

# Mohamed Abuella

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Scholar: Mohamed Abuella

## Summary

I am interested in modernizing the grid and optimizing its integration of renewables by applying descriptive, predictive and prescriptive analytics. My broader interest encompasses the utilization of Artificial Intelligence to foster Sustainability. Looking for opportunities to transfer and improve my knowledge and skills. The technical skills are presented as Acquired Expertise in the Experience section.

## Education

<b>University of North Carolina at Charlotte (UNCC)</b> <i>Ph.D in Electrical Engineering, GPA 4.0</i>	<b>USA</b> 2014–2018
<b>Southern Illinois University at Carbondale (SIUC)</b> <i>M.Sc in Electrical and Computer Engineering, GPA 4.0</i>	<b>USA</b> 2010–2012
<b>Higher Polytechnic Institute &amp; College of Industrial Technology at Misurata</b> <i>DipHE in Instrumentation 82%, and B.Tech Electromechanical Engineering, 86%</i>	<b>Libya</b> 2002–2008

## Experience

<b>Research Fellow</b> <i>Northumbria University, Department of Mathematics, Physics and Engineering</i> Supporting the delivery of the “Hydrogen Integration for Accelerated Energy Transitions (HI-ACT)” research project. ◦ Acquired Expertise: <i>Hydrogen Integration, Energy Transition &amp; Sustainability, Research Methodologies &amp; Project Supervision</i>	<b>UK</b> May 2024–Present
<b>Researcher</b> <i>Halmstad University</i> Postdoctoral Researcher at the Center for Applied Intelligent Systems Research (CAISR). Dig into research related to AI for Sustainability by applying Machine Learning techniques. ◦ Acquired Expertise: <i>Integrated Industry-Academia Collaboration, Big-Data &amp; Spatiotemporal Analysis, Explainable AI (XAI).</i>	<b>Sweden</b> April 2022–April 2024
<b>Lecturer</b> <i>College of Industrial Technology at Misurata</i> Taught Electrical Circuits, Electrical Measurements, Math 101. ◦ Acquired Expertise: <i>Curriculum Revision &amp; Preparing, Dedication, Listening, "Try to Modeling the Student's Way of Thinking".</i>	<b>Libya</b> February 2020–March 2022
<b>Research Assistant</b> <i>Energy Production and Infrastructure Center (EPIC) at UNC Charlotte</i> Statistical and Predictive Analytics to Modernize the Grid and Optimize its Integration of Renewables, Focusing on Solar Energy Resources. Supervised by Prof. Badrul Chowdhury. ◦ Acquired Expertise: <i>Energy Analytics, Energy Markets, Renewable Energy &amp; Supply Chain, Machine Learning.</i>	<b>USA</b> 2014–2019
<b>M.Sc Research</b> <i>Department of Electrical and Computer Engineering at SIUC</i> Optimization for Electric Power Systems Including Wind Power, Supervised by Prof. Constantine Hatziaodoniu. ◦ Acquired Expertise: <i>Power Systems Analysis, Operation and Planning, Systems Optimization, Smart Grid.</i>	<b>USA</b> 2010–2012
<b>Teaching Assistant and Lab Instructor</b> <i>College of Industrial Technology at Misurata</i> Taught Mathematics, Power Systems Analysis, and Programmable Logic Controller (PLC). ◦ Acquired Expertise: <i>Teaching, Tutorials, Lab Modeling &amp; Simulations.</i>	<b>Libya</b> 2008–2009

## Electrical Technician

*Residential Electrical Wiring and Water & Wastewater Company*

Wiring and maintain electrical control equipment. Repair and rewind AC motors at the pumping stations.

○ Acquired Expertise: *Electrical Wiring & Installations, Maintenance & Operation.*

**Libya**

2000–2008

## Recognitions

<b>Outstanding Reviewer:</b> IEEE Transactions on Sustainable Energy	2017
<b>Third Prize for Student Papers:</b> The 47th North American Power Symposium	2015
<b>The Institute Prize for team of Energy Analytics Lab at UNCC:</b> Global Energy Forecasting Competition	2014
<b>The 1st Place:</b> Department of Electromechanical Engineering at College of Industrial Technology	2008

## Publications

Wrote dozen of published papers, for the complete list of publications, please see my profile at Google Scholar, which is named as: [Mohamed Abuella](#). Accumulating over 500 citations and current H-index is **8**. my [ORCID](#).

1. M. Abuella, "Using Particle Swarm Optimization for Solving Optimal Power Flow for IEEE Benchmarks that Including Wind Power Generators," (Master thesis, SIUC), 2012.
2. M. Abuella and B. Chowdhury, "Solar Power Probabilistic Forecasting by Using Multiple Linear Regression Analysis," in IEEE Southeast Con. Proceedings, 2015.
3. M. Abuella and B. Chowdhury, "Solar Power Forecasting using Artificial Neural Networks," in North American Power Symposium (NAPS), 2015.
4. M. Abuella and B. Chowdhury, "Solar Power Forecasting Using Support Vector Regression," in Proceedings of the American Society for Engineering Management 2016 International Annual Conference, 2016.
5. M. Abuella and B. Chowdhury, "Random forest ensemble of support vector regression models for solar power forecasting," in 2017 IEEE Power Energy Society Innovative Smart Grid Technologies Conference (ISGT), 2017.
6. M. Abuella and B. Chowdhury, "Hourly probabilistic forecasting of solar power," in 2017 North American Power Symposium (NAPS), 2017.
7. M. Abuella and B. Chowdhury, "Forecasting Solar Power Ramp Events Using Machine Learning Classification Techniques," in 2018 IEEE 8th International Symposium on Power Electronics for Distributed Generation Systems (PEDG), 2018.
8. M. Abuella and B. Chowdhury, "Qualifying Combined Solar Power Forecasts in Ramp Events' Perspective," in IEEE Power and Energy Society General Meeting, 2018.
9. M. Abuella and B. Chowdhury, "Improving Combined Solar Power Forecasts Using Estimated Ramp Rates: Data-driven Post-processing Approach," IET Renewable Power Generation Journal, 12(10), 1127-1135, 2018.
10. M. Abuella, "Post-processing approach for Solar Power Combined Forecasts of Ramp Events," (Doctoral Dissertation, University of North Carolina at Charlotte), 2018.
11. M. Abuella and B. Chowdhury, "Forecasting of solar power ramp events: A post-processing approach," Renewable Energy, 133, 1380-1392, 2019.
12. M. Abuella and B. Chowdhury, "Adjusting Post-processing Approach for Very Short-Term Solar PV Power Forecasts," in 2021 IEEE 1st International Maghreb Meeting of the Conference on Sciences and Techniques of Automatic Control and Computer Engineering (MI-STA), 2021.
13. M. Abuella, M. Atoui, S. Nowaczyk, S. Johansson, E. Faghani, "Data-Driven Explainable Artificial Intelligence for Energy Efficiency in Short-Sea Shipping," in Machine Learning and Principles and Practice of Knowledge Discovery in Databases (ECML PKDD), 2023.
14. M. Abuella, M. Atoui, S. Nowaczyk, S. Johansson, E. Faghani, "Spatial Clustering Approach for Vessel Path Identification," in IEEE Access, 2024.
15. M. Abuella, "Automating Analysis of Academic Documents in Mendeley with ChatGPT," in SSRN Electronic Journal, 2024.
16. M. Abuella, H. Fanaee, M. Atoui, S. Nowaczyk, S. Johansson, E. Faghani, "Data Analytics for Improving Energy Efficiency in Short Sea Shipping," iHelm Project Technical Report, arXiv preprint arXiv:2404.00902.
17. M. Abuella, H. Fanaee, S. Nowaczyk, S. Johansson, E. Faghani. (2025). "Time-series analysis approach for improving energy efficiency of fixed-route passenger vessel in short-sea shipping." Ocean Engineering, 334, 121555.
18. M. Abuella, A. Allahham, S. L. Walker, "A Game-Theoretic Framework for Hydrogen Integration to Accelerate Energy

Transitions in Great Britain," submitted to The 14th International Conference on Renewable Power Generation (RPG 2025), 24–26 October 2025, Shanghai, China.