases for a variety of frontend components to ensure robust and thorough CI/CD testing
- Coordinated project updates, led weekly sprint planning meetings, and assisted teammates with debugging

## Technical Skills

**Languages**: Java, Python, C/C++/C#, SystemVerilog, GLSL, SQL (Postgres), TypeScript, JavaScript, HTML/CSS
**Frameworks/Runtime Environments**: React, Node.js, Bootstrap, Flask, JUnit
**Developer Tools**: Git, MongoDB, Google Cloud Platform, Heroku, VS Code, Hugging Face, Unity, Godot
**Libraries**: pandas, NumPy, PyTorch, transformers
**Hardware Skills**: Circuit analysis, digital systems design, linear systems, LTspice, ModelSim, Cadence Virtuoso, FreeRTOS