Mohamed Rhoulam

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EDUCATION

Al Akhawayn University in Ifrane **Sep. 2021 — May 2025**
Bachelor of Science in Computer Science

- Selected Coursework: Agile Software Engineering and DevOps, Artificial Intelligence, Advanced Distributed Programming Paradigms, Cybersecurity, Operating Systems, Languages and Compilers, Software Testing, Database Systems, Analysis of Algorithms, Object Oriented Programming in Java.

EXPERIENCE

Leyton **May 2024 — Aug. 2024**
Software Engineer Intern – Casablanca

- Integrated Leyton's Tech-Lab, launching software solutions utilized by over 400 Leyton consultants and clients from 16 countries.
- Launched an AI chatbot using Python for data engineering and Typescript, aggregating insights from over 500 consultant-client documents, increasing overall operational efficiency of the consulting department.
- Engineered a robust asynchronous document indexing pipeline with Kafka, achieving data processing speeds of up to 15x faster than previous methods while utilizing Chroma and LangChain.
- Created automated scripts using Python and Bash which handled repetitive tasks like file management and Docker builds, saving approximately four hours weekly while ensuring consistency and accuracy.
- Implemented a streamlined CI/CD pipeline leveraging Docker, and Kubernetes, cutting deployment cycles by 50% while bolstering code quality through rigorous automated tests.
- Built scripts with Python and Bash for managing files and executing Docker builds, culminating in an impressive reduction of four hours per week dedicated to manual tasks without sacrificing quality.

PROJECTS

Multi-Agent UAV Simulation (Final Year Project) – ***Python, TypeScript, MySQL*** **Jan. 2025 — May 2025**

- Designed and implemented a UAV path-planning and coordination simulation system for up to 20+ autonomous drones that optimizes coverage paths and route planning using real-time weather, topography, and satellite data.
- Engineered a modular, API-driven architecture, integrating Python for pathfinding, React and Electron for the UI, and Lua for runtime configuration, enabling fast and dynamic UAV behavior scripting and configuration.
- Implemented multi-agent AI algorithms for UAV swarm coordination, leveraging A* pathfinding, genetic algorithms, and reinforcement learning, achieving 25% faster route optimization compared to baseline methods.
- Developed a containerized microservices framework using Docker, Redis, and MySQL, ensuring scalability, real-time data synchronization, and efficient inter-service communication for UAV simulations.

Task Tracker with Analytics – ***TypeScript, Node.js, MongoDB, Docker, Cypress, Github***

- Implemented an interactive dashboard with data visualizations using Chart.js, displaying data from over 500 tasks to enhance tracking capabilities.

MyDoc (Medical Management System) – ***JavaScript, Node.js, PostgreSQL, Docker, Github***

- Led a team of 5 in the development of a full-stack medical management system.
- Managed the software development workflow, scheduled 15+ weekly tasks and meetings while ensuring compliance with industry standards and best practices.

SKILLS

- Programming Languages : (Proficient): TypeScript, Python, Rust. (Familiar): Java, C/C++
- Frameworks & Libraries : React, Node.js, FastAPI, Ollama, LangChain
- Databases : PostgreSQL, MySQL, SQLite, PL/SQL, Redis, MongoDB, ChromaDB
- Tools : Git, Docker, Kubernetes, Linux, Bash/Shell, Cypress