

# Mahmoud Osman

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## Professional Summary

Embedded systems engineer with hands-on experience in IoT device design, PCB development, and microcontroller-based systems. Proficient in C++ (OOP), Python (data analysis), and firmware development using FreeRTOS/ESP-IDF. Experienced in FPGA prototyping, component selection, circuit testing, and instrumentation. Passionate about building optimized hardware/software systems and communicating technical concepts through teaching and collaboration.

## Education

<b>Joanneum University of Applied Sciences</b> , Graz, Austria	Oct 2024 – Present
• MSc in Electronics Engineering (Embedded Systems)	
<b>University of Pécs</b> , Pécs, Hungary	Sept 2019 – Jan 2023
• BSc in Electrical Engineering (Embedded Systems)	

## Work Experience

<b>Lecturer</b> , University of Pécs, Pécs, Hungary	Feb 2023 – Jan 2025
• Delivered undergraduate courses in microcomputers, project laboratory, communication engineering, and microelectronic system design	
• Reviewed and assessed over 10 bachelor theses as an external examiner.	
• Led hardware/software development for a smart IoT comfort-monitoring device.	
• Conducted verification and analysis using oscilloscopes, power supplies, and multimeters.	

## Project Experience

<b>LM5146 Buck Converter</b>
• Designed 8-layer PCB using Altium Designer for 48V to 12V @ 6A conversion with 96% efficiency.
• Conducted comprehensive component selection and evaluation to optimize performance while maintaining cost effectiveness.

### IoT Data Acquisition Device

- Developed ESP32-based device for environmental monitoring.
- Programmed in FreeRTOS (ESP-IDF) for real-time sensor data acquisition.
- Designed PCB schematics and layouts using KiCAD.

## Skills

- **Hardware & PCB Design:** Altium Designer, KiCAD, schematic capture, analog & digital design, DFM/DFT, prototyping.
- **Embedded Systems:** C, C++, Python, FreeRTOS, ESP-IDF, Arduino, SystemVerilog, Xilinx FPGA.
- **Tools & Software:** Git, Linux, MATLAB, Cadence PSPICE, MS Office.
- **Lab Skills:** Oscilloscope, multimeter, power supply, soldering, debugging.

## Soft Skills

Team collaboration, public speaking, teaching and mentoring, technical communication, problem-solving, analytical thinking

## Languages

Arabic	Native
English	Proficient(C1)
German	Conversational(A2/B1)
Hungarian	Conversational(A2/B1)