

Ahmad Kaouk

Paris, France • ahmadkaouk.com • ahmadkaouk.93@gmail.com • github.com/ahmadkaouk • linkedin.com/in/ahmad-kaouk

Senior systems software engineer with 10 years across distributed systems, embedded networking, and cybersecurity. Open-source contributor and co-inventor on four U.S. patents.

Skills

Languages: Rust, Python, C++, Go, TypeScript

Technologies: Linux, TCP/IP, async Rust (Tokio), ZeroMQ, gRPC/Protobuf, socket IPC, WebSockets, PostgreSQL, MongoDB, Docker, Kubernetes, Terraform, GDB, Claude Code, Codex

Experience

Senior Software Engineer, *Moonsong Labs, Remote*

June 2023 – present

Core contributor to open-source projects including [DataHaven](#) and [Moonbeam](#), two blockchains; 118 merged PRs and 278 code reviews, with upstream work in Frontier and [Rust EVM](#). Currently building a backend for institutional finance.

- Designed and built the DataHaven–Ethereum messaging layer: two-way, every message verified on arrival, replays rejected.
- Built the cross-network payout system end to end: each payout window settled at most once, with duplicates rejected.
- Bounded Moonbeam’s resource use in production by metering storage writes per virtual machine instruction; upstreamed.
- Wrote a Merkle-proof verifier that checks data from an external network against locally tracked root hashes.
- Designed a zero-downtime migration of balances and permissions to a new storage layout, batched to an execution budget.
- Cut storage I/O in reward accounting from one write per node to one per batch, keeping the periodic rollover on budget.
- Sole engineer on a backend for institutional vaults: design, least-privilege RBAC, and a pilot with 5 institutions.

Senior Software Engineer, *Jizô AI, Paris, France*

January 2022 – May 2023

Led microservice development in Rust and Python for LOKI, a product that traps attackers in a decoy network, from an idea to industrialization, alongside Jizô, an NDR qualified by ANSSI, the French cybersecurity agency.

- Designed the layer that maps a customer network and brings up a matching decoy network: async services over ZeroMQ.
- Built the event pipelines that turn decoy activity into evidence and alerts for the NDR, with no false positives by design.
- Hardened the product to the ANSSI qualification standard: least-privilege processes and role-based administrative access.
- Cut decoy environment setup to one Terraform command: VM and container provisioning, networking, and teardown.

Embedded Software Engineer, *Sagemcom, Paris, France*

July 2020 – December 2021

Developed C++ networking firmware for Linux gateways and Wi-Fi 6 extenders shipped by TalkTalk, DNA, and Canal+.

- Led Wi-Fi 6 certification of the F@st 266 extender end to end, from gap analysis to passing the Wi-Fi Alliance test plan.
- Brought up prplMesh, the open-source EasyMesh stack, on the extender: driver and Linux service integration over IPC.
- Implemented mesh formation end to end, discovery through backhaul setup; a new extender joins with one WPS press.
- Mentored new engineers through onboarding and hands-on firmware debugging sessions.

Software Engineer, *Itron, Paris, France*

January 2018 – July 2020

Developed low-level networking protocols in C++ and Python for an IPv6 mesh of battery-powered gas and water meters.

- Kept meters connected on a 20-year battery budget: RPL mesh routing, frequency hopping, and MAC retransmissions.
- Cut idle listening, the largest drain on a battery meter, with scheduled radio wakeups and receive windows.
- Co-invented a patented scheme that probes faster radio modes opportunistically and switches on delivery feedback.
- Co-invented a patented link-quality estimator that blends delivery statistics across data rates so routes stay stable.

R&D Engineer, *IRIT, Toulouse, France*

June 2016 – December 2017

Developed content distribution algorithms for mobile social networks; co-authored an IEEE WCNC 2017 paper.

- Designed a seed-selection algorithm from connectivity and user interests; content utility rose 9–11 points in simulation.

Education

MS in Computer Science, *Toulouse 3 - Paul Sabatier University, France*

2015 – 2016

BS in Computer Science, *Lebanese University, Lebanon*

2011 – 2015

Patents & Publications

[Reliable Link Quality Estimation in Multi-Rate Networks](#). *U.S. Patents 11,133,887, 11,777,638, and 12,425,127.*

[Opportunistic Use of Different Modulation Schemes](#). *U.S. Patent 10,833,910.*

[Evaluating Seed Selection for Information Diffusion in Mobile Social Networks](#). *IEEE WCNC, 2017.*