

Hatem MNAOUER

R&D Software Engineer, Télécom
Paris graduate



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WORK EXPERIENCE

R&D Software Engineer (CDI) Cosmian TECH

02/2024 - Present

Paris, France

- Refactored Microsoft Word and Chrome extensions into a modular **monorepo** architecture. Successfully transitioned from POC to production product. Developed and maintained shared components across platforms (**Typescript**, **React**, **Vite**, **AntD**), implementing multi-provider authentication (Google, Auth0, Microsoft Entra ID) based on **OAuth 2.0**. Integrated query system to COSMIAN VM for executing confidential AI functionalities.
- Contributed to **findex-server**, a Rust server enabling secure searches on encrypted data hosted on untrusted servers. Designed client-server architecture using **Actix-web**, creating a REST API compatible with various databases (**Redis**, etc.). Implemented authentication middlewares supporting multiple security standards (**OIDC**, **OAuth 2.0**, **X509** certificates).
<https://github.com/Cosmian/findex-server>
- Optimized SSE Findex protocol implementation for **Redis**, **SQLite** and **PostgreSQL**, achieving up to **600%** performance improvement in query processing compared to initial versions.
<https://github.com/Cosmian/findex>
- Performed maintenance across multiple Typescript/React (front-end) and Rust (backend) projects, including CI/CD pipeline work (**GitHub Actions**, **Docker**, **ngrok**, etc.).

R&D Software engineer (internship) ActiveViam

04/2023 - 10/2023

Paris, France

- Developed a proof-of-concept for porting a large **JupyterLab** extension for Python notebooks as a VS Code extension.
- Created a Vscod extension from scratch for the **Atoti** business analytics library using **TypeScript**, **React**, **ActiveUI-SDK**, and **Webpack** bundling to deliver high-quality code.
- Implemented a comprehensive integration test suite and CI pipeline on **CircleCI** and collaborated with the ActiveViam Clients team, actively participating in architectural discussions to ensure the stability and compatibility of new features

TECHNICAL SKILLS

Programming languages

Rust (Clap, Tokio, Actix-Web) , C/C++ (MPI, SimGrid), Java (Maven, Akka, RabbitMQ), Python 3 (SciKit-Learn, Pandas,...), HTML/CSS (Bootstrap, AntD), Typescript (Node.js, React), Batch, Bash, Docker, Prolog...

Modeling tools

Git, RDF, REST APIs, Packet Tracer, Quartus Prime, QGIS, ESA Snap, WampServer, Ms Office, Adobe XD, Adobe Photoshop, Jira, Octa.

Operating systems

Linux (Ubuntu/PopOS/Kali), Windows xp/7/10/11, Windows Server 2012 & Ubuntu Server 24.04.2 LTS

Databases

Oracle 11.x Sql Server, Redis, PostgreSQL, SQLite3

EDUCATION

M2 Parallel Distributed Systems Institut polytechnique de Paris

2021 - 2023

- Middleware for distributed applications, high performance computing. Worked on multiple **data analysis** in **Python** and prepared a distributed **Java** back-end server for **Vélib's** Olympic games update that leverages a publish-subscribe **MQTT** model to connect cyclists.

Engineering degree Télécom Paris

2021 - 2023

- Distributed software systems & Data science study tracks. Developed innovative projects such as a blockchain classifier capable of detecting fraudulent transactions -extracted through **BigSQL** queries - from the ETC **blockchain**.
https://github.com/HatemMn/ETC_fraud_detection

Engineering degree

Higher School of Communication of Tunis

2019 - 2023

- Networking & IoT**, signal processing, advanced algorithms & Android development, **cyber security**, economics & **project management**. Successfully created an Android application for queue management :
<https://github.com/achrefcherif98/SAFF>

LAB R&D EXPERIENCE

Performance Evaluation of in situ Applications (09/2022 - 02/2023)

- Created a new version of SIM-SITU, a framework for the faithful performance evaluation of in situ processing strategies. I exploited the modular design of SIM-SITU in order to give a general, generic definition of what an IN SITU simulation program consists of and make it implementable on top of most simulation programs. (**C++/SimGrid/Molecular Dynamics**)

Satellite remote sensing in a desert region (12/2020 - 05/2021)

- Created of a **deep learning** model (following a published research) which detects paths in deserts thanks to the **ESA Sentinel-1** satellite in order to find the paths followed by smugglers that cross frontiers illegally. (**Python/Copernicus/Deep Learning/Electromagnetism**)
<https://github.com/HatemMn/infrastructure>

CERTIFICATIONS

Cisco CCNA 1, CCNA 2, CCNA 3 (2021) & Certification Deep Learning Coursera (2021)

Honorable mention in the ACPC 2021

Qualified to the [ACPC \(Arab & African collegiate programming contest\)](#) after succeeding among the best teams in the ACPC.

LANGUAGES

French
C2 (native, bilingual)

English
C2 (fluent)

Arabic
C2 (native, bilingual)

Espagnol
A2 (limited proficiency)