

IBRAHIM BOUBAKRI

Full-Stack Developer | DevOps | Software Development | AI Integration

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PROFILE

Full-stack developer focused on building reliable, high-performance, and maintainable software, with hands-on experience across backend, frontend, APIs, automation, DevOps, and AI integration. Builds modular services, containerized workflows, CI/CD pipelines, and AI/LLM-enabled application components from technical design through deployment and observability. Strong in Python, FastAPI, React, Node.js, Docker, Kubernetes, SQL, and Linux, with a consistent focus on performance, reliability, developer efficiency, scalability, and continuous improvement.

EDUCATION

Université du Québec à Trois-Rivières – UQTR **Sep. 2024 – Aug. 2026**
Master's in Electrical Engineering, Computer Engineering Concentration *Trois-Rivières, QC, Canada*

National School of Computer Science – ENSI **Sep. 2020 – Aug. 2023**
Engineering Degree in Computer Science *University of Manouba, Tunisia*

PROFESSIONAL EXPERIENCE

Full-Stack Developer – Architecture, DevOps and AI Integration **Sep. 2024 – Present**
Modular AI Platform *Quebec City, QC, Canada / Remote*

- Contributed to the design and development of a modular software platform for workflow orchestration, data management, and AI service integration.
- Designed backend components and REST APIs for AI pipelines, structured files, metadata, execution logs, and validation mechanisms.
- Supported architectural decisions that decoupled services, improved code maintainability, and enabled modules to evolve independently.
- Integrated AI models and services into reproducible application workflows with input, output, error, and execution-status management.
- Implemented and improved DevOps practices using containerization, continuous integration, automated testing, and deployment workflows.
- Developed storage, progress-tracking, and asynchronous-processing capabilities to improve platform reliability and observability.
- Contributed to performance optimization, technical incident resolution, and documentation of software components and interfaces.
- Accelerated development and incident resolution with agentic coding assistants (Claude Code, OpenAI Codex, GitHub Copilot, and Cursor) for code analysis, refactoring, test generation, and documentation, with human review and CI/CD validation.
- *Technologies:* Python, FastAPI, REST APIs, Docker, Git, GitLab CI/CD, SQL, JSON, CSV, PyTorch, OpenCV, Linux

Researcher – Computer Vision and Autonomous Robotics **2024 – 2026**
UQTR / Industry Collaboration with Noovelia *Trois-Rivières, QC, Canada*

- Designed and developed an end-to-end computer-vision perception pipeline for industrial pallet detection and geometric keypoint estimation, with emphasis on robust and efficient real-time inference.
- Built an automated Blender-based synthetic-data workflow with domain randomization and automatic annotations to accelerate experimentation and improve generalization to real deployment environments.
- Trained, fine-tuned, and benchmarked YOLO-Pose models using PyTorch, Ultralytics, CUDA, and NVIDIA GPU infrastructure; structured reproducible evaluations for robustness, generalization, and performance/latency trade-offs.
- Developed an integrated AI and robotics platform connecting synthetic-data generation, model training, inference, PyBullet simulation, FastAPI/WebSocket services, and React to unify workflows and reduce manual operations.
- Integrated the perception module with ROS 2 and an existing navigation pipeline, deployed the solution on NVIDIA Jetson, validated real-time operation, and prepared a reusable integration pipeline for the industrial partner.
- *Technologies:* Python, PyTorch, Ultralytics, CUDA, Blender, PyBullet, ROS 2, FastAPI, WebSocket, React, NVIDIA Jetson

Developer – DevOps and Automation **Nov. 2023 – Aug. 2024**
PRIMATEC Engineering *Sfax, Tunisia*

- Developed software tools and automation scripts that reduced manual work across validation, testing, and quality-control processes.
- Integrated automated tests into CI/CD pipelines to improve the reliability, reproducibility, and speed of software deliveries.
- Designed modular Python components with structured error handling, logging, traceability, and clear separation of responsibilities.
- Maintained and improved continuous-integration environments using Docker, Jenkins, GitLab, and automation scripts.
- Implemented technical-log collection and processing mechanisms to support troubleshooting and execution monitoring.
- Collaborated with development and validation teams to standardize technical procedures and strengthen delivery workflows.

- Produced installation, usage, and maintenance documentation for internally developed tools.
- *Technologies:* Python, Docker, Jenkins, GitLab CI/CD, Jira, Batch, PowerShell, automated testing, Linux

Full-Stack Developer Intern – Web Applications and Data
Hydrogen Research Institute

Mar. 2023 – Aug. 2023
Trois-Rivières, QC, Canada

- Designed and deployed a microservices-based web platform for collecting, processing, and visualizing real-time technical data.
- Developed frontend and backend services and implemented interfaces for communication between platform components.
- Built automated ETL pipelines to collect, transform, and store data streams transmitted through MQTT.
- Containerized services to improve portability, isolation, and environment reproducibility.
- Supported the adoption of CI/CD practices for automated build, testing, and deployment stages.
- Contributed to data modeling, database management, and technical architecture documentation.
- *Technologies:* React, Node.js, MongoDB, Python, MQTT, Docker, Kubernetes, Jenkins

SELECTED PROJECTS

Modular AI Integration and Automation Platform

Apr. 2026 – Present

- Designed a modular architecture combining backend services, REST APIs, automation, and AI components.
- Developed workflows that orchestrate multiple processing, validation, and result-generation stages.
- Implemented execution tracking, metadata management, parameter versioning, and centralized output management.
- Integrated generative AI models into reproducible software processes with response validation and error handling.
- Containerized services and automated testing and deployment stages to simplify platform operation.
- *Technologies:* Python, FastAPI, Docker, REST APIs, SQL, GitLab CI/CD, generative AI, LLM integration, RAG, MCP, tool/function calling

HackZone Tunisia X | Infrastructure and Cybersecurity

Apr. 2022

- Helped organize a 24-hour capture-the-flag event involving more than 100 teams and 300 participants.
- Contributed to the design and deployment of the technical infrastructure used to host competition challenges and services.
- Prepared technical challenges covering web vulnerabilities, Linux systems, and reverse engineering.
- Provided technical support, service monitoring, and incident resolution throughout the event.
- *Technologies:* Azure, Python, Kali Linux, Git, Docker, web cybersecurity

TECHNICAL SKILLS

Full-Stack and Backend Development: Python, JavaScript, React, Node.js, FastAPI, Flask, REST APIs, WebSocket, asynchronous services, authentication, systems integration, reusable component design

Software Architecture: modular architectures, microservices, API design, separation of concerns, service integration, scalability, maintainability, performance optimization

DevOps and Software Delivery: Git, GitLab CI/CD, Jenkins, Docker, Kubernetes, Linux, containerization, automated testing, deployment pipelines, observability, logging, incident diagnostics

AI and LLM Integration: generative AI, local and external LLM integration, RAG, MCP, tool/function calling, agentic workflows, response validation, PyTorch, OpenCV, AI-assisted automation

Computer Vision and Robotics: Ultralytics, YOLO-Pose, CUDA, ROS 2, NVIDIA Jetson, Blender, PyBullet, robotic perception, real-time inference, synthetic data workflows

Data and Pipelines: SQL, MongoDB, MySQL, ETL, MQTT, JSON, CSV, data validation, metadata, structured-file processing, log analysis

Programming Languages: Python, SQL, JavaScript, Java, PHP, C++, C#, PowerShell, Bash

AI-Assisted Development Tools: Claude Code, OpenAI Codex, GitHub Copilot, Cursor, code analysis, refactoring, test generation, documentation, human-reviewed validation

Languages: French fluent, English professional working proficiency, Arabic native

CERTIFICATIONS AND ACTIVITIES

- **DevOps Bootcamp** – TechWorld with Nana
- **AWS Cloud Technical Essentials** – Coursera
- **IBM DevOps and Software Engineering Professional Certificate** – Coursera, in progress
- Organizing team member for the ENSI Annual Forum, TuniHack, RoboCup, and HackZone Tunisia.