

Rachid Boujarfaoui

Embedded Systems Engineer

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PROFESSIONAL SUMMARY

Innovative Embedded Systems Engineering student bridging the gap between hardware architecture and high-performance software. Specializing in C/C++, IoT telemetry, edge AI, and developing robust full-stack monitoring dashboards. Strong leadership background managing technical clubs and a proven track record of delivering end-to-end prototypes in hackathons and regional robotics competitions.

TECHNICAL SKILLS

Embedded & Hardware: C/C++, RTOS, STM32, ESP32, Altium Designer, PCB Prototyping, SMD Soldering.

IoT & Cloud: MQTT, WebSockets, Data Telemetry, Edge Computing.

Software & Web: React, Next.js, TailwindCSS, Supabase, Python, Git, Linux.

Machine Learning: Edge AI, TinyML, Model Quantization.

ENGINEERING PROJECTS & EXPERIENCE

AI Hydroponics System

2024 - Present

Hardware & Machine Learning Integration

- Engineered an advanced, fully automated hydroponics setup leveraging IoT and AI to optimize plant growth environments.
- Programmed ESP32 for network stack management and real-time telemetry, paired with an STM32 processing core for edge AI inference.
- Built a custom Next.js web dashboard for autonomous nutrient dosing, LVGL control, and live data visualization.

Custom Hardware Prototyping

2023 - 2024

PCB Design & Assembly

- Conducted precision assembly, micro-inspection, and debugging of custom printed circuit boards.
- Utilized professional-grade microscopes for SMD soldering and resolved complex microcontroller architecture issues before full production.

Full-Stack Dashboards & Landing Pages

2023 - Present

Frontend Development

- Developed high-performance interfaces to visualize and control complex hardware ecosystems using modern web technologies.
- Built responsive web applications with React, Next.js, and TailwindCSS achieving 99+ Lighthouse scores and integrating Supabase for backend analytics.

LEADERSHIP & EXTRACURRICULAR

Human Resources Coordinator & Active Member

2024 - 2025

STRAI Club (Smart Technology, Robotics & AI)

- Coordinated HR activities and promoted innovation, robotics, and AI across the Faculty of Applied Sciences.
- Participated in and facilitated multiple hackathons including Data Analytics, Electronic, and Ideation Hackathons.

Finalist - Regional Agricultural Innovation

April 2026

Team E-grow

- Successfully navigated the selection phases to reach the final round of the 3rd Regional Agricultural Innovation Competition.

EDUCATION

Licence - Systèmes Informatiques Embarqués

2024 - Present

Faculté des Sciences Appliquées (FSA), Ait Melloul

Baccalauréat - Sciences Physiques

2024

Lycée Qualifiant AI-Majd

CERTIFICATIONS & HACKATHONS

- **Machine Learning I** – Columbia University (Columbia+)
- **Arduino Board Exploration** – Orange Digital Center Agadir
- **Data Analytics Hackathon** – STRAI Club, Faculty of Applied Sciences
- **Electronic Hackathon** – STRAI Club, Faculty of Applied Sciences
- **Ideation Hackathon** – STRAI Club, Faculty of Applied Sciences
- **Robotics & AI Workshop Animator** – Lycée Qualifiant AI-Majd