Nicole Swierstra

Computer Science Student, experienced in design, firmware, and software development of digital embedded circuits and systems.

nicole.swierstra@wwufsae.com
nicoleswierstra.github.io
425-318-2222

Website Link

Relevant Skills

Embedded/Firmware programming: ARM/RISCV assembly, c (CMSIS, ChibiOS, FreeRTOS)
Application-side programming: c (Win32), c++ (QT, open-GL, cuda), c#, java, python, Embedded Linux
Design & Simulation: Altium, KiCAD, Fusion360, python, CATIA, SolidWorks, Excel

Education

Western Washington University (2022 –)
Computer Science Major, Music minor

Projects & Applied Experience

Electronics Member, Formula SAE (fall 2023 –):

- **V67 VCU OS** – Created an overhauled version of the V66 VCU operating system that was more manageable and slightly less buggy, while training new members with some smaller driver projects. With this new VCU codebase, both the critical safety checks and driver control were able to be performed under a millisecond.
- **V66 BMS Revitalization** – Rerouted and reprogrammed our V66 car's Battery Management System to get it working again after design and manufacturing errors lead to the loss of several lithium battery cells. The new design had much wider tolerances to protect against shorts, and the new code was much more efficient and readable than the old code.
- **V66 VCU OS** – Developed a low latency control system for an electric car under heavy memory and processing restrictions with a simple custom real time OS. Critical safety checks and driver control were both able to be performed every 5ms, and the code itself had a very small memory footprint of around 940 bytes.

Personal:

- **V66 dashboard** – Started as a part of the V66 car, turned into a project to validate and test my own PCB design.
- **Ebike Inverter** – Making a custom inverter with cutting edge power density so I don't have to carry my groceries up a hill.

More information on projects can be found on the portfolio page of my website

Employment

Development Intern, Autosport Labs (spring 2024 –)

Contributed to various small projects as a part-time contractor, including python modules used application side and embedded projects with chibi-os on the embedded side.