Edward Kwak

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Education

Georgia Institute of Technology — Atlanta, Georgia
M.S. Electrical and Computer Engineering | GPA: 4.0/4.0 — *January 2026 – May 2027*
Concentrations: Computing Systems and Software

Georgia Institute of Technology — Atlanta, Georgia
B.S. Computer Engineering — *August 2022 – December 2025*
Concentrations: Distributed Systems, Devices

Experience

Software Engineer Intern — June 2025 – August 2025
Medtronic
- Implemented logging functionality for a communication protocol written in C that converts instrument data from implantable devices into human-readable texts.
- Developed an integration test framework using Python that generates deterministic results, eliminating the need for manual log review and allowing for automation.
- Migrated the firmware build environment from uVision to a VSCode + CMSIS-Toolbox build environment, enabling CI/CD integration and support for modern developer tools.

Software Engineer Intern — June 2024 – August 2024
Medtronic
- Developed a domain-specific language translation framework in C#, JavaScript, and XML to automate verification testing for iOS applications that communicate with implantable devices. Reduced external software dependencies by 50%.
- Implemented static identifiers for dynamic UI elements in iOS applications to ensure consistent and reliable verification testing across changes at runtime.
- Automated verification tests by enabling iOS applications to directly interrogate implantable devices, eliminating the need for manual input at runtime.

Electrical Engineer Intern — June 2023 – August 2023
Northrop Grumman
- Developed a program in C to enable serial communication between embedded controller devices used in satellite subsystems.
- Used a DE10 board with VHDL to send bitstreams across controller modules to perform verification testing.
- Designed, modified, and tested RF system components using electrical testing equipment to debug issues related to excessive current draw under high temperature settings.

Mathematics Research Intern — May 2022 – August 2022
Georgia State University
- Developed Python simulation models for a binary choice game to analyze winning and losing patterns with the goal of identifying decision strategies.
- Presented research findings at a university-wide symposium and received the award for best presentation.

Projects

Autonomous Vehicle | *C++, ESP32, 3-D Printing, High-Frequency Sensors*
- Created a vehicle with a 3-D printed chassis that navigates a room autonomously using readings from ultrasonic sensors. This is currently ongoing and future development plans include turning it into a Roomba-style autonomous cleaner.

Automated Smart Home for Cats | *C++, ESP32, Raspberry Pi Compute Module, WiFi, Google Firebase*
- A cat smart-home system that is controlled by a web-based controller. The controller sends commands to a Firebase Realtime Database. The commands are pulled by the listeners in the ESP32 firmware which makes updates to GPIOs. A camera allows for realtime video monitoring which is streamed through a Raspberry Pi Compute board and presented on the web-based controller.

Technical Skills

Languages: C, C++, Python, Java, JavaScript, C#, ARM, RISC-V
Frameworks: Arduino Framework, ARM Mbed OS, unittest, JUnit
Developer Tools: Git, CMake, Jira, Mbed Studio, Visual Studio, Keil Studio, uVision
Hardware: ESP32, Arduino, Raspberry Pi, Oscilloscope, Multimeters, KiCAD