# 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 spans from mobile and web application software to low-level cryptographic networking libraries. Passionate about cryptography, information security, low-level performance, BPF, and highly scalable architecture.

## 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.
- Helped Cloudfront migrate to s2n-quic for H3 support, resulting in 20% better performance and 30% less CPU usage.
- Implemented asynchronous certificate loading, bridging FFI boundaries from Rust to C; worked closely with Cloudfront to integrate and reduce memory footprint required across the Cloudfront Edge 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 new production service for fingerprinting similar EC2 hosts; at launch the service handled 10,000+ API calls across 15+ AWS regions with zero failures and downtime.
- Implemented automatic detection of stuck fail-safe switches across 15+ AWS regions, which helped reduce oncall pages, increased availability of services, and resulted in cost savings of $100,000/year.
- Added granular AZ support to fail-safe switches, resulting in increased availability services and cost savings of $250,000/year.

**iHeartRadio**                                                                                                    *New York, NY*
Infrastructure/Backed Software Engineer                                                                  *Feb. 2017 - Mar. 2019*

- Led launch of new Music Recommendation micro-service, aligning stakeholders across Data Science/Design/iOS teams.
- Migrated Scala micro-service backend from Akka Cluster to Kubernetes (deployed on AWS using *kops*).
- Defined and implemented highly-available Kubernetes deployment/rollback process for Backend services team; worked with SRE team to 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*

- Collaborated with clients to develop Android apps, from system-architecture, and backend to testing, and releases.
- Developed an App to equip Forest rangers with deforestation map data; featuring custom map rendering, and full offline support.

**Rubenstein Technology Group**                                                                                    *New York, NY*
Software Engineer                                                                                            *Oct. 2013 - Aug. 2014*

- Worked closely with the Design lead to launch a responsive website for a large law firm.

## Education

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