Muhammad Zareii

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Profile

Electronics Engineer and Master's student in Wireless Communications Engineering (WCE) at the University of Oulu. Strong background in embedded hardware, firmware development, and signal processing, complemented by research in semiconductor devices and wave simulations. Hands-on R&D experience in developing embedded systems, with current focus on hardware/software design for communication systems and D2NN-based direction-of-arrival estimation.

Professional Experience

Electronics R&D Engineer — Sepidgaman Parseh, Shiraz, Iran | 2022–2024

- Designed and developed embedded systems and biomedical electronics.
- Built motor driver modules, color detection sensors, and laser drivers.
- Programmed microcontrollers (AVR, ARM, ESP32) for control, data acquisition, and communication.

Education

M.Sc., Wireless Communications Engineering (WCE) — University of Oulu, Finland (2025–present)

B.Sc., Electrical Engineering (Electronics) — University of Tabriz, Iran (2018–2023)

Skills

- **Programming:** C, C++, Python, MATLAB, Git/GitHub
- **Embedded Systems:** STM32 (CubeIDE, FreeRTOS, I²C/SPI/UART), real-time data logging, debugging tools (oscilloscope, logic analyzer, JTAG)

- **Signal Processing & Communications:** Modulation/demodulation (AM, PM), ADSL modem principles, 4G/5G PHY basics, DoA estimation (D2NN)
- **Electronics & Simulation:** Analog/digital circuits, semiconductor device modeling, COMSOL, Altium Designer, Proteus

Selected Projects

- **Model Builder WebApp (2025):** Semiconductor process modeling tool with AI-assisted frontend (HTML/JavaScript) and Python backend; integrates Excel/live sensor data from embedded stations to optimize fabrication parameters.
- **Data Logger Board (2025):** STM32-based modular data logger with SD storage, multi-sensor interfaces, and custom UI.
- **Simulation of Photonic Crystal Gates (2023):** Modeled all-optical logic gates using COMSOL.
- **Wireless Identity Verification (2023):** ESP32-based system with computer vision for gesture and face recognition.

References

Available upon request.