# CURRICULUM VITAE

**Omar R. Ibrahim Mohamed, Associate Professor, Electrical Engineering Department, King Abdullah II School of Engineering, Princess Sumaya University for Technology, P. O. BOX: 1438,11941, Amman-Jordon.**

Marital Status: Married and has three daughters.

Date of Birth: 15-09-1982.

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## EDUCATION

**Ph.D. in Electrical Engineering, University of Birmingham, England** 2012

PhD Dissertation: "Study of Energy Efficient Supercritical Coal-Fired Power Plant Dynamic Responses and Control Strategies"

The thesis is open access at the University of Birmingham Research Archive (**e-theses repository**): https://etheses.bham.ac.uk/id/eprint/3662/

**M.Sc. with Honours (AGPA: 3.56) in Electrical Engineering, University of Benghazi**, (previous name Garyounis University) Benghazi, Libya. 2008

M.Sc. Thesis: "Applications of Artificial Neural Networks in Optimal Dispatch of Generation"

**B.Sc. with Honours (AGPA: 3.35) in Electrical Engineering, University of Benghazi** 2005

B. Sc. Project: " Power Loss Minimization in Power System"

## RESEARCH INTEREST

- Modeling, Identification, and Control of Energy Systems.
- Energy Efficiency.
- Power System Control and Stability.

| AWARDS | YEAR |
|---|---|
| **1- Distinguished Teacher Award at King Abdullah II School of Engineering, Princess Sumaya University for Technology (PSUT), Amman-Jordan.** | **2019** |
| **2- Best Poster Presentation Award in Energy Graduate School Event 2011, University of Loughborough** | **2011** |

## EXPERIENCE: TEACHING AND SUPERVISION

**1- Sept/2015-Nov/2020, Assistant Professor**
**Dec/2020- Present, Associate Professor – Princess Sumaya University for Technology (PSUT), King Abdullah II Faculty of Engineering, Department of Electrical Engineering, Power & Energy Program-Amman - Jordon. (ABET Accredited).**

***Undergraduate Courses Taught:***
Electric Circuits (1)
Electric Circuits (2)
Power system economics
Power system planning, operation, and control
Electric Machines (1)
Electric Machines (2)
Power system design
Energy Efficiency and Auditing
Power System Protection

***Postgraduate Courses Taught:***
Advanced Power System Protection.
Power System Control and Stability.

***Labs Supervised:***
Electric Machines Laboratory
Power System Analysis Laboratory.

***Theses/Projects Supervision:***
Projects (B.Sc.): Supervised more than 15 senior B.Sc. projects
Theses (M.Sc.): 13 M.Sc. theses 9 (Completed) and 4 (In progress).They are tabulated below.

## M.Sc. Theses supervised at Princess Sumaya University for Technology (PSUT)

| *Supervisor/ Co-supervisor* | *Student's Name* | *Thesis Title* |
|---|---|---|
| Co-supervisor | Fares Elfaouri (Graduated in 2018) | Field Oriented Control of a Three Phase Induction motor Incorporating Saturation Effects |
| Supervisor | Mustafa Matar (Graduated in 2019) | Fault Classification for Transmission Lines Using Wavelet Transform and Artificial Neural Networks |
| Supervisor | Ahmed Basim (Graduated in 2018) | Reduction of Fluctuation for Wind Turbine's Output Power by Modeling and Control |
| Supervisor | Rona Qatamin (Graduated in 2020) | Prediction of Power Output of Wind Turbines by System Identification |
| Supervisor | Amal Haddad (Graduated on Summer 2021) | Comparative Study Between Modeling Approaches for a Coal-Fired Power Generation System |
| Supervisor | MoathQendel (Graduated on Fall 2021) | Comparative study between wind turbine modeling techniques: physical modeling, subspace identification, and machine learning techniques. |
| Supervisor | Mohammad Alsarayreh (Graduated on Spring- 2022 | Modeling and Simulation of a Practical Gas-Turbine Generation Unit using Dynamic Neural Network and Deep Learning Techniques. |
| Supervisor | Ahmad Almomani (Graduated on Spring- 2022 | Multiple Processes Modeling and Simulation of Cleaner Supercritical Thermal Power Plants Using Grey-Wolf Optimizer |
| Supervisor | Omar Abu znad (Graduated on Spring- 2022 | Wide Range Predictive Control Strategy for a 600MW Once-through Power Plant |
| Supervisor | Mohammad Qasem (In progress) | Development of a Grey-Box Clean-Coal Power Station Model and Control Strategy Using Meta-heuristic Optimization Techniques |
| Supervisor | Mariana Haddadin (In progress) | Time-Based Performance Prediction of Thermal Power Plants Using Deep-Learning Techniques |
| Supervisor | Marwan Alshami (In progress) | Development of a Grey-Box Gas-Turbine Model and Control Strategy Using Whale Optimizer |
| Supervisor | Tayma Afaneh (In progress) | Study of Feasible Control Strategies for Clean Thermal Power Plants for Load-Following with Consideration of Wind Energy Penetration |

2- **Jan/2013-July/2015,Lecturer–**
**Department of Electrical Engineering, University of Benghazi،Benghazi, Libya.**
***Courses taught***
Circuit Theory I.
Electrical Machines I
Power System Analysis II
Power Generation
Linear System Theory"
***Projects Supervision*:** 3 B.Sc. projects.
***Labs Supervised:***
Electromechanical Energy Conversions laboratory.
Control Systems laboratory. Feedback Instruments based lab.

3- **Sep/2010-Jan/2012,Teacher Assistant During PhD Studies, University of Birmingham, England, UK**
Teaching: Electrical Energy Systems
Lab Supervision: Power Electronics Applications (MATLAB/SIMULINK based Virtual Lab).

4- **Jan/2006 – 2008, Electrical Engineer at the General Electric Company of Libya (GECOL)**: Working as a supervisor engineer for a group of technicians for conducting a periodical tests of protective relays in distribution system switchgear. This period I was also a TA and M.Sc. student at the University of Garyounis.

## PUBLICATIONS

Links for my publications:
https://scholar.google.com/citations?user=54LoUB0AAAAJ&hl=en
https://www.scopus.com/authid/detail.uri?authorId=7005184359
https://orcid.org/0000-0003-0618-2012
https://www.researchgate.net/profile/Omar-Mohamed-16

### The list of publications

### A book chapter

1- **Omar Mohamed,** Jihong Wang, Bushra Al-Duri, Shen Gue, Jianlin Wei, JunfuLv, Qirui Gao" Mathematical Modelling of Coal fired power plant and model Parameter Identification using Genetic Algorithms". A book chapter in the edited book, Chapter 1 "Electrical Engineering and Applied Computing". *Springer,*2011. Pp. 1-13.

## International Journals

1- **Omar Mohamed**, Saba Fakhoury, Georgina Aldalou, Ghalia Almasri " Energy Auditing and Conservation for Educational Buildings: a Case Study on Princess Sumaya University for Technology" *Process Integration and Optimization for Sustainability (*Accepted on August 2022 *doi:* 10.1007/s41660-022-00273-z)

2- Amal Haddad and **Omar Mohamed**. "Qualitative and quantitative comparison of three modeling approaches for a supercritical once-through generation unit." *International Journal of Energy Research* (2022).

3- Mohamed Qasem, **Omar Mohamed**, and Wejdan Abu Elhaija, 2022. Parameter Identification and Sliding Pressure Control of a Supercritical Power Plant Using Whale Optimizer. Sustainability 2022, 14, 8039.

4- Ahmad Al-Momani, **Omar Mohamed**, Wejdan Abu Elhaija, "Multiple processes modeling and identification for a cleaner supercritical power plant via Grey Wolf Optimizer", *Energy*, Vol 252, 2022, 124090

5- Omar Abu Znad, **Omar Mohamed**, and Wejdan Abu Elhaija. "Speeding-up Startup Process of a Clean Coal Supercritical Power Generation Station via Classical Model Predictive Control." *Process Integration and Optimization for Sustainability* (2022): 1-14.

6- Mohammad Alsarayreh, **Omar Mohamed**, and Mustafa Matar. "Modeling a Practical Dual-Fuel Gas Turbine Power Generation System Using Dynamic Neural Network and Deep Learning." *Sustainability* 14, no. 2 (2022): 870.

7- Mo'ath Qandil, **Omar Mohamed**, and Wejdan Abu Elhaija. "A comparative study of wind turbine-generator modeling techniques: Physical modeling, subspace identification, and dynamic neural networks." Wind Engineering (2021): 0309524X211066623.

8- Amal Haddad, **Omar Mohamed**, Mustafa Zahlan, and Jihong Wang. "Parameter identification of a highly promising cleaner coal power station." Journal of Cleaner Production 326 (2021): 129323.

9- **Omar Mohamed**, Zain Bitar, Alla Abu-Sultaneh, and Wejdan Abu Elhaija. "A Simplified Virtual Power System Lab for Distance Learning and ABET Accredited Education Systems." *The International Journal of Electrical Engineering & Education*, (Published: Online First: February 2021).

10- **Omar Mohamed**, Ashraf Khalil**,** Jihong Wang "Modeling and Control of Supercitical and Ultra-Supercritical Power Plants: A Review"*Energies*, vol. 13, no. 11, p. 2935, 2020.

11- Rona Qatamin**, Omar Mohamed,** Wejdan Abu Elhaija"Prediction of Power Output of Wind Turbines Using System Identification Techniques"International Review on Modelling and Simulation (IREMOS), *Praise Worthy Prize,* vol. 13, no. 1, 2020.

12- **Omar Mohamed** and Ashraf Khalil, "Progress in Modeling and Control of Gas Turbine Power Generation Systems: A Survey," *Energies*, vol. 13, no. 9, p. 2358,2020.
13- **Omar Mohamed** and MuhiZater "Comparative Study between Three Modeling Approaches for a Gas- Turbine Power Generation System" *Arabian Journal for Science and Engineering*, *Springer*, 45**,** 1803–1820 (2020).
14- **Omar Mohamed**, Jihong Wang, Ashraf Khalil and Marwan Limhabrsh "Predictive Control Strategy of a Gas Turbine for Improvement of Combined Cycle Power Plant Dynamic Performance". *Springerplus, SpringerOpen* (2016) 5: 980.
15- Fares S. El-Faouri, **Omar Mohamed**, and Wejdan Abu Elhaija "Comparison of Three – Phase Induction Motor Control Models Incorporating Mutual Flux Saturation Effect" International Journal on Energy Conversion (IRECON), *Praise Worthy Prize*, Vol.5, No.5 (2018), pp: 135-147**.**
16- Mansour Abu Siam, **Omar Mohamed**, and Hassan Al-Nazer "Comparative Study between Genetic Algorithms and Iterative Optimization for Economic Dispatch of Practical Power System" International Review of Electrical Engineering (I.R.E.E.), *Praise Worthy Prize*, Vol. 18, No.2 (2018), pp: 128-136.
17- Ahmad Basim and **Omar Mohamed** " Reduction of Fluctuation of Wind Turbines' Output Power by Modeling and Control" International Review of Electrical Engineering (I.R.E.E.), Vol. 14, N. 3*Praise Worthy Prize*, 2019.
18- Fares Elfaouri and **Omar Mohamed**, Wejdan Abu Elhaija " Model-Based Field-Oriented Control of a Three-Phase Induction Motor with Consideration of Rotor Resistance Inconstancy" International Review of Electrical Engineering (I.R.E.E.), Vol. 14, N. 3, pp: 173-181 *Praise Worthy Prize*, 2019.
19- Mustafa Matar and **Omar Mohamed** "Fault Detection and Classification on a Transmission Line Using Discrete Wavelet Transform and Artificial Neural Networks" International Review of Electrical Engineering (I.R.E.E.), *Praise Worthy Prize* Vol.14, No.5 (2019), pp 349-357**.**
20- Ashraf Khalil, Jihong Wang, **Omar Mohamed** "Robust Stabilization of Load Frequency Control System Under Networked Environment". International Journal of Automation and Computing, vol.14, issue (1), 2016, pp:93-105.
21- Ashraf Khalil, Asma Elferjani, Zakariya Rajab, **Omar Mohamed** "The Impact of the Time Delay on the Load Frequency Control System in Microgrid with Plug-in-Electric Vehicles" Sustainable Cities and Society, *Elsevier*, Vol. 35, 2017, pp:365-377.
22- **Omar Mohamed**, Jihong Wang, Bushra Al-Duri "Study of a Multivariable Coordinate Control for a Supercritical Power Plant". International Journal of Energy Systems*, Scientific and Academic Publishing*. Vol.2 No. 4, August 2012.

## International Conferences:

1- **Omar Mohamed**, Jihong Wang, Bushra Al-Duri, Junfu Lu, Qirui Gao "Predictive Control of Coal Mills for Improving Supercritical Power Generation Process Dynamic Responses". Proceedings of the 51st IEEE Conference on Decision and Control Dec 2012. Hawaii, USA . pp:1709-1714.

2- **Omar Mohamed**, D. Younis, H. Abdelwahab, A. Anizi, and B. T. Elobidi "Comparative Study Between Subspace Method and Prediction Error Method for Identification of a Gas Turbine Power Plant" 6th international conference on Congress on Ultra Modern Telecommunication and Control System and Workshop, ICUMT, 2014, IEEE Press, pp:421-428.

3- **Omar Mohamed**, Jihong Wang, Ashraf Khalil and Marwan Limhabrsh "The Application of System Identification Via Canonical Variate Algorithm to North Benghazi Gas Turbine Power Generation System" *IEEE Jordan Conference on* Applied Electrical Engineering and Computing, *2015*, pp:1-6.

4- Ashraf Khalil , **Omar Mohamed**, and Jihong Wang, "Networked Control of DC / DC Buck Converters" *IEEE Jordan Conference* on Applied Electrical Engineering and Computing, *2015,* pp:1-6.

5- **Omar Mohamed**, Jihong Wang, Bushra Al-Duri" Predictive Control Strategy for a Supercritical Power Plant and Study of Influences Coal Mills Control on its Dynamic Responses". UKACC International Conference on Control 2012 Cardiff, UK, 3-5 September 2012, pp. 918-923.

6- Fares El-Faouri, **Omar Mohamed**, Wejdan S. Abu- Elhaija "D-Q model and control of a three-phase induction motor considering mutual flux saturation effect." 2017 10th Jordanian International Electrical and Electronic Engineering Conference (JIEEEC), pp: 1-6.

7- **Omar Mohamed**, Jihong Wang, Shen Guo, Bushra Al-Duri, Jianlin Wei "Modeling Study of Supercritical Power Plant and Parameter Identification Using Genetic Algorithms". Proceedings of the World Congress on Engineering 2010 Vol II WCE 2010, June 30 - July 2, 2010, London, U.K. pp: 973-978.

8- **Omar Mohamed**, Jihong Wang, Bushra Al-Duri "Study of a Multivariable Coordinate Control for a Supercritical Power Plant". Proceedings of the 17th International Conference on Automation and Computing. (ICAC) Huddersfield. UK. Sep. 2011. pp. 69-74.

9- **Omar Mohamed**, Jihong Wang, Bushra Al-Duri, and Shen Guo "Modeling Study of a Nonlinear Power Plant Supercritical Boiler-Turbine-Generator System and Identification of Unknown Parameters". Proceedings of the 16th International Conference on Automation & Computing, Birmingham, 11 September 2010. pp147-152.

10- **Omar Mohamed** and Jihong Wang "Generalized Predictive Control Strategy for Supercritical Power Plant" Proceedings of the 1st International Conference on Electrical and Computer Engineering ICECE , March 2013 Benghazi, Libya. pp: 1-6.

11- **Omar Mohamed** and AbdelhafidElfaituri" Application of Atirifcial Neural Networks in Optimal Dispatch of Generation" . Proceedings of the

15th International Conference on Automation and Computing, Sep. 2009, (ICAC) Luton, United Kingdom,

12- Julie Matarweh, ReziqMustaklem, Anas Saleem, and **Omar Mohamed** " The Application of Discrete Wavelet Transform for Classification of Power Transmission System Faults" Proceedings of IEEE JEEIT 2019, Amman, Jordan, pp:1-6.

## RECENT PROFESSIONAL ACTIVITIES (CONFERENCES SESSIONS CHAIRMANSHIP AND REVIEWS OF SCIENTIFIC MANUSCRIPT)

1- **Session Chair** at Imperial College London in the World Congress on Engineering (WCE) 2010
2- **Session Chair** for JEEIT 2019 conference, Amman Jordan.
3- Peer Reviewer for IEEE conferences (e.g. IEEE Conference on Decision and Control-2020).
4- Peer Reviewer for the following journals:

- **IEEE Transactions on Energy Conversion**.
- Arabian Journal of Science and Engineering (**Springer**).
- International Journal for Control, Automation and Systems (**Springer**).
- Sustainability (**MDPI**).
- Energies **(MDPI)**
- Jordan Journal of Electrical Engineering.
- Journal of Energy Storage (**Elsevier**).
- Sustainable Cities and Society (**Elsevier**).

**Some reviews are recorded on my publons link and some are not**.
https://publons.com/researcher/3019743/omar-mohamed/

5- Served as Council Secretary for the Department council and School Council.

- International Association of Engineers IAENG membership.

## LANGUAGES

- Arabic-native language
- English – speak fluently and read/write with high proficiency.

## MEMBERSHIPS

- IEEE membership (PES).
- IAENG membership

## COMPUTER SKILLS

- Broad Experience in MATLAB programming, designing MATLAB/SIMULINK simulators, PowerWorld Simulator, NEPLAN simulator, and PSCAD.

## REFERENCES

1- Prof. Jihong Wang, School of Engineering, University of Warwick, Coventry, CV4 7AL, UK. (My PhD Advisor)
Email: jihong.wang@warwick.ac.uk
Phone: +44 (0)24 765 23780, Fax: +44 (0)24 76 418922.

2- Prof. Mohamed Elmusrati , University of Vassa , Head of the Communications and Systems Engineering Group, Faculty of Technology, Finland
Email: mohammed.elmusrati@uwasa.fi

3- Prof. Wejdan S. Abu-Elhaija
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4- Dr. Ashraf Khalil
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Technical University of Denmark
Email:ashka@dtu.dk