AKRAM MUNTASER

Assistant Professor | Electrical & Control Engineering | Robotics & Embedded Systems
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PROFESSIONAL SUMMARY

Assistant Professor and researcher with years of combined academic and industrial experience in electrical engineering, control systems, and embedded systems. Experienced in teaching control systems, PLC programming, instrumentation, robotics, and electrical circuit analysis. Research interests include robotics and AI-based control systems, hybrid electric vehicles, energy storage systems, metamaterials, and thin-film resonators. Industrial experience includes PLC programming, CNC programming, troubleshooting, and manufacturing systems.

EDUCATION

- **Ph.D. in Electrical Engineering — University of Dayton, Dayton, Ohio (2024)**

  Dissertation: Investigation of Chiral Metamaterial Characteristics Under Dielectric Losses with Applications to Thin Film Resonator Arrays and Solar Cells Efficiency Improvement.

- **M.S. in Electrical and Computer Engineering — University of Dayton, Dayton, Ohio (2017)**

  Thesis: Development of an Advanced Energy Storage System for Hybrid Electric Vehicles.

ACADEMIC EXPERIENCE

Assistant Professor | Central State University, Ohio | 2025–Present

- Teaching courses in PLCs, Automatic Control Systems, Circuit Analysis, Measurements and Instrumentation, and Engineering Analysis. Participating in ABET accreditation activities, student retention initiatives, and robotics research projects.

Graduate Assistant / Instructor | University of Dayton, Ohio | 2022–2024

- Instructor for Electrical Circuit Analysis Laboratory and engineering laboratory activities.

Teaching Assistant | University of Dayton, Ohio | 2016–2018

- Instructor for Introduction to Electronics laboratory and laboratory support activities.

INDUSTRIAL EXPERIENCE

PLC Programmer | Systec Conveyors Corp., Indianapolis, IN | 2018

- Worked as a PLC programmer on conveyor systems, installing, programming, and troubleshooting. Also working on industrial control stations and scanners in manufacturing environments.

Research Laboratory Assistant | University of Dayton Research Institute (UDRI) | 2016–2018

- Worked in solid-state battery laboratories developing lithium-ion and lithium-sulfur battery technologies.

RESEARCH INTERESTS

- Robotics and AI-based control systems
- Programmable Logic Controllers (PLCs) and industrial automation
- Embedded systems and microcontroller programming
- Metamaterials, thin films, and electromagnetic wave manipulation
- Control systems design, fuzzy logic, and adaptive control

TECHNICAL SKILLS

MATLAB/Simulink, LabVIEW, PLC Programming (Rockwell CCW), Embedded Systems, Microcontrollers, VHDL, Control Systems Design, Instrumentation, Robotics.

AWARDS AND FELLOWSHIPS

- Graduate Students Summer Fellowship, University of Dayton Academic Affairs (2016)
- Graduate Students Summer Fellowship, University of Dayton Academic Affairs (2023)

GRANTS

- Program Director, Choose Ohio First (COF) 2026, Awarded $174,655.

RESEARCH PROJECTS

- Dynamic Laser Weeder Robot for Sustainable Agriculture, Faculty Advisor, AMIE Design Competition, 2025–2026.
- AI-Enabled Industrial Robotics Laboratory Development, Central State University (ongoing research).
- Chiral Thin Film Resonator Arrays for Solar Energy Applications, University of Dayton, 2021–2024.

SELECTED PUBLICATIONS

- Muntaser, A., & Chatterjee, M. R. Investigation of p-polarized wave propagation through nonmagnetic chiral interfaces and slabs without and with dielectric loss. Journal of Modern Optics, 2023.
- Muntaser, A., & Chatterjee, M. R. “Analysis of the Composite Response of a Polygonal Array of Chiral Slab Resonators via Superposition of Transverse Modes at the Centroid.” Proceedings of SPIE, Vol. 12477, 2023.
- Muntaser, A., Ragb, H., & Elwarfalli, I. DC Microgrid Based on Battery, Photovoltaic, and Fuel Cells: Design and Control, 2022.
- Muntaser, A., & Buaossa, N. Coupled Tank Non-linear System: Modeling and Level Control using PID and Fuzzy Logic Techniques, 2021.
- Muntaser, A., & Chatterjee, M. R. Wave Propagation and Imaging using Thin Lens under Effect of Chirality and Dielectric Loss, Frontiers in Optics, 2021.
- A. Muntaser and M. R. Chatterjee, "Electromagnetic p-Polarized Wave Propagation Across an Achiral/Chiral Interface with First-Order Material Dispersion and Dielectric Loss," in Frontiers in Optics / Laser Science, B. Lee, C. Mazzali, K. Corwin, and R. Jason Jones, eds., OSA Technical Digest (Optica Publishing Group, 2020), paper JM6A.10.
- M. R. Chatterjee and A. Muntaser, "Planar electromagnetic propagation of a p-polarized wave across an achiral/chiral interface without and with dispersion," in Frontiers in Optics + Laser Science APS/DLS, OSA Technical Digest (Optica Publishing Group, 2019), paper JW4A.117.
- A. Muntaser, H. Elwarfalli, J. Kumar and G. Subramanyam, "Development of advanced energy storage systems using fuzzy control," 2016 IEEE National Aerospace and Electronics Conference (NAECON) and Ohio Innovation Summit (OIS), Dayton, OH, USA, 2016.

Complete list of publications available on Google Scholar.

PROFESSIONAL MEMBERSHIPS

- Institute of Electrical and Electronics Engineers (IEEE)
- Sigma Xi – The Scientific Research Honor Society
- Optica (formerly Optical Society of America)