Nikhil Jha

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Education

University of California, Berkeley   *Berkeley, CA*
BS in Electrical Engineering and Computer Science   *Jun 2020 – May 2024*

Experience

Peloton Interactive, Inc.   *New York, NY*
Android Firmware Engineering Intern   *Jun 2021 – Aug 2021*
- Reduced the amount of time the OS release process takes by implementing a secure remote signing workflow with HSMs.
- Saved engineer-hours by deploying a service that makes searching the many 250GB+ AOSP repositories 10x faster.
- Tools Used: AWS CloudHSM, AWS KMS, AWS EC2, Terraform, Java, Chef, Docker, Apache Lucene

Open Computing Facility at UC Berkeley   *Berkeley, CA*
Site Manager   *Jul 2020 – Present*
- Served 100k+ end-users with petabytes of data per year as technical lead of the Open Computing Facility.
- Migrated our infrastructure from Puppet to a bare metal Kubernetes cluster, built out from scratch with a small team on a low budget.
- Protected against 0ld-day attacks by writing a low-maintenance tool to automate dependency and infrastructure updates.
- Improved network-wide observability by configuring distributed tracing, logging, and monitoring.
- Tools Used: Kubernetes, Rust, Python 3, ElasticSearch, Puppet, ArgoCD, Cilium

AutoLAB (UC Berkeley Automation Lab)   *Berkeley, CA*
Student Researcher & Sysadmin   *Jan 2021 – Present*
- Reduced machine usage conflicts by writing a scheduler for GPU ML/AI jobs on Kubernetes.
- Eliminated an order of magnitude of researcher downtime by automating and writing an API for permission and hosting requests, administrative changes, and other services.
- Created a system to automatically offload compute-intensive ROS nodes to AWS EC2.
- Tools Used: Python 3, Kubernetes, Ansible, Vector, Grafana, ROS

Projects

Mycelium Kubernetes Operator   *Rust, Kotlin, Java, OpenTelemetry*
Explored the viability of Rust to write Kubernetes operators by writing software that provisions, monitors, and orchestrates thousands of individual Minecraft server nodes into a single observable and fault-tolerant network.   *mycelium.njha.dev*

Fedora for PinePhone   *Linux, Bash*
I took a phone with very little documentation and slowly figured out my way to booting my operating system of choice (Fedora Linux) onto it. I eventually ended up publishing a generic set of instructions to get any Linux distro running on the PinePhone.   *github/nikhiljha/pp-fedora-sdsetup*

ocf/kubernetes   *Python 3, ArgoCD, Cilium*
Built out a modern git-based Kubernetes deployment for the Open Computing Facility. I and two others worked through the whole stack: from k8s itself (kubelet, etcd) to networking (cilium, contour), to the container runtime (CRI-O), to observability (elasticsearch, otel, prometheus), to the actual applications running on the cluster.   *github/ocf/kubernetes*

Miscellaneous

A lot of what I do doesn't fit in the usual resume sections, but is often still relevant! Take a look:

2021	**CS61C - Machine Structures - Course Staff**, Improved student understanding of C, RISC-V Assembly, operating systems concepts, CPU design, and other course content by writing and asking checkoff questions.	*Teaching*
2021	**x86 ASM / Kubernetes YAML Polyglot**, One day I got bored and wrote a file that's both valid AT&T syntax x86 ASM and valid Kubernetes YAML. People found it amusing because these are massively different levels of abstraction. Link: s.njha.dev/x86_k8s	*Fun*
2021	**Linux Sysadmin DeCal Head Facilitator**, Wrote and presented lectures, homeworks, and reading notes for this course, which covers the basics of setting up and administering a production-quality Linux server environment.	*Teaching*
2019	**NEM Bounty Program**, Won ~$200k in multiple awards for fulfilling open source code bounties and discovering bugs.	*Award*