Ahmad Kaouk

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Summary

A Software Engineer with over 7 years of experience in networking, cybersecurity, and blockchain. Proficient in Rust and C++ and experience with Python. Strong knowledge of data structures and algorithms, design patterns and multi-threading. Experienced in designing high-availability, high-throughput, and low-latency backend components, as well as scalable distributed systems.

Skills

Programming	Rust, C++, Python, Typescript
Blockchain Development	Cosmos, Ethereum
Database Management	PostgreSQL (SQL), MongoDB (NoSQL)
Systems & Networking	Linux, TCP/IP, HTTPS, DNS, Cryptography
Service Architecture	Microservices, ZeroMQ, REST, gRPC, WebSockets
DevOps	Git, Terraform, Docker, Jenkins

Experience

Senior Rust Engineer – Delphi Labs (Contractor - Remote) May 2022 - Present

Played a pivotal role at Delphi Labs, a prominent player in the Cosmos Ecosystem specializing in the development of DeFi protocols, contributing to the evolution of the Mars Protocol, a decentralized credit system.

- Developed and enhanced Mars Smart Contracts using Rust and CosmWasm, incorporating features like Swaps with Osmosis, Rewards Distribution, and Liquidation mechanisms.
- Streamlined the performance of smart contracts and gas usage, maximizing efficiency and cost-effectiveness.
- Built backend features(indexers, explorers) and APIs, broadening the scope and reach of the protocol.
- Established a comprehensive test suite, ensuring a bug-free environment for optimal functionality.
- Engaged in code reviews and offering assistance in documentation.
- Tech Stack: Rust, CosmWasm, Cosmos, Websockts, gRPC, Git, Github

Senior Rust Engineer – Sesame IT (Paris, France) August 2021 - May 2022

Fulfilled a leading role at Sesame IT, a french startup in the cybersecurity landscape focusing on the development of smart cyberdefense solutions. I worked on building an MVP from scratch for a novel threat deception solution.

- Utilized Rust to implement key features such as network scanning, monitoring, and honeypot deployment, contributing to a more secure and scalable system.
- Built scalable Backend REST APIs using Tokio and Rocket.
- Managed large-scale data storage and traffic handling using MongoDB.
- Adopted a microservices architecture for enhanced system modularity, flexibility and adaptability.
- Administered the infrastructure using Terraform and Proxmox virtualization, ensuring smooth deployment.
- Tech Stack: Rust, Linux, ZeroMQ, REST API, MongoDB, Docker, Terraform, Proxmox

Senior Software Engineer – Sagemcom (Paris, France) June 2020 - August 2021

Served as a contributor at Sagemcom, a world leader in networking solutions for the broadband, contributing to the development of next-gen Easymesh for gateways and repeaters.

- Implemented crucial features like Network Discovery, routing, and VLAN configuration using Rust and C++, improving network performance and reliability.
- Developed comprehensive test plans with Python, maintaining high code quality and network reliability.
- Performed performance analysis for system optimization to improve throughput and maintain network stability.
- Mentored and guided junior engineers, fostering a culture of learning and continuous improvement.
- Tech Stack: Rust, C++, Python3, TCP/IP, WiFi, Git, Jira, Jenkins, Docker

Software Engineer – Itron (Paris, France) September 2017 - June 2020

As a member of an R&D team at Itron Inc, an American technology company that offers products and services for energy and water resource management, I was working on new networking solutions, for large-scale IoT devices.

- Designed and built new protocols components for IoT devices with C++, optimizing communication efficiency and low power consumption.
- Collaborated with hardware engineers to tailor communication protocols to IoT device specifications.
- Conducted benchmarking and performance analysis for optimization.
- Troubleshot and resolved issues in existing systems.
- Participated in code reviews to maintain high-quality code and system performance.
- Administered the Jenkins CI/CD server, automating testing processes.
- Tech Stack: C++11, Python3, TCP/IP, IoT, Git, Docker, Jenkins.

R&D Engineer – IRIT Laboratory (Toulouse, France) June 2016 - June 2017

- Researched information diffusion solutions for mobile ad hoc networks.
- Defined a new protocol for routing information in mobile social ad hoc networks.
- Developed a proof of concept for the proposed solution using Java.
- Tested and simulated new protocol and algorithms, verifying effectiveness in improving network performance
- Published research papers on the new protocol and proposed algorithms
- Tech Stack: Linux, Java, Git, LaTex

Education

2015 - 2016 MS in Computer Science at **Toulouse 3 - Paul Sabatier University**
2011 - 2015 BS in Computer Science at **Lebanese University**

Publications

F. Mezghani, M. Mezghani, **A. Kaouk**, A. -L. Beylot and F. Sedes, *"Evaluating Seed Selection for Information Diffusion in Mobile Social Networks,"* 2017 IEEE Wireless Communications and Networking Conference (WCNC), San Francisco, CA, USA, 2017, pp. 1-6, doi: 10.1109/WCNC.2017.7925787

Patents

- Bartier, Jerome, Fabrice Monier, Yacine Khaled, **Ahmad Kaouk**, Vincent Roussel, Bastien Mainaud, and Viet-hung Nguyen. "Opportunistic use of different modulation schemes." U.S. Patent 10,833,910, issued November 10, 2020.
- Bartier, Jerome, Yacine Khaled, Khalid Maallem, and **Ahmad Kaouk**. "Reliable link quality estimation in multi-rate networks." U.S. Patent 11,133,887, issued September 28, 2021.