Ahmed Abdelraouf **Mohamed**

WORK EXPERIENCE

RESEARCHER

Jan 2019 – Present

EPIC Research Cluster | ***Queen's University Belfast, UK. (Funded PhD).***

- Researching in the field of renewable energy and the integration of battery energy storage systems in the modern distribution networks to facilitate the secure and profitable deployment of low carbon technologies.
- Collaborating with different industrial entities through meetings, presentations, reports, and joint research.
- Demonstrating practical lab experiments.

ASSISTANT LECTURER

Sept 2013 – Jan 2019

Electrical & Control Engineering Department | ***Arab Academy for Science & Technology and Maritime Transport, Cairo, Egypt.***

- Teaching and demonstrating tutorials and labs for Electrical & Control engineering courses; Power Systems, High Voltage, Electrical Circuits, Electrical Machines, Electrical Measurements and Control Systems.
- Assisting the supervision of graduation projects of undergraduate students.
- Coordinator at the department Students Advising Committee.
- Member at the Department Quality Committee and helped the university in being ABET accredited.
- Conducting research in the field of power systems and power electronics.

EDUCATION

PhD IN ELECTRICAL ENGINEERING

Jan 2019 – Present (Expected thesis submission date: December 2021 | Expected viva date : Febraury/March 2022)

Queen's University Belfast, Belfast, UK.

Thesis Research: The integration of battery storage systems in the presence of PV and EV- part of EU INTERREG V A SPIRE2 (Storage Platform for the Integration of Renewable Energy 2) project.

M.Sc. IN ELECTRICAL & CONTROL ENGINEERING

Sept 2013 – July 2017

Arab Academy for Science & Technology and Maritime Transport, Cairo, Egypt.

Thesis Title: A Power Management Strategy to Enhance the Operation of Active Distribution Networks.

Grade: Excellent (GPA: 3.92/4).

BACHELOR IN ELECTRICAL & CONTROL ENGINEERING

Sept 2008 – July 2013

Arab Academy for Science & Technology and Maritime Transport, Cairo, Egypt.

Graduation Project: Design and implementation of Three Phase pure sinewave UPS.

Grade: Excellent (GPA: 3.74/4) - Class Rank: First.

LANGUAGES

	Reading	Speaking	Writing
English (TOEFL iBT Score: 91)	Excellent	Excellent	Excellent
Arabic	Native	Native	Native

GRANTS

PhD Studentship | EU INTERREG VA SPIRE2 | QUEEN'S UNIVERSITY BELFAST, UK.
Jan 2019 – Present
- Tuition fees + monthly stipend for a period of 39 months

Travel Grant | SCHOOL OF ELECTRONICS, ELECTRICAL ENGINEERING AND COMPUTER SCIENCE | QUEEN'S UNIVERSITY BELFAST, UK.
Jun 2019 | April 2021
- Travel grant of £1,500 to present a paper in ISGT Europe, 2019.
- Grant of £715 for virtual conferences registrations, 2021.

Travel Grant | IEEE REGION 8 BEST STUDENT PAPER AWARD | IEEE REGION 8.
Jun 2018
- Travel grant of $800 to present a paper in IEEE MELECON 2018.

M.Sc. Studentship | ELECTRICAL AND COMPUTER ENGINEERING DEPARTMENT | ARAB ACADEMY FOR SCIENCE & TECHNOLOGY AND MARITIME TRANSPORT, CAIRO, EGYPT.
Sept 2013 – July 2017
- Tuition fees.

OTHER EXPERIENCE

Presentations
- Presented eight research papers at international IEEE conferences (ICSG 2017, MELECON 2018, ISGT – Europe 2019, ISGT Europe 2020, PowerTech 2021, PES GM 2021) and IET RPG Conference 2021.
- Presented seven research posters at national and international conferences (2019-2021).
- Other presentations within the university and with industrial entities throughout my PhD (2019-2021).

Internships
- Impact design Jam internship organised by the graduate school of Queen's University Belfast. (2019)
- Participated in the 2nd Youth National Sustainability Summer Camp at Berlin University of Technology (TU-Berlin), Campus El-Gouna. (2015).
- Engineering student intern at Dar Al-Handasah for the electrical distribution, Egypt. (2012)
- General orientation entrepreneurship internship at British University in Egypt (BUE). (2012)
- Leadership internship at American University in Cairo (AUC). (2011)
- Engineering student intern at Petromaint Company in the installations and maintenance of electrical transformers and grounding systems, Egypt. (2011)

Extracurricular Activities
- Secretary - AWARE team related to the climate change awareness, Queen's University Belfast. (2020)
- EED (Egyptian Engineering Day) organized by IEEE Egypt section and IEEE Egypt Young Professionals: Chairman (2016), Vice Chairman (2015), and Accommodation team lead (2013).
- IEEE AAST Cairo student branch co-founder (2011), chairman (2012-2013) and mentor (2013-Present).
- Team Leader of AAST Cairo team for ROV "Remotely Operated Vehicle, Underwater Robotics" in MATE ROV Regional Competition. (2012)
- ENACTUS formerly "SIFE": Team member (2011), Vice president (2012) and Alumni (2013 – Present).
- Participated in RYLA "Rotary Youth Leadership Awards" of Rotaract at Siwa oasis, Egypt. (2013)
- Participated in the Minesweepers robotics Competition and achieved the second place. (2012)
- Participated as a delegate in ALMUN10 "Arab League Model United Nations". (2010)
- Volunteered in 2009 FIFA U-20 World Cup for Handball - Egypt. (2009)

Technical
- NEPLAN AG training at NEPLAN office, Zurich, Switzerland. (March 2019)
- Electrical distribution systems design at Jelecom, Cairo, Egypt. (2018).
- PLC applications and implementation at Jelecom, Cairo, Egypt. (2012).

Professional Development
- Attended and participated in more than 40 courses/sessions/workshops in non-technical topics include communication and presentation skills, leadership, entrepreneurship, HR, personal effectiveness, and more. Details on these courses can be found **here**.

SKILLS

Communication & Presentation

- Experienced in delivering oral and written reports and results to academic and non-academic audiences empowered from attending and presenting in many local & international conferences, academic & industrial meetings, lab demonstrations, and university trainings & courses.

Project Management and Leadership

- Alongside my research, I have participated in other activities that allowed me to improve my leadership and project management skills. For instance, acted as chairman of the Egyptian Engineering Day 2016, which is a huge event with 260 volunteers, 40 speakers, 52 judges, 660 exhibitors from 34 Universities, and 6,000 visitors from all over Egypt. Besides acting in other executive committees for different activities in addition to supervising undergraduate and masters students.

Self Management and Collaborative

- Successful in self management as evidenced by bachelor, MSc, and PhD successes as well as committing to teaching and research responsibilities. Furthermore, have the ability to work individually or in team work in addition to the ability to collaborate as demonstrated by the industrial collaboration with NIE Networks and ESB Networks besides other collaborations with colleagues.

Information Management and Analysis

- Experienced in many software programs related to optimization, statistics, machine learning, power system, and power electronics as well as skilled in several programming languages. This experience can be showed by the developed algorithms, tools, strategies, and publication during my research. Furthermore, very open to learn new software tools and programming languages if needed.

HONORS & AWARDS

- 1st prize in the Graduate Student Poster Contest at the 2021 IEEE PES GM.
- First place award in the IEEE Region 8 SPC (Student Paper Contest). (2018)
- Scientific Excellence Plaques from Arab Academy for Science, Technology and Maritime Transport. (M.Sc. 2017), and (Bachelor 2013).
- Certificate of Appreciation from IEEE AAST Cairo. (2014)
- Certificate of Appreciation from Egyptian Military for working on upgrading and maintaining the electrical devices and equipment. (2014)
- Certificate of Appreciation for Scientific Excellence from Arab Academy for Science, Technology and Maritime Transport. (2012)

SOFTWARE SKILLS & PROGRAMMING LANGUAGES

MATLAB
NEPLAN
ETAP
AutoCAD
Eagle
OpenDSS
DIgSILENT
GAMS
PWS
Microsoft Office
Python
Java
C#
C++
Assembly

INDUSTRIAL REPORTS

- Queen's University Belfast and NIE Networks collaboration on a feasibility study for incorporating storage devices in Northern Ireland distribution networks. (Link)
- NIE Networks Net Zero report (Link).
- Response to the consultation on Greater Access to the Distribution Network in Northern Ireland by NIE Networks.
- Response to the consultation on EREC P28 Issue by NIE Networks.

MEMBERSHIPS OF PROFESSIONAL BODIES

- IEEE Member and brand ambassador. (2010 – Present)
- Egyptian Engineering syndicate member. (2013 – Present)

PUBLICATIONS

Published

[1]. **A. A. R. Mohamed**, R. J. Best, D. J. Morrow, Andrew Cupples, and Ian Bailie, "Impact of the deployment of solar photovoltaic and electrical vehicle on the low voltage unbalanced networks and the role of battery energy storage systems", Journal of Energy Storage, 2021. **(Open Access)**

[2]. **A. A. R. Mohamed**, R. J. Best, X. Liu, and D. J. Morrow, 'Residential Battery Energy Storage Sizing and Profitability in the Presence of PV and EV', IEEE PowerTech, Madrid, pp.1-6, 2021. **(Open Access)**

[3]. **A. A. R. Mohamed**, D. J. Morrow, R. J. Best, Andrew Cupples, Ian Bailie, and Jonathan Pollock, "Distributed battery energy storage systems operation framework for grid power levelling in the distribution networks", IET Smart Grid, 2021. **(Open Access)**

[4]. **A. A. R. Mohamed**, D. J. Morrow and R. Best, "Maximizing the profits of the battery energy storage systems in the integrated single electricity market", IET Renewable Power Generation Conference, Dublin, 2021. **(Open Access)**

[5]. **A. A. R. Mohamed**, D. J. Morrow, and R. Best, "Real-time model predictive control of battery energy storage active and reactive power to support the distribution network operation", IET Renewable Power Generation Conference, Dublin, 2021. **(Open Access)**

[6]. **A. A. R. Mohamed**, D. J. Morrow, R. Best, I. Bailie, A. Cupples, and J. Pollock, " Battery Energy Storage Systems Allocation Considering Distribution Network Congestion," IEEE PES Innovative Smart Grid Technologies Europe (ISGT-Europe), the Hague, Netherlands, 2020. **(Open Access)**

[7]. **A. A. R. Mohamed**, D. J. Morrow, and R. Best, "The Deployment of Low Carbon Technologies in Modern Distribution Networks," IEEE PES Innovative Smart Grid Technologies Europe (ISGT-Europe), Bucharest, Romania, 2019. **(Open Access)**

[8]. E. Beshr, and **A. A. R. Mohamed**, "Development of a Demand Response Program: A Case Study of Cairo, Egypt," 53rd IEEE International Universities Power Engineering Conference (UPEC), Glasgow, 2018. **(Open Access)**

[9]. **A. A. R. Mohamed**, "A multi-objective distributed generation allocation and sizing using swarm intelligence based algorithms," 19th IEEE Mediterranean Electrotechnical Conference (MELECON), Marrakech, Morocco, 2018. **(Open Access)**

[10]. **A. A. R. Mohamed**, R. El-Sharkawy and W. A. Omran, "Power management strategy to enhance the operation of active distribution networks," 5th IEEE International Istanbul Smart Grid and Cities Congress and Fair (ICSG), Istanbul, 2017. **(Open Access)**

[11]. **A. A. R. Mohamed**, R. J. Best, X. Liu, and D. J. Morrow, 'The Impact of Different Control Strategies on Residential Battery Degradation', peer-reviewed poster presented at the Student Poster Contest of IEEE PES GM, 2021. **(Open Access)** **-**1st prize in the Graduate Student Poster Contest at the 2021 IEEE PES GM.

Presented

[12]. **A. A. R. Mohamed**, R. J. Best, X. Liu, and D. J. Morrow, 'Domestic Battery Power Management Strategies to Maximize the Profitability and Support the Network', IEEE PES GM, pp.1-5, 2021.

[13]. Taher Hatahet, **A. A. R. Mohamed**, and Maryam Malekigorji, "Remote learning in transnational education: does student engagement with virtual learning environment predict student performance in examinations?", peer-reviewed abstract presented at the 9th European Conference on Education - UCL, London, UK, 2021.

Accepted

[14]. **A. A. R. Mohamed**, R. J. Best, X. Liu, and D. J. Morrow, 'Understanding the impact of high penetration residential batteries with low carbon technologies on the low voltage networks', CIRED, pp.1-6, 2021.

PUBLICATIONS cont'd

Accepted

[15]. **A. A. R. Mohamed**, W. A. Omran, and R. El-Sharkawy "Centralized/Decentralized Power Management Strategy for the Distribution Networks based on OPF and Multi-Agent Systems", IEEE PES Innovative Smart Grid Technologies Europe (ISGT-Europe), 2021.

[16]. A. F. Moreno Jaramillo, **A. A. R. Mohamed**, D. M. Laverty, J. M. Del Rincón, and A. M. Foley "Photovoltaic Power Disaggregation using Non-Intrusive Load Monitoring Regression Model", IEEE PES Innovative Smart Grid Technologies Europe (ISGT-Europe), 2021.

Open-source tools

[17]. **A. A. R. Mohamed**, "Residential Battery Management Tool (RBMT)", **(Open Access)**

[18]. **A. A. R. Mohamed**, "PV-BESS Tool (PVBT)", **(Open Access)**

Submitted

- Another four journal papers are currently under review and revisions.