Abdelhamid Nabeel Sadek Rizk Younes

Mobile: +201092125925

Email: Abdelhamid.Nabeel@eng.cu.edu.eg | AbdElhamid.Nabeel@gmail.com

LinkedIn Profile: https://www.linkedin.com/in/abd-elhamid-nabeel-sadek-284108118/

Education

July 2024 **MSc** in Electrical Power Engineering, Cairo University, Egypt

Minor: Power generation and control systems | **GPA: 4.00**

Thesis: Optimized Wind Turbine Performance via AI-based Collective Pitch Angle Control

July 2018 **BSc** in Electrical Power Engineering, Cairo University, Egypt

CGPA: **Distinction with Honors (91.11%)**

ranked 3rd on class of (177)

Work Experience

Present **Faculty Staff Member (Teaching and Research Assistant)**

March 2020 **Cairo University, Egypt**

- **Research focuses**: optimal operation of wind turbine (WT) in constant power region, fuzzy logic system, model predictive control, supervised learning control mechanism, deep reinforcement learning (DRL).
- **Research Interests:** Microgrids control and stability – Deep RL control in smart grids – Safety Control – Data-Driven control for renewable energy systems.
- **Teaching Experience (courses for undergraduates**): Digital Control Design – Signals and Systems – Electromagnetics I – intel 8086 Microprocessor – Electric Machines (DC/AC) – Mathematics I, II, and III – Power Systems I, II

Research Experience

July, 2024 **Design of AI-based Collective pitch control on wind turbines**

March, 2020 **Cairo University, Egypt**

- Implemented and validated control strategies using Open-FAST from national renewable energy lab (NREL) for high-fidelity wind turbine models.
- Designing a baseline fuzzy-based model predictive controller (FMPC).
- Proposed advanced control mechanisms, including model-free cascaded-forward neural network (CFNN) controller using both supervised and imitation learning, and fuzzy-based deep reinforcement learning (F-DDPG) for dynamic performance improvement.

July, 2018 **Design a SCADA system for power monitoring on a prototype low-voltage panel**

Sept, 2017 **Cairo University, Egypt**

- Designed a SCADA system for real-time power monitoring.
- Led the installation of power monitoring devices and implemented PLC-based data acquisition, focusing on system resilience and operational reliability.
- Integrated wireless communication for data transmission and visualization, contributing to enhanced system efficiency.

Publications

Published in ISA Transactions Journal (Q1 journal)

- **A. Nabeel**, A. Lasheen, A. L. Elshafei, and E. Aboul Zahab, "Fuzzy-based collective pitch control for wind turbine via deep reinforcement learning," *ISA Trans*, vol. 148, pp. 307–325, 2024, doi: https://doi.org/10.1016/j.isatra.2024.03.023.

Skills

- **Power System Simulation & Optimization**: Developed methods for optimal operation and stability, particularly for wind energy systems. Proficient in using high-fidelity simulation tools (e.g., Open-FAST, MATLAB/Simulink) for system modeling, control design, and performance validation of renewable power systems.
- **Advanced Control Techniques**: Experience in designing and implementing AI-based control methods, including fuzzy logic, model predictive control (MPC), and deep reinforcement learning (DRL).
- **Software & Tools:** Proficient in Python, MATLAB, Simulink, Open-FAST, Siemens TIA Portal. Hands-on experience with lab equipment including oscilloscopes, function generators, PLCs, and power supplies.

LANGUAGE

- Arabic: Native speaker
- English: IELTS Score 7.0 (CEFR: C1)

REFREES CONTACT DETAILS

Name	Relation	Affiliation	Contact
Prof. Essam El-din Abo-El Zahab	Supervisor and Co-author	Cairo University	zahab0@eng.cu.edu.eg Zahab0@yahoo.com (frequently used)
Prof. Abdel-Latif Rajaei El-Shafei	Supervisor and Co-author	Cairo University	alelshafei@eng.cu.edu.eg
Assoc.Prof. Ahmed Abdel-Nasser Lasheen	Supervisor and Co-author	Cairo University	Ahmed_lasheen@eng.cu.edu.eg