Apoorv **Kothari**

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Summary

A forward-thinking engineering leader, with an approach rooted in data-driven development, rigorous testing methodologies, and designing seamless user experience. Professional experience includes working on low-level cryptographic networking libraries, Backend and Infrastructure engineering, to mobile engineering. Especially passionate about cryptography, network engineering, Rust, and BPF.

Work Experience

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% less CPU resources.
- Implemented asynchronous certificate loading, bridging FFI boundaries from Rust to C; working 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, reproducible, and automated 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/Backed 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). Worked with SRE team to setup 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 3rd party data collection. Here is some supplemental information: project mission and meetup presentation slides.
- Collaborated with clients to develop Android based solutions, from system-architecture, and backend to testing, and releases.

Education

The Cooper Union for the Advancement of Science and Art   *New York, NY*
Bachelor of Engineering | Full-tuition Academic Scholarship   Graduation 2012