

Addala Raed *Software Engineering Student*

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📍 Bordeaux, France

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EDUCATION

National Institute of Applied Sciences and Technology [🌐](#),

2021 – 2026 | Tunis, Tunisia

National Engineering Degree in Software Engineering (Master's level, Bac+5)

CourseWork: Theoretical Computer Science, Operating Systems, Data Structures and Algorithms, Software Design and Architecture, Distributed Systems, Big Data Engineering, Artificial Intelligence, Networking, Virtualization.

PUBLICATIONS

Impact of Parallelism and Transaction Execution Acceleration on Blockchain Consistency [🌐](#), *Current Engineering Letters and Reviews (accepted)*

Authors: Addala Raed, Zouaghi Mohamed, Ouni Sofiane

PROFESSIONAL EXPERIENCE

Federated Learning Research Intern, LaBRI [🌐](#)

03/2026 – 08/2026 | Bordeaux, France

- Validate and evaluate optimization frameworks for Federated Learning in Fog-IoT environments through simulations.
- Analyze the impact of operational constraints such as latency, privacy cost, network dynamics, node mobility, and heterogeneity.

Distributed Computing Intern, ImaginarioAI [🌐](#)

06/2025 – 09/2025 | PHL, USA (Remote)

- Developed a distributed video processing system using parallel chunking, slashing runtime for 1–3 hour videos.
- Implemented MapReduce-inspired architecture to distribute multimodal tasks across nodes, boosting pipeline scalability and throughput.

Junior Software Engineer - Working Student, BySur [🌐](#)

11/2024 – 04/2025 | Paris, France (Remote)

- Built modular, containerized backend services using NestJS and Docker.
- Developed LLM solutions for insurance: OCR-free document parsing/validation and RAG pipelines for intelligent verification/querying.

Junior Software Engineer - Working Student, Metadrift [🌐](#)

03/2024 – 10/2024 | Tunis, Tunisia

- Built custom ERP backend, automating management for 10+ clients, including stock handling, complex transactions, and product lifecycles.
- Manually optimized SQL queries to resolve performance bottlenecks such as N+1 issues.

PROJECTS

RC-PBFT Extension: Parallel Synchronization for Low-Error IoT Blockchains,

02/2025 – 07/2025

End-of-Year Academic Research Project

- Designed and implemented a synchronization module for RC-PBFT blockchain [🌐](#), enhancing parallelism and minimizing inter-node conflicts for high-throughput IoT applications.
- Developed the Unordered Global Distributed Transaction algorithm, reducing ordering consistency error rate to under 15% in simulated scenarios using Go.
- Co-authored paper under review at Current Engineering Letters and Reviews.

SmartShield: AI-Powered Real-Time Intrusion Detection System [🌐](#),

09/2024 – 12/2024

2nd Place, IEEE Computer Society Challenge (TSYP '12)

- Collaborated in a 7-person team to architect a scalable, Dockerized IDS platform with a high-throughput log pipeline (RabbitMQ, Zeek, OpenArgus, Elasticsearch) for AI-driven real-time threat detection from network logs.
- Developed Python-based anomaly detection, multi-class ML models, and an LLM agent for automated, explainable security reports.
- Built an interactive real-time monitoring dashboard and modular architecture supporting extensibility.

Fault-Tolerant Microservice Live Streaming Platform [🌐](#), *End-of-Year Team Project*

02/2024 – 06/2024

- Collaborated in a three-person team to build a fault-tolerant live streaming platform using Elixir/Phoenix microservices and BEAM VM for concurrency and real-time resilience.
- Engineered secure API with Kong Gateway (JWT auth, load balancing), Membrane pipeline (RTMP ingestion, AAC/H.264 transcoding, HLS delivery), and low-latency WebSocket chat in Phoenix.
- Developed a responsive SvelteKit frontend, containerized all services with Docker for scalable deployment.

SKILLS

Programming Languages: C, C++, Python, TypeScript, Go, Elixir | **Data Management:** Databases (Relational & NoSQL), Query Optimization & Performance Analysis | **Research Skills:** Project Management, System Integration, Documentation, Problem Solving, Cross-Disciplinary Collaboration | **Core Technical Domains:** Software Architecture & Design, Distributed & Parallel Systems, Artificial Intelligence & Machine Learning, Big Data Engineering, Blockchain & Consensus Protocols, Fault-Tolerant & Real-Time Systems

LANGUAGES

English: Fluent | **French:** Proficient | **Arabic:** Native | **German:** Basic

EXTRA ACTIVITIES

IEEE Volunteer, Technical Activities Committee (TAC), Tunisia Section

06/2025 – Present | Tunis, Tunisia

Collaborated on technical projects to develop resources and tools benefiting IEEE Tunisia Section members and students.

Problem Setter & Contest Tester, INSAT ACM Student Chapter

12/2023 – present | Tunis, Tunisia

Created original competitive programming problems with solutions, proofs, and complexity analyses, and tested different contests.

Training Manager - INSAT ACM Student Chapter,

08/2023 – 06/2024 | Tunis, Tunisia

Led competitive programming initiatives for 50+ members

Delivered select workshops on Python, C++, and algorithms to 50+ students, while providing ongoing support during training sessions.