

Eya Chaieb

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📅 2001/08/03

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Profile

Embedded Software engineering student with hands-on experience in signal processing, particularly in automotive and wireless technologies. I am proficient in C++, MATLAB, LabVIEW, and embedded systems design, with a strong focus on communication protocols such as LoRa, MQTT, CAN, Ethernet etc. My projects span from real-time data acquisition to advanced sensor integration and system control. I have also knowledge in computer vision, ROS, and automation technologies to develop innovative solutions for diverse industries.

Professional Experience

2024/09 – 2024/09

Embedded System Developer

Orange

Embedded Development and Energy Optimization:

- Development of C++ drivers for microcontrollers enabling efficient data acquisition via I2C and SPI.
- Optimization of energy consumption by implementing low-power modes and interruptions.

IoT Architecture and Communication Infrastructure:

- Development of a master-slave communication architecture for microcontrollers and Raspberry Pi, with implementation of the MQTT protocol for reliable and efficient data transmission.
- Connection to the cloud via AWS IoT Core for remote management and communication with the mobile application backend.
- Developed Python scripts to automate the addition of new devices, resulting in a reduction of setup time by over 20 hours per month by managing unique identifiers and IP addresses via DHCP server.
- Design of an online visualization interface for rapid access and real-time monitoring and remote management of hydroponic systems.

Mechanical Design and Systems Integration:

- Design and optimization of a vertical hydroponic system
- Design and manufacture of custom-made PCB enclosures, ensuring optimum integration of electronic components.

2023/08 – 2023/09

PCB Designer

Bako motors

- contributed to the conception of Battery Management Systems (BMS) for electrical cars to enhance efficiency and performance.
- did research on electromagnetic compatibility of components, particularly while engaging in the intricate process of designing a printed circuit board (PCB)

2023/07 – 2023/08

IOT and Embedded Systems Developer

Horizon Data

- Acquisition and processing of EMG signals from myoelectric sensors.
- Supervision and processing of EMG data for movement recognition and classification using machine learning algorithms.
- Controlling Servomotor based on motion predictions.
- Worked on sensor data filtering technology such as Butterworth, Chebyshev or Bessel to eliminate high frequency noise, such as white noise or measurement noise.

Projects

Implementation of a VTOL (Vertical Take off and Landing) Aircraft

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- Conducted theoretical non-linear system analysis.
- Implemented a Kalman filter on gyroscope sensor 's data.
- Created an electrical design and a PCB with KICAD.
- established a 3D model of the aircraft using SOLIDWORKS.
- Ensured communication between LabVIEW and ESP8266 through TCP/IP Protocol.

Autonomous Robot

- Designed and built an autonomous robot with real-time obstacle detection and avoidance.
- Developed path planning algorithms and implemented wireless RF communication for remote control.
- Created custom PCB for sensor and motor integration, optimizing power management.
- Integrated YOLO V5 for object detection and tracking, enhancing the robot's autonomous capabilities.

Education

2020 – 2025	Industrial IT and Automation <i>INSAT</i>
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Skills

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| <ul style="list-style-type: none">• Programming Languages:
C++ / Embedded C / Python• Mechanical Design:
SolidWorks• Firmware development• Power Electronics | <ul style="list-style-type: none">• Embedded Linux• Control Systems:
MATLAB SIMULINK LABVIEW• signal processing• image processing |
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Languages

ENGLISH C2	FRENCH C2	ARABIC NATIVE
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Extracurricular activities

- Content Manager for SPA'X event (organized by IEEE SC).
- Executive Board member at NATEG INSAT 2022-2023