

# Apoorv Kothari

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## Summary

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An engineering leader, with a focus on data-driven development, rigorous testing, and infrastructure at scale. Professional experience includes maintaining TLS and QUIC networking libraries, scaling backend services and their infrastructure, and mobile engineering. Passionate about security, network engineering, and Rust.

## Work Experience

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### AWS

Seattle, WA

Software Engineer – Cryptography

Feb. 2021 - Present

- Maintained AWS's opensource IETF implementation of QUIC ([s2n-quic](#)) and TLS ([s2n-tls](#)) cryptographic network protocols.
- Facilitated Cloudfront migrating to s2n-quic for H3 support, resulting in ~20% better performance while using ~30% fewer CPU resources.
- Implemented [asynchronous certificate loading](#), bridging FFI boundaries from Rust to C; worked closely across teams to integrate and reduce memory footprint required across their fleet.
- Secured team consensus and implemented large-scale library features, which influenced public APIs; highlights include: [Ack-frequency analysis](#), implementing a zero-cost [event framework](#), QUIC Connection Migration support, [client support](#) to s2n-quic, [mitigating Optimistic Ack Attack](#), [pedantic memory checks with Valgrind](#), [OpenSSL 3.0 support](#).
- Created [Netbench Orchestrator](#), which enabled production-like testing of network protocols on EC2 hosts, and informed data-driven decisions in library development.

Software Engineer – EC2

Nov. 2019 - Feb. 2021

- Deployed a production critical service for fingerprinting similar EC2 hosts; at launch the service handled ~10,000+ API calls across 15+ AWS regions without errors and downtime.
- Implemented granular fail-safe switch across 15+ AWS regions, which helped reduce oncall pages, increased availability of services, and resulted in cost savings of ~\$100,000/year.
- Simplified codebase and deployments by replacing 2 unmaintained metrics libraries with ~100 lines of code.
- Led multiple incident investigations to identify root-causes, track impact, remediate impacted customers, and finally implement long-term fixes.

### iHeartRadio

New York, NY

Infrastructure/Backend Software Engineer

Feb. 2017 - Mar. 2019

- Led the launch of Music Recommendation service, aligning stakeholders across Data Science/iOS/Design teams. Responsibilities included designing APIs, architecting a resilient storage with rollback capabilities and implementing service logic.
- Migrated Scala micro-service backend from Akka Cluster to Kubernetes over 6+ months.
- Worked as part of small team to launch a highly-available Kubernetes deployment/rollback process for the Backend services team (deployed on AWS using [kops](#)); collaborated with SRE team to set up additional Kubernetes clusters and standardize the process for all teams across the company, while balancing cost, reliability, and maintenance overhead.
- Mitigated outage risks during MongoDB upgrades and mutations by implementing [embed MongoDB](#) testing for all services.

### Consulting

Remote

Independent Consultant

Mar. 2016 - Feb. 2017

- Worked closely with [Shatterproof](#) non-profit leadership team as technical advisor; translated business requirements into technical-specification documents, interviewed candidates, and helped assess software systems proposed by outside contractors
- Delivered project management app for a construction firm, featuring Google Drive-backed storage, distributed synchronization across multiple devices, text/PDF/image editing, and full offline support.

### TouchLab

New York, NY

Android Engineer

Sept. 2014 - Jan. 2016

- Delivered a solution to assist Forest rangers with deforestation reporting; featuring offline support, custom map rendering, and 3<sup>rd</sup> party data collection. Supplemental information: [meetup presentation slides](#) and [project mission](#).
- Collaborated closely with customers to deliver Android based solutions in a quick-paced environment.

## Education

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### The Cooper Union for the Advancement of Science and Art

New York, NY

Bachelor of Engineering | Full-tuition Academic Scholarship

Graduation 2012