

# EVAN RUTTEN

erutten@uoguelph.ca • 519-897-2162 • Kitchener, ON • [www.evanrutten.com](http://www.evanrutten.com)

## SKILLS

---

**Languages** C, Python, Bash, HTML/CSS/JS, SQL  
**Software & Tools** FreeRTOS, STM32CubeMX+IDE, PlatformIO, KiCad, Altium, SolidWorks  
**Hardware & Protocols** STM32, ESP32, ADC/DAC, PWM, UART, SPI, I2C, CAN, BLE, WiFi

## EXPERIENCE

---

**Provisioning/Programming Specialist** **January 2024 – August 2024**  
*Co-operators* Guelph, ON

- Imaged, tested, and shipped Dell laptops to employees across Canada, ensuring timely and accurate deployment
- Processed returns for damaged or decommissioned devices and refurbished laptops to optimize hardware reuse
- Developed an automated VM provisioning tool for external vendors using Python and the Azure SDK
- Integrated the tool into an existing React app and SQL database, collaborating via Azure DevOps
- Reduced VM provisioning time by over 80% by automating a previously manual process

**Wearable Device Developer** **May 2023 – August 2023**  
*Oriole AI* Guelph, ON

- Designed and prototyped smart glasses capable of converting captured images to speech, to enhance accessibility
- Developed firmware in C for an ESP32, enabling control of electronic peripherals and integration with cloud APIs
- Assembled the complete electrical system, including a camera, microphone, speakers, SD reader, and battery
- Modeled and 3D-printed a custom frame to house all components, utilizing SolidWorks for precise design
- Conducted testing and debugging to validate system reliability and accuracy in real-world environments

**Embedded Subsection Lead** **September 2022 – Present**  
*Gryphon Racing FSAE* Guelph, ON

- Engineered low-voltage and embedded systems for a formula-style electric racecar, ensuring robustness
- Designed multi-layer PCBs in KiCad and Altium, selected reliable components, and assembled boards by hand
- Programmed STM32 and ESP32 processors for vehicle control, data acquisition, and remote telemetry systems
- Developed firmware with FreeRTOS on STM32CubeIDE and PlatformIO, leveraging Github Actions for CI/CD
- Implemented in-vehicle communication via CAN and integrated sensors using UART, SPI, and I2C protocols
- Utilized ADCs to measure pedal position and steering angle, and controlled radiator pump operation via PWM
- Advanced from general member to subsection lead in 2024, managing projects and mentoring new members

## PROJECTS

---

[\(read more\)](#)

**Real Time Home Security System** **ENGG\*4420: Real Time Systems Design**

- Developed an intruder detection system using an STM32F4 with an LCD, camera module, and PIR motion sensor
- Utilized STM32CubeIDE with FreeRTOS to create tasks for motion interrupts, image capture/display, and alerts

**Wireless Distributed BMS** **ENGG\*4200: Wireless Sensor Networks**

- Designed and prototyped a wireless battery management system for an electric longboard using ESP32 nodes
- Programmed nodes to measure cell voltages/temperatures via ADC and communicate to a master node via BLE

**Hostage Chess Web Game** **CIS\*2750: Software Development and Integration**

- Built a full-stack application for a [chess variant](#) with a C-based backend and a Python-based webserver
- Integrated the backend via SWIG, developed a frontend using HTML/CSS/JS, and utilized an SQLite database

## EDUCATION

---

**B.ENG – Engineering Systems and Computing** **September 2021 – Present**  
*University of Guelph* GPA: 3.7 (83.1%)

**Relevant Courses** – ENGG\*4420: Real Time Systems Design, ENGG\*3640: Microcomputer Interfacing, ENGG\*4200: Wireless Sensor Networks, ENGG\*3450: Electronic Devices, ENGG\*2450: Electric Circuits, CIS\*2750: Software Development and Integration, CIS\*2520: Data Structures