

Mahmoud Osman

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SUMMARY

Embedded systems engineer with hands-on experience in IoT design, PCB development, and university-level instruction. Skilled in microcontroller programming and C++ object-oriented development, with experience in FPGA implementation and data analysis using Python/Jupyter notebooks. Experienced in electronic component selection, circuit testing, and measurement instrumentation. Passionate about creating optimized hardware/software solutions across multiple platforms and sharing technical knowledge.

EDUCATION

Joanneum University of Applied Sciences	Graz, Austria
<i>MSc. Electronics Engineering (Embedded Systems)</i>	Oct 2024 - Present
University of Pécs	Pécs, Hungary
<i>BSc. Electrical Engineering (Embedded Systems)</i>	Sept 2019-Feb 2023

WORK EXPERIENCE

University of Pécs	Pécs, Hungary
<i>Specialized Lecturer</i>	Feb 2023 – Jan 2025
<ul style="list-style-type: none">• Developed and instructed undergraduate courses in electrical engineering, focusing on microcomputers, project laboratory, communication engineering, and microelectronic systems design.• Assessed, reviewed, and graded bachelor theses as an external examiner.• Conducted research, development, and implementation of hardware and software design solutions for an IoT device used in office environments within the "Parameterized Comfort in Physical Spaces" research team.	

PROJECT EXPERIENCE

LM5146 Buck Converter

Designed an 8-layer PCB using Altium Designer for 48V to 12V @ 6A power conversion with 96% efficiency. Conducted comprehensive component selection and evaluation to optimize performance while maintaining cost effectiveness.

Data Acquisition IoT device

Developed a device using ESP32 microcontroller to measure temperature, humidity, luminosity, and ambient noise. Programmed in FreeRTOS with ESP-IDF framework to enable efficient multitasking and real-time performance. Designed PCB schematics and layouts using KiCAD.

SKILLS

Embedded Systems

Embedded C, FreeRTOS, ESP-IDF, C++, SystemVerilog (Vivado), Xilinx FPGA.

Hardware Design

PCB design with Altium Designer & KiCAD, analog & digital circuit design, schematic capture, layout, component selection and evaluation, prototype testing and verification.

Software & Tools

Git, Debian/Linux OS, MATLAB, Microsoft Office, Python for data analysis & scripting, Cadence PSPICE for simulation.

Laboratory Equipment

Oscilloscope, function generator, digital multimeter, DC bench power supply. Experienced in circuit testing, collecting precise measurements, and analyzing electronic circuit performance.

Soft Skills

Teamwork, Public Speaking, Teaching, Technical communication and presentation, problem solving.

LANGUAGES

Arabic	Native
English	Proficient
German	Conversational