

Muhammad Zareii

Master's Student – Physics-Oriented Data Analysis & Numerical Modeling

Oulu, Finland

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Profile

Master's student in Wireless Communications Engineering at the University of Oulu with a strong background in physics-based modeling and scientific data analysis. Experienced in using MATLAB and Python for numerical modeling, analysis of measurement data, and validation of physical system behavior, supported by a solid foundation in electromagnetics, optoelectronics, and applied physics.

Professional Experience

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

- Designed and validated sensor-based electronic systems, with emphasis on understanding and verifying physical signal behavior through measurement and analysis.
 - Developed data-acquisition and control firmware to support reliable measurement collection for subsequent analysis and modeling tasks.
 - Integrated sensors and analog front-ends and validated system behavior by correlating expected physical response with measured data.
 - Used Python and MATLAB for numerical analysis, modeling, visualization, and interpretation of measurement data.
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Education

- **M.Sc. Wireless Communications Engineering** — University of Oulu, Finland
2025–present
 - **M.Sc. Micro/Nano Electronics** — Tarbiat Modares University, Tehran, Iran
Coursework completed with focus on optoelectronics and electromagnetic wave phenomena, including wave propagation and field distribution modeling.
 - **B.Sc. Electrical Engineering (Electronics)** — University of Tabriz, Iran
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Skills

- **Scientific Computing & Data Analysis:** Python, MATLAB (numerical analysis, modeling, visualization)
 - **Programming:** C, C++, Python
 - **Electronics & Instrumentation:** Analog front-end integration, mixed-signal systems, oscilloscope-based measurements.
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Selected Projects

- **Diffraction Deep Neural Network (D2NN)** — Modeled electromagnetic wave propagation in diffractive structures using full-wave simulations in Lumerical, automated via the Python API.
- **Bound States in the Continuum (BIC) Sensors** — Simulated optical BIC-based sensor structures in COMSOL Multiphysics to analyze resonance behavior, field confinement, and refractive-index sensitivity.
- **STM32 Multi-Sensor Data Logger** — Hardware–software platform for structured sensor data acquisition, supporting model building, trend analysis, and monitoring in Python/MATLAB.