

# Vanessa Isabel Roque

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## EDUCATION

### California State University, Fullerton

B.S/M.S Computer Engineering, Computer Science Minor

Expected: May 2026

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.

**Relevant Coursework:** Data Structures, Algorithms, Object-Oriented Programming, Databases, Operating Systems, Computer Networks, Embedded Systems, Computer Architecture, Real-Time Audio Processing, Signals and Systems, Electronic Circuits, Linear Algebra and Differential Equations, Multivariate Calculus

## EXPERIENCE

### CALIFORNIA STATE UNIVERSITY, FULLERTON | Supplemental Instructor

January 2023 - Present

- Guide Calculus III students through complex topics by hosting bi-weekly collaborative study sessions.
- Prepare relevant study materials to enhance student understanding, boosting students' grades by 10%.

### ROSENDIN ELECTRIC CO. | Electrical Engineering Intern

June 2024 - August 2024

- Developed electrical designs and specifications for power, lighting, and control systems in 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 | Intern

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 SURaA conference at California State University, Fullerton.

## PROJECTS

### TRAFFIC CONTROLLER

September 2024

- Created an embedded system to simulate a real-world traffic intersection using the TIVA-C Launchpad, shift register, LEDs, and buttons effectively integrating hardware and software.
- Designed a FSM to respond to binary switch inputs representing traffic and pedestrian activity, optimizing state transitions and timing with the SysTick timer and Phase-Locked Loop (PLL) clock management.
- Developed a test framework to validate state transitions and timing mechanisms, debugging hardware-software interactions under diverse conditions.

### SMART SLEEP HUB

September 2024 - Present

- Developing a device that promotes a healthy sleep environment by interfacing a Raspberry Pi with smart lights and sensors to test environmental factors affecting sleep.
- Interfaced a Raspberry Pi 5 with a touchscreen to display a clock, enable sleep configuration, and view sleep data.

### RECIPE KEEPER IOS APP

Fall 2024 - Present

- Developing an iOS app to simplify recipe management for effortless creating, updating and viewing recipes.

## EXTRACURRICULARS

### ASSOCIATION FOR COMPUTING MACHINERY | Board Member

2022 - present

- Organize workshops that explore the boundaries of artificial intelligence, ensuring accessibility for participants.

### 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.

**Skills:** Python, C/C++, HTML, Javascript, TailwindCSS, MySQL, Swift, SwiftUI, CoreData, iOS

**Tools:** VS Code, Git, GitHub, XCode, SvelteKit, Vite, Code Composer Studio