

# Karim Ben Amara

<https://kariyum.github.io/>  
Software Engineer II

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## Skills

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**Areas of Expertise:** Software Architecture And Development - Data Structures - System Design - Networking - Data Generation - Data Processing

**Languages & Technologies:** Scala - Python - Rust - Svelte - Bash - Awk - Typescript - Spark - DuckDB - Polars - Prometheus - Grafana - Docker - Kubernetes - Git

## Experience

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**Cognira** - Software Engineer II

**July 2023 – Present**

*Scala - Akka - Spark - Python - Cassandra - Postgres - gRPC - Polars*

*Tunis, Tunisia*

- Led the transition to a microservice-based model inference, optimizing resource utilization improving latency by 30%.
- Benchmarked and analyzed the forecast engine, achieved three times more increase in load sustain.
- Built a full-stack internal app to extensively profile a remote service with negligible overhead.
- Built a configurable schema and data validator performing custom multi-column and multi-file checks.
- Significantly enhanced the event notification workflow, decreased their latency to sub-milliseconds for real-time notifications.
- Took the initiative in building a command-line interface that also serves as an internal dev tool, assisting the team in validating, debugging and working on new features efficiently.
- Developed and launched key features for Cognira's SaaS promotion management tool.
- Maintained high service quality by troubleshooting client issues and deploying hotfixes during support rotations.

**Cognira** - Intern

**6 Months, February 2023 – June 2023**

*Scala - Akka - Cassandra - Redis - Python - Matplotlib - Numpy*

*Tunis, Tunisia*

- Benchmarked different caching strategies, measuring server throughput, time to first byte, latency, cache hit & miss rates, database read and write response times.
- Developed and implemented the testing app and various caching strategies, resulting into 18 different configurations.
- Simulated user behaviors for different kind of workloads.
- Automatic report generation and ranking justified with figures of harvested metrics during simulation, relying on statistical hypothesis testing.

**Cognira** - Summer Internship

**2 Months, June 2022 – August 2022**

*Scala - Spark - Akka Http - Html - Canvas*

*Tunis, Tunisia*

- Leveraged spark lazy transformations to develop an efficient and generic hierarchy data generator.
- Accelerated the dev team implementation and testing phases by providing a web interface to easily input and validate a hierarchy configuration and download generated data.

## Hobby Projects

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**www.nfreelanci.tn** <https://github.com/kariyum/nfreelanci.tn>

**Sep 2024 – Ongoing**

*Rust - Sveltekit - Postgresql - Docker - Nginx - Sqlx*

Designed and developed a freelancing platform, easing the search for talented people and ambitious projects. The system is enhanced with real-time in-app push events, handling entity updates, real-time messaging, and in-app notifications. I integrated Google SSO and emailing capabilities and for CI/CD I have setup GitHub Actions that builds and deploys the application on a virtual private server.

## Education

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**National School of Computer Science**

**September 2020 – June 2023**

Computer Science Engineering Degree; Operations Research and AI field

*Manouba, Tunisia*

Awarded graduation prize for achieving 1st place

**Preparatory Institute for Engineering Studies of Bizerte**

**September 2018 – June 2020**

Preparatory Diploma in Math and Physics; Linear Algebra - Advanced Calculus - Physics

*Bizerte, Tunisia*

## Achievements

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- Took role within the Google Developer Groups of Manouba where I helped organizing various events (Women Techmakers - Google DevFest...) and exposing newcomers to the state of the art of Google technologies specifically.
- Google Cloud badge: Create and manage cloud resources (Virtual Machines, Docker, Kubernetes, Nginx).
- Completed Introduction to TensorFlow for Artificial Intelligence, Machine Learning and Deep learning on Coursera. DeepLearning.AI - Year 2021