William Zhang

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Education

2018–2022 **University of Virginia**, B.S., Computer Science & Electrical Engineering, GPA: 3.75.
Coursework: Compilers, Computer Graphics, Analog ICs, RF & Wireless Design, FPGA Design, Artificial Intelligence, Machine Learning, Real-Time Embedded Systems, Operating Systems, Algorithms, Computer Architecture Design

2014–2018 **Thomas Jefferson High School for Science and Technology**, GPA: 4.27.

Experience

2021 - 2021 (Jun – Aug) **Embedded Software Intern**, *Rivian Automotive, Inc.*, Irvine, CA.
Worked on Elpis Firmware Platform Team, which develops the core firmware, middleware, and tooling for vehicle ECUs.
- Worked on redeveloping the Ethernet stack to support QoS/priority for messages.
- Developed tool to flexibly generate structured network traffic for ECU testing.

2018 - 2021 (Dec – Jun) **Software and Systems Engineering Intern**, *Lancium LLC*, Houston, TX.
Developed software and infrastructure to support novel distributed, power-aware datacenter technology.
- Collaborated with team to design consumer-facing REST API for job, container, data, and computing resource management.
- Co-designed reference Python client library to consume the REST API.
- Implemented customer-facing command-line interface (CLI) in Python utilizing the client library.
- Built testing harnesses and mocking framework for the client library and CLI.
- Deployed HPC clusters and infrastructure (DNS, ZFS, SLURM) with Ansible.
- Designed site network architecture.

2018 - Present (Sept) **Electrical Team Advisor**, *Solar Car at UVA*, Charlottesville, VA.
Led development of embedded software and hardware for various vehicle subsystems.
- Created an Arduino library for interfacing with the Kelly KLS brushless DC (BLDC) motor controllers over CAN.
- Implemented CAN to WebSocket bridge to relay CAN messages encoded as JSON over WebSockets.
- Led embedded systems development and documentation for ARM mbedOS on STM32 microcontrollers.
- Contributed to vehicle subsystem PCB design in KiCad.

2018 - 2019 (Sept – Jun) **Distributed Systems Research Assistant**, *UVA Dept. of Computer Science*, Charlottesville, VA.
Created tools for the GenesisII grid computing platform under Dr. Andrew Grimshaw.

Projects

2020 **CAN to WebSocket Bridge**, github.com/willzhang05/can-websocket-bridge.
Bridge program written in Rust to read CAN messages from a CAN interface and relay them encoded as JSON over WebSockets, allowing for high-level WebSocket client applications to interface with a CAN bus.

2020 **Modular EV BMS**, *UVA ECE Capstone Project*, github.com/willzhang05/modular-ev-bms.
Capstone project with four other students developing a software and board design prototype for a modular battery management system for use in an electric vehicle. Consists of main node and an arbitrary number of cell nodes attached to sets of 18650 batteries.

2020 **Shop With Space**, *HooHacks 2020: Prize for Best Health Hack*, devpost.com/software/shop-with-space.
Hackathon project with three other students developing an app to promote social distancing in the COVID-19 pandemic by helping consumers avoid large crowds in stores. Dynamically generated safety ratings based on nearby traffic and location popularity data from Google Maps and TomTom APIs.

2019 **KLS Motor Controller Library**, *Solar Car at UVA*, github.com/solarcaratuva/KLS.
Arduino library for interfacing Kelly KLS brushless DC (BLDC) motor controllers over a CAN bus.

2018 **Public AMT Relay**, *TJHSST Senior Research Project*, github.com/willzhang05/senior-research.
Deployment of first known public Automatic Multicast Tunneling (AMT) relay on the Multicast backbone (MBONE) to help promote adoption of inter-domain multicast. Presented at IETF 101 in the MBONED-PIM working group.

Skills

Programming	Python, C++, C, MATLAB, Rust, Go, Java	Web	HTML5, JavaScript, Flask, Django
Misc.	Numpy, Libvirt, SLURM, VHDL, Audio Unit	Systems	Linux, FreeBSD, Junos, RTOS
Tools	Git, Shell, Ansible, Docker, Jupyter, KiCad	Languages	English, Chinese, German (B2)