Vanessa Isabel Roque

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EDUCATION

California State University, Fullerton Graduation Date: **May 2025**
B.S/M.S Computer Engineering, Computer Science Minor GPA:**3.6**

Korea University | Seoul, South Korea **Fall 2023**
Study Abroad Reciprocal Exchange Program
Attended one of South Korea's most prestigious universities to cultivate a global perspective through an immersive cultural experience.

Copley High School | Akron, OH **MAY 2021**
Summa cum laude – 4.0+ GPA

EXPERIENCE

CALIFORNIA STATE UNIVERSITY, FULLERTON | Supplemental Instructor **January 2023 - Present**

- Explain complex Calculus III concepts to students by hosting collaborative learning sessions twice a week, boosting students' grades by 10%.
- Thoughtfully organize each session by preparing study materials and interactive activities for my students.

ROSENDIN ELECRTIC CO. | Electical Engineering Intern **June 2024 - August 2024**

- Developed electrical designs and specifications for power distribution, lighting, and control systems using Autodesk Revit.
- Used Visual Lighting to create comprehensive lighting designs for commercial buildings and perform photometric analysis to ensure standards for brightness, intensity and energy efficiency are met.
- Conducted QA QC in Bluebeam to identify potential issues in schedules, single line diagrams, and drawings.
- Attended site visits to inspect the installation of electrical components such as conduits, transformers, and fixtures.

SUMMER UNDERGRADUATE RESEARCH ACADEMY | Research **June 2024 - August 2024**

- Investigated various wireless power transfer technologies and identified magnetic resonance as an improvement to current inductive technologies and a potential future trend for electric vehicles.
- Built and tested a small-scale LLC resonant converter, collaborating with my research partner. We identified optimal tuning to improve charging efficiency and minimize interference from other devices.
- Presented our work at the SUReA conference at California State University, Fullerton.

PROJECTS

TRAFFIC CONTROLLER **Fall 2024**

- Developed an embedded system to simulate traffic light and pedestrian crossing management for an intersection using the TIVA-C Launchpad (TM4C123G).
- Designed and wired a circuit on a breadboard using an 8-bit shift register to extend GPIO pins, simulating traffic lights with LEDs and switches for real-world traffic scenarios.
- Programmed the FSM in C to respond to binary switch inputs representing traffic and pedestrian activity, optimizing state transitions and timing with SysTick timers and Phase-Locked Loop (PLL) clock management
- Utilized Code Composer Studio for comprehensive debugging and validation of the system under various input configurations.

COFFEE CAN RADAR **Spring 2022**

- Interfaced Raspberry Pi with IR camera and HB100 motion sensor to perform computer vision tasks with the Intel Neural Compute Stick 2.
- Conducted code review of signal tracking algorithm in Python to optimize performance of target imaging.

EXTRACURRICULARS

ASSOCIATION FOR COMPUTING MACHINERY | Board Officer **2022 - present**

- Gain a deeper understanding of computer science through hands-on programming workshops and events.

ENGINEERING DESIGN CLUB | Member **2022 - present**

- Circuit and program Adafruit Feather RP2040 RFM69 in CircuitPython for 3D printed Pokeball last semester
- Gain experience in soldering, 3D printing, solidworks, and PCB by attending hands-on workshops.