Khaled Douadi

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Electronics, Embedded Systems & RF Engineering

Versatile engineer with a strong background in electronics design, embedded systems development, and radio-frequency (RF) engineering. Experienced in designing and testing hardware platforms, developing embedded software, and implementing automation for measurement and validation workflows. Skilled in antenna and microwave theory, numerical simulations (MoM, FDTD), and real-world RF testing using VNAs, spectrum analyzers, and communication testers. Proficient in programming (Python, C, VHDL) for system integration, automation, and performance optimization. Motivated to contribute to innovative projects that combine hardware design, embedded development, and RF technologies.

Education

MS **Sorbonne University**, Communicating Systems — Sept 2023 – Sept 2025

- Electronics, Linux Development, and Embedded Systems
- Radiofrequency Antennas and Filters, Radar Systems
- Waveguides and Object-Oriented Programming
- Mobile Network Technologies: 2G, 3G, 4G, 5G

BS **Lille University**, Electrical Engineering — Sept 2022 – Sept 2023

Experience

Parrot, RF engineer internship — Paris, FR — Feb 2025 – Aug 2025

- Designed and tested **RF hardware components** for embedded drone systems, ensuring compliance with wireless communication standards.
- Created and updated **schematic designs and PCB layouts** using **OrCAD**, contributing to robust electronic architecture for RF boards.
- Automated **RF measurement workflows** by developing **Python scripts** integrated with **Linux bash** and **ADB commands**, reducing manual test time and improving accuracy.
- Configured and controlled advanced instruments such as **Vector Network Analyzers (VNA)**, **Spectrum Analyzers**, and **CMW500 Communication Tester** for RF validation.

Projects

Electromagnetic Simulation of Antennas (MoM, FDTD) — 2024

- Modeled antenna structures using Method of Moments and FDTD in MATLAB.
- Analyzed radiation patterns, impedance matching, and near/far field distributions.

Mario Kart Game in Python — 2023

- Developed an object-oriented racing game featuring checkpoints and dynamic obstacles.
- Tools Used: Python (OOP), Pygame

DCC Central Control System on Basys3 FPGA Board — 2024

- Designed and implemented a digital control system for model trains using VHDL and C.
- Tools Used: Basys3 FPGA, Vivado, C, VHDL

Embedded Linux System Development — 2025

- Built an embedded Linux system with cross-compilation, kernel deployment on Raspberry Pi and BeagleBone.
- Managed serial and SSH network connections, automated builds using Shell scripts and Makefiles.
- Version-controlled with GitHub and developed in VS Code.
- Tools Used: Linux, GCC, Makefile, Shell, Git, VS Code

5G Beamforming Simulation in MATLAB 2025

- Simulated beamforming techniques for 5G systems, generating modulated signals (QAM16/QPSK4).
- Computed beamforming weights (MRT, angle of arrival) and compared SISO/MISO performance using BER for different SNRs.
- Tools Used: MATLAB

Hard Skills

Antenna & RF Design: Antenna modeling (MoM, FDTD), RF measurement systems, Anechoic chamber testing, Beamforming techniques
Telecom: IP Addressing (IPv4, IPv6), Static & Dynamic Routing, Microwave Engineering, Digital & Analog Signal Processing, Mobile Networks (2G, 3G, 4G, 5G), Anechoic Chamber Measurements, Information Theory & Coding

Computer Skills: Matlab, Python, VHDL, C

Tools & Software: ADS, HFSS, LTspice, Cadence, Feko, Multisim, Mathematica, Linux, LaTeX, VirtualBox, Git, Cisco Packet Tracer

Soft Skills

Project Management: Ability to plan, organize, and deliver projects on time while coordinating effectively with team members.

Team Collaboration: Strong interpersonal skills, experienced in cross-functional teamwork and active participation in group projects.

Adaptability: Quick to learn new technologies and adjust to high-tech environments.

Problem-Solving: Innovative thinker with the ability to identify issues and develop effective solutions.

Languages

English (C1): Fluent in speaking, writing, and listening; strong academic and technical communication skills.

French (C1): Native-like proficiency in oral and written communication; experienced in professional and academic contexts.

Arabic: Native fluency in all aspects of communication (speaking, reading, and writing).

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