CAROLINE GILBERT

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OBJECTIVE

Master's computer engineering student with experience in real-time embedded software development, network security, and networking protocols, passionate about building secure and reliable software for high-performance products.

EDUCATION

M.S., Computer Engineering May 2025
Purdue University, West Lafayette, IN *3.75 GPA*
Relevant Coursework: Network Security, Fault-Tolerant Systems, Compilers, Cloud Networks, Operating Systems

B.S., Computer Engineering May 2024
Purdue University, West Lafayette, IN *3.69 GPA*
Study Abroad: KTH Royal Institute of Technology, Stockholm, Sweden (Exchange) Spring 2023
Minor: Global Engineering Studies - GEARE French Focus

TECHNICAL SKILLS

Languages & Tools: C, C++, Python, Git, Linux, GDB Debugger, CMake, Object-Oriented Design, CI/CD, AWS, Agile
Embedded & Networking: STM32 HAL, JTAG Debugging, Logic Analyzer, UART, SPI, AES, TCP/UDP, IPSec, SSL

PROFESSIONAL EXPERIENCE

Shure Inc., Greater Chicago Area, IL, USA: Strategic Software Intern May 2024 – Present

- Conducted research on optimizing static and dynamic task graph scheduling algorithms for embedded systems based on system requirements and communicated findings to team in stand-ups and in an extensive report
- Implemented C++ software infrastructure and made critical design decisions to support an optimal scheduling algorithm to deliver maintainable and scalable code, and presented scheduler performance to stakeholders
- Identified and resolved multi-threading bugs in C++ on an Android device, improving stability and performance

OST – Ostschweizer Fachhochschule, St. Gallen, Switzerland: Visiting Researcher Jun 2023 – Aug 2023

- Collaborated on an intercultural research team working on wireless power transfer for electric vehicle charging
- Developed C firmware for TI MCU to send/receive battery voltage levels to an embedded wireless module via UART, and configured wireless module in C++ to broadcast data across a 20cm air gap via Radio
- Debugged firmware using a logic analyzer and oscilloscope to troubleshoot UART protocol issues, ensuring optimal system performance and reliability

ACADEMIC PROJECTS

Sign2Sound Senior Design Project: Software Engineer Aug 2023 – Dec 2023
Managed software tasks for team to create a device for visual and auditory ASL translation using computer vision

- Developed embedded C software for STM32 to manage audio and visual output: configured SPI to control an OLED LCD display, and I2C to stream digital audio data to an external DAC for playback through a speaker
- Designed peripheral drivers using STM32 HAL for SPI, I2C, and UART modules, ensuring reliable inter-device communication in real-time with low-latency visual and audio output
- Validated embedded signal integrity and protocol timing using oscilloscope, logic analyzer, and JTAG debugging

NPM Package Registry: Software Engineer Aug 2023 – Dec 2023
Led testing and DevOps tasks on student team to design, build, and launch an Angular application on AWS

- Constructed unit tests in Typescript on Axios, Selenium, Jest, and Karma to achieve >90% coverage
- Constructed GitHub Actions CI/CD pipeline to test and deploy the service on AWS EC2 and S3 instances

LEADERSHIP ACTIVITIES

Global Engineering Alliance for Research & Education (GEARE), Purdue University Aug 2021 – May 2024
Operations Ambassador: managed GEARE's website and honed intercultural communication skills studying abroad