

Youssef O. Ajra

PH.D. · ASSISTANT PROFESSOR — ELECTRICAL POWER & MACHINES ENGINEERING

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PROFILE

Assistant Professor of Electrical Power & Machines Engineering with a Ph.D. in Automation, Signal & Robotics. Pairs classroom and laboratory teaching with an active research program in fault detection & diagnosis, industrial automation, and modern control systems — reinforced by hands-on engineering in power electronics, PCB design, and solar PV. Author of peer-reviewed IEEE and MDPI publications.

ACADEMIC APPOINTMENTS

Assistant Professor Feb 2025 – Present

Beirut Arab University

Faculty member in the Electrical Power & Machines Engineering Program — undergraduate teaching, research supervision, and departmental service.

Lecturer 2023 – Jan 2025

Beirut Arab University

Delivered lecture and laboratory courses across the electrical power and machines curriculum.

Assistant Specialist — Laboratory 2017 – 2022

Beirut Arab University

Supervised laboratory sessions and supported students' experimental and project work.

PROFESSIONAL & PRACTICAL EXPERIENCE

Digital Skills Coordinator & Workshop Facilitator 2022 – 2023

Arab Resource Center for Popular Arts (ARCPA) — NGO

Coordinated digital-literacy programs and led youth workshops in robotics, solar systems, automation, and app development.

Solar PV Engineer 2022 – 2023

Residential Design & Installation

End-to-end design and installation of residential photovoltaic systems.

Freelance Automation & Electronics Engineer 2016 – Present

Independent

Automation projects; design and wiring of low-power distribution and switching panel boards; PCB design, soldering, and testing for power-electronics applications.

SELECTED PUBLICATIONS

H. A. Hseiki, A. M. El-Hajj, **Y. O. Ajra**, F. A. Hija, A. M. Haidar. "A Secure and Resilient Smart Energy Meter." *IEEE Access*, 12:3114–3125, 2024.

Y. Ajra, G. Hoblos, H. Al Sheikh, N. Moubayed. "A Literature Review of Fault Detection and Diagnostic Methods in Three-Phase Voltage-Source Inverters." *Machines*, 12(9):631, 2024.

Y. O. Ajra, H. Al Sheikh, N. Moubayed, G. Hoblos. "Model-Based Sensor Fault Detection and Diagnosis in Closed-Loop Power Converters for Electric Vehicles." *IFAC-PapersOnLine*, 58(4):366–371, 2024.

Additional peer-reviewed conference papers: 3ICT 2021 (Bahrain) · IC²SPM 2022 (Beirut). Full list available on request.

EDUCATION

Ph.D., Automation, Signal & Robotics

Université de Rouen Normandie, France
2025

M2R, Renewable Energy

Université Libanaise & Université Saint-Joseph
2020

B.E., Electrical Power & Machines Eng.

Beirut Arab University
2016

RESEARCH INTERESTS

- Fault Detection & Diagnosis
- Industrial Automation
- Modern Control Systems
- Power Electronics
- Voltage-Source Inverters
- Electric Vehicles
- Renewable Energy

TECHNICAL SKILLS

CONTROL & AUTOMATION

Fault detection & diagnosis · Modern control systems · Industrial automation & PLC

POWER & ELECTRONICS

Power electronics · PCB design, soldering & testing · LV distribution & switching panels · Solar PV design & installation

DESIGN & FABRICATION

SolidWorks · CNC laser cutting & bending

AI & DIGITAL

AI tools & prompt engineering · Industrial IoT (IIoT)

CERTIFICATIONS

- Google AI Essentials — Google · 2025
- Elements of AI — University of Helsinki · 2025
- Industrial IoT (IIoT) — University of Michigan
- JAIS 2026 — Jordan Engineers Association
- 1 Million Prompters — Dubai Centre for AI
- CNC & SolidWorks Workshop — Chamber of Commerce, Sidon

UNIVERSITY SERVICE

- Scheduling Committee — Faculty of Engineering
- Quality Assurance Committee — Faculty of Engineering