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William Zhang

Education

2018–2022 **University of Virginia**, B.S., Computer Science & Electrical Engineering, GPA: 3.7.
Curriculum: Real-Time Embedded Systems, Operating Systems, Algorithms, Computer Architecture & Design, Linear Algebra, Ordinary Differential Equations, Probability

2014–2018 **Thomas Jefferson High School for Science and Technology**, GPA: 4.3.

Experience

2018–Present **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.
- Developed a live dashboard and interface using Flask and socket.io to display vehicle data to the driver.
- Led the team's embedded systems development and documentation for ARM mbedOS on STM32 microcontrollers.

2018–Present **Software and Systems Engineering Intern**, *Lancium LLC*, Houston, TX.
Developed software and infrastructure to support novel distributed, power-aware datacenter technology.
- Co-designed a consumer-facing REST API for job, container, data, and computing resource management.
- Co-designed a reference Python client library to consume the REST API.
- Created a customer-facing command-line interface (CLI) in Python using the client library and the Click framework.
- Deployed HPC clusters and infrastructure (DNS, ZFS, SLURM) using Ansible.
- Designed site network architecture.

2018–2019 **Distributed Systems Research Assistant**, *UVA Dept. of Computer Science*, Charlottesville, VA.
Assisted Dr. Andrew Grimshaw in developing tools for the GenesisII grid computing platform.

2018 **Network Engineering Intern**, *Cypress Consulting*, Arlington, VA.
- Developed Python scripts for Juniper Junos automation using NetJSON, lxml, and the Juniper pyEZ library.
- Simulated virtual IS-IS and OSPF networks from scratch using Juniper vMX and vSRX VMs in KVM/QEMU.

Projects

2020 **Shop With Space**, *HooHacks 2020: Best Health Hack*, devpost.com/software/shop-with-space.
Collaboration with three other students on 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.

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.

2019 **Solar Car TestBench**, *Solar Car at UVA*, github.com/solarcaratuva/TestBench.
Proof-of-concept test bench and dashboard to visualize vehicle status. Interfaces over a serial port with the ECU and uses Flask and socket.io to relay JSON payloads to the web frontend.

2018 **TapIn**, *HackTJ 2018: Best Web App*, devpost.com/software/tapin-r8uv1s.
Collaboration with three other students on a proof-of-concept that utilized Mifare Classic NFC cards to authenticate to a Django backend.

2018 **Public AMT Relay**, *TJHSST Senior Research Project*, github.com/willzhang05/senior-research.
Deployment of the first known public Automatic Multicast Tunneling (AMT) relay on the Multicast backbone (MBONE). Initial component of the Multicast to the Masses (MTTM) project, presented at IETF 101 in MBONED-PIM.

2017 **Bypassing Mac EFI Firmware Password**, cs.virginia.edu/~wyz3sp/mac-efi-firmware.html.
Independent project to bypass a EFI firmware password lock on an Apple MacBook Pro by reflashing the EFI ROM chip on the logic board.

Skills

Programming Python, C++, MATLAB, C, Go, Rust, Java
Misc. Libvirt, SLURM, VHDL, Embedded Systems
Tools Shell, Ansible, KiCad
Web HTML5, JavaScript, Flask, Django
Systems Linux, FreeBSD, Juniper Junos, Cisco IOS
Languages English, Chinese, German (B2)