Paul Ugolini

paul@ugolini.xyz 330–503–9473 github.com/woo2

Rochester Institute of Technology – Rochester, New York
B.S. Computer Engineering + Math Minor, May 2020
Computer Science House – Member – csh.rit.edu

Experience

Samsara – Engineering Intern [Industrial Firmware] *Jan – Aug 2019*

- Developed industrial features across firmware, backend and frontend code.
- Owned features for Industrial's largest customer (easily configured serial logger for any device).
- Played with industrial automation, PLCs, and IoT problems like data ingestion, and OTA upgrades.
- Built a new product (HMI-10), ironed out the bumps with ops, and watched sales grow from 1-50 units.

NVIDIA – System Software Intern [Tegra CPU Software – MTS] *Jan – Aug 2018*

- Added efficient translations of ARM instructions for Denver & Carmel dynamic code optimization.
- Maintained firmware, kernel, and userspace code to assist in chip bringup & automated testing.
- Designed tool to correlate Linux kernel performance to CPU events for performance testing.
- Investigated long IPI (interrupt) latency, leading to a large speedup in handler execution time.

NVIDIA – Software Engineering Intern [Linux Graphics Drivers] *Jun – Aug 2017*

- Refactored userspace EGL code to meet spec and use modern design patterns.
- Improved a C++ library to enable easier testing of the Vulkan graphics API.

Thimble.io – Engineering Intern [Embedded Systems and Hardware Design] *Jun – Dec 2016*

- Designed 2 DIY kits to be delivered to customers. Created PCB, BOM, and starter code.
- Wrote drivers for sensors and AVR peripherals. Chose parts to fit within budget.
- Worked with ESP8266, I2C / SPI sensors, motor control, battery charging, RTCs, and LED displays.

STEM Summer Camp – Founder *May 2014 – Present*

- Started the only summer STEM program for middle school students in the Youngstown, OH area.
- Wrote curriculum from scratch for two levels and trained non-technical adult staff.
- Built automated game field and scoring system for students.

Projects

SAM4E support for libOpenCM3 – Expanding HAL support for the SAM4E MCU with peripheral drivers.

Mesh Net Localization – A mesh net that understands node position. Under development.

Quadcopters – 2 hobby-grade quadcopters with remote video, autopilot, and modified firmware.

The Ugolino – A custom Arduino clone featuring two co-processors and shared SRAM.

BladeWriter – Use a software defined radio to show text in the scrolling heat map of an FFT viewer.

BIOS Mod – Binary modification of consumer laptop firmware to enable installation of linux on SSD.

Skills & Technologies

C / golang / Python	Linux Userspace + Kernel Dev	PCB Layout
SPI / I2C / UART / FreeRTOS	ARM Assembly + Architecture	VHDL / Digital Design