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James Zhu

Education

Class of 2020 **B.S.**, *University of California, Berkeley*,
Electrical Engineering and Computer Sciences (EECS), **GPA 3.85** (Spring 2019).

- CS 161 - Computer Security
- CS 162 - Operating Systems
- CS 168 - Internet Architecture
- CS 170 - Efficient Algorithms
- CS 184 - Computer Graphics
- EE 120 - Signals and Systems

Skills

C, C++, Python, Java, Ruby, Go, Rust, SQL, Bash, VHDL, LabVIEW, HTML / CSS, JS

Experience

May - Aug 2019 **NVIDIA**, *Security Intern*, Tegra.

- Designed test framework for NIST cryptographic algorithm validation, using Python and C.
- Replaced custom text formats / parsing code with standard binary format (Protocol Buffers) and generated parsers, simplifying code and improving extensibility.

May - Aug 2018 **NVIDIA**, *Security Intern*, Tegra.

- Designed fault injection simulator in Python, by scripting GDB.
- Injects faults (i.e. memory corruptions) during program execution, securing chip firmware against hardware attacks.

Jun - Aug 2017 **Fermi National Accelerator Laboratory**, *Software Intern*, Technical Division.
Developed magnetic sensor interface in LabVIEW. Used to calibrate supercooled magnets for the Mu2e muon decay experiment.

Jun 2015 - Aug 2016 **Fermi National Accelerator Laboratory**, *Firmware Intern*, Neutrino Division.

- Developed FPGA firmware trigger in VHDL for the experimental LArIAT liquid argon particle detector.
- Implemented signal prescaling and doubled input width (from 16 to 32 channels), enabling more complex and high-frequency events to be detected.

Projects

2016-present **Telescope: Lisp interpreter in Rust**.

- Custom parser, AST generation
- Implemented first-class functions, closures, macros

Extracurriculars

2019-present **Open Computing Facility (OCF)**, *Officer*, UC Berkeley.

- System administration on Debian Linux, serving 50,000 students and faculty.
- Currently: deploying JupyterHub on Kubernetes, giving interactive Python notebook access for all Berkeley students.

2018-present **Eta Kappa Nu, Mu Chapter (HKN)**, *Officer, Computing Services*, UC Berkeley.

- Lead developer of legacy Ruby / Rails website (hkn.eecs.berkeley.edu).
- Project manager, lead developer for Python / Django website redesign (dev-hkn.eecs.berkeley.edu).

2017 **CalSol (solar car team)**, *Firmware Developer*, UC Berkeley.

- Developed C++ microcontroller firmware for safety-critical battery monitors.
- Improved battery error reporting and logging, eliminating silent errors and enhancing driver safety.

2015-2016 **Team Captain**, *FIRST Robotics*, Naperville North High School, Naperville, IL.
Led 50+ member high school robotics team, led software development in LabVIEW.