



# MALEK AIFA

Experienced **Linux Embedded System** developer with a flair for integrating machine learning into **smart controllers** and a passion for **IoT** and **robotics** innovation.

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## PROFESSIONAL EXPERIENCE

**Institut National des Sciences Appliquées de Lyon - INSA Lyon** **Mars 2023 – July 2023**

*Embedded Machine Learning Intern* *Lyon, France*

- Engineered a Lagrangian Physics-Informed Neural Network (LPINN) on a cloud-based **Linux** server, unifying physical principles with neural networks to architect intelligent controllers.
- Proved LPINN's prowess through high-performance results with limited data, surmounting data-driven model limitations.
- Validated LPINN-powered controller on a sophisticated 6-axis robot, empowering remote medical operations.

**Capgemini Engineering** **November 2022 – January 2023**

*Embedded Software Engineer Intern* *Tunis, Tunisia*

- Developed a software component for in-car USB MP3 playback, integrated with AUTOSAR classic platform.
- Achieved DO-178C compliance by conducting unit testing and embedding logging functions, ensuring the highest level of software integrity.

**Fiverr** **June 2014 – August 2017**

*Freelancer* *Remote*

- Achieved 100% satisfaction rate by delivering 350+ C++ programming tasks, demonstrating punctuality and precision.
- Innovated and developed sophisticated software, integrating graphics and sound for **Linux** platforms, enhancing user experience and functionality

## EDUCATION

**National Engineering School of Tunis** **September 2018 – February 2023**

*Electrical Engineer specializing in IoT and Embedded Systems Engineering* *GPA 3.61/4*

Relevant Coursework: Robotics, Electronics, Signal/Image processing, Embedded systems, RTOS, Linux, Machine learning, Smart Control, Data Science, Systems on chip, IoT, Micro-controllers, PCB design, Cloud Computing, UAVs

## PERSONAL PROJECTS

**Flexible manufacturing cell | BOOST, RFID, TCP/IP**

- Developed a graphical application using BOOST.UI C++ library that supervises and controls a flexible manufacturing cell through a local network using an OPC client/server.
- Implemented real-time monitoring of pallet positions and automated control of stoppers and machines, streamlining the manufacturing process.
- Leveraged RFID chip identification for individualized manufacturing processes for each product.

**Self-stabilising remote-controlled drone | C++, Python, Linux**

- Innovated a smart drone equipped with MPC controller, employing gyroscope data for accurate **Beagle Bone Black**-based stabilization on **Linux**.
- Fabricated a seamless **NRF24L01** communication system for reliable remote control connectivity.
- Enhanced drone capabilities with **Raspberry Pi 4**-enabled facial recognition, amplifying usage in campus security.

## LEADERSHIP EXPERIENCE

**Electrical Engineering Club in ENIT** **February 2021 – February 2023**

*President* *Tunis, Tunisia*

- Secured 1,000€ in sponsorship and internship opportunities through effective fundraising efforts, resulting in substantial enhancements to club equipment and valuable hands-on learning experiences.
- Directed a diverse team of 30+ students, steering multifaceted projects to fruition.

**IEEE AESS Chapter-ENIT Student Branch** **October 2021 – June 2022**

*Founder* *Tunis, Tunisia*

- Guided a team to achieve a remarkable 73rd out of 10,000+ participants in IEEEExtreme, a global programming challenge for IEEE Student members, showcasing exceptional problem-solving skills within a 24-hour competition.
- Managed all aspects of the club, including event planning, budgeting, and ensuring club activities' smooth operation.

## ADDITIONAL

**Programming Languages:** Python, Matlab, JavaScript, C, C++, VHDL, VB.NET

**Software Tools:** Linux, Altium, Solidworks, Xilinx Vivado, Visual Studio, PSIM, KiCAD, Unity, Arduino IDE, Git, RTOS

**Certificats:** Machine Learning in Python/GIS, Raspberry Pi, Electronics Projects Troubleshooting, TOEIC, TCF

**Langages:** English C1, German A2, French C1, Japanese B1, Arabic Native

**Interests:** Puzzles, VR, Swimming, Basketball, Martial Arts, Cooking