OMAR NASSER ALRUMAYH Ph.D., P.Eng.

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With over a decade of experience in academia and research leadership, I currently serve as the Secretary General of Research Chairs at Qassim University. My work centers on supporting and guiding research across the university — from managing grants and resources to evaluating the impact of research chairs and aligning their work with national priorities.

I earned my Ph.D. in Electrical and Computer Engineering from the University of Waterloo, where I focused on smart grids, power systems, and energy management. Along the way, I've built a strong foundation in strategic planning, research development, and tools like GAMS, Python, MATLAB, and Power BI — all of which help me bring data-driven insights and innovation into the research ecosystem.

EXPERIENCE

OCT 2024-PRESENT

SECRETARY GENERAL OF RESEARCH CHAIRS *Qassim University, Saudi Arabia*

Governance:
- Overseeing the governance of research chairs to ensure alignment with institutional goals and national research priorities.

Grants Management:
- Preparing, allocating, and managing research grants across various university chairs.

Performance Evaluation:
- Reviewing and evaluating the performance of research chairs, assessing research outcomes, impact, and strategic alignment.

Strategic Development:
- Supporting sustainable funding models and fostering strategic partnerships to strengthen research capacity and innovation.

OCT 2023-OCT 2024

DIRECTOR OF SCIENTIFIC FACULTIES RESEARCH CENTER *Qassim University, Saudi Arabia*

Strategic Planning:
- Creating plans and objectives for the research center that align with the institution's broader goals.

Resource Management:
- Ensuring the smooth functioning of research projects by managing resources such as budget, personnel, equipment, and facilities.

Research Oversight:

- Providing guidance and support to researchers within the center, facilitating collaboration, and ensuring adherence to ethical standards and regulations.

Evaluation and Assessment:

- Evaluating and assessing the outcomes of scientific projects from research grants and their impact on the institution's objectives.

Data Analysis and Reporting:

- Developed a comprehensive dashboard to evaluate institutional research performance, enhancing data analysis and reporting capabilities.

Process Automation:

- Implement automation processes to streamline workflows, reduce manual tasks, and increase overall efficiency within the research center.

FEB 2021-
PRESENT

ASSISTANT PROFESSOR *Qassim University, Saudi Arabia*

Consulting:

- Collect and evaluate diverse sets of information linked to several key performance indicators (KPIs) within the organization. Create dashboards that enable decision-makers to oversee the organization's performance conveniently. Develop an automated flow of recurring tasks for efficient and reliable project management.

Administrative Work:

- Head of Research and Innovation Unit
- Head of the committee studying the participation of Engineering College in the Human Capability Development Program
- Member of Quality Unit
- Member of Summer Training Unit
- Member of the College Strategic Plan Committee
- Coordinator of website and media and information sharing

Teaching Tasks:

- Electric and Electronic Circuits
- Probabilities and Statistics
- Computer Programming
- Power System Analysis
- Power System Laboratory

JUL 2023-
AUG 2023

VISITING SCHOLAR *University of Waterloo, Canada*

Develop a novel framework to stimulate lithium-ion battery owners to participate in cooperative flexibility services. This framework can be integrated within the electricity market environment.

MAY 2017-

MAY 2021

TEACHING ASSISTANT *University of Waterloo, Canada*

Work closely with faculty members to prepare lessons, ensure students understand the course outcomes and guide students through the course project.

- Power Systems Operation and Electricity Market
- Electromechanical Devices and Power Processing
- Electrical Circuits and Instrumentation
- Digital Circuits and Systems
- Electrical Engineering for Mechanical Engineers

SEP 2016-
APR 2021

CONSULTANT & RESEARCHER *Natural Sciences and Engineering Research Council, Canada*

This project examined the role of energy storage solutions as ancillary service providers and their integration with the grid system. Research has been undertaken to determine cost structures and appropriate pricing mechanisms for these services.

DEC 2016-
MAY 2021

LECTURER *Qassim University, Saudi Arabia*

DEC 2011-
DEC 2016

TEACHING ASSISTANT *Qassim University, Saudi Arabia*

JUN 2010-
DEC 2010

PROJECT MANAGER ASSISTANT *ABB, Saudi Arabia*

Work closely with project managers to plan, monitor, and control project activities>

EDUCATION

SEP 2016-
FEB 2021

PH.D. IN ELECTRICAL AND COMPUTER ENGINEERING *University of Waterloo, Canada*

Thesis Title: "Flexibility Provisions from Energy Storage Systems and Loads in Smart Grid"

Courses:

- Data & Knowledge Modelling & Analysis
- Principles of Operations Research
- Engineering Risk and Reliability
- Advanced Optimization Techniques
- Special Topics in Power Systems and High Voltage Engineering

SEP 2013-
APR 2016

MASC IN ELECTRICAL AND COMPUTER ENGINEERING *University of Waterloo, Canada*

Thesis Title: "Optimal Coordination of Home Energy Management Systems in a Distribution Grid"

Courses:

- Advanced Project Management
- Power System Operation and Markets
- Power Systems Operation

- Distribution System Engineering
- Power Systems Analysis and Control
- Design and Applications of Power Electronic Converters

JUN 2007-
JUN 2011

BASC IN ELECTRICAL ENGINEERING *Qassim University, Saudi Arabia*

LICENSES & CERTIFICATIONS

Professional:

- Certified Profession Engineer
  Saudi Council of Engineers
- Academic Quality Practitioner (NCAAA)
  Education & Training Evaluation Commission
- Academic Accreditation Reviewer (NCAAA)
  Education & Training Evaluation Commission

Technical:

- General Building Code SBC201
  Saudi Council of Engineers
- Saudi Loading Code Requirements SBC 301
  Saudi Council of Engineers
- The Saudi Energy Conservation Code for Low-Rise (Residential) Buildings - SBC 602
  Saudi Council of Engineers
- Saudi Electrical Code SBC 401
  Saudi Council of Engineers
- Data Manipulation with pandas
  Datacamp

ACADEMIC AWARDS AND DISTINCTIONS

- ### TERM ACTIVITY REPORT (FOE) AWARDS *University of Waterloo*
  SPRING 2019 & WINTER 2021
  "Each term, the Department gives out Faculty of Engineers Awards (FOEs) to students who have shown strong merit in the previous term (grades, publications, conferences, etc.)."

- ### DISTINCTION AWARDS *Saudi Culture Bureau*
  WINTER 2021, WINTER 2019, FALL 2015, AND SPRING 2013

- ### ENERGY STORAGE DESIGN CHALLENGE *Natural Sciences and Engineering Research Council of Canada*
  SPRING 2019
  "Design innovative solutions to present-day or near-future challenges in the energy sector."

- ### MASC AND PH.D. SCHOLARSHIPS *Qassim University*
  FALL 2012- WINTER 2021

TECHNICAL SKILLS

OPTIMIZATION

USING GAMS

- Developing Energy Management Systems to minimize electricity bills for residential, commercial, or industrial customers.
- Developing a coordination framework to evaluate and utilize inherent flexibility in the smart grid.
- Developing a planning and operation model to size and allocate renewable energy resources with lithium-ion batteries in the power grid.
- Developing a power flow optimization model to minimize power losses/cost.

DEEP LEARNING AND DATA ANALYSIS

USING MATLAB & PYTHON

- Developing a neural network-based degradation model to predict lithium-ion battery lifetime.
- Collecting and analyzing data obtained from an optimization model.

PROFESSIONAL REPORTS AND PUBLICATIONS

USING LATEX

- Writing technical reports and research publications.

DATA VISUALIZATION AND DASHBOARD DEVELOPMENT

USING MATLAB AND POWER BI

- Developing dashboards that enable decision-makers to oversee the organization's performance conveniently, hence providing recommendations based on different metrics to achieve the organization's goals.

SOME PROGRAMMING SKILLS

GAMS PSSE PYTHON MATLAB POWER BI POWER AUTOMATE

SOME RESEARCH & PUBLICATIONS

[١] S. Hussain, **O. Alrumayh**, R. Parakkal Menon, C. Lai and U. Eicker, "Novel Incentive-based Multi-level Framework for Flexibility Provision in Smart Grids," IEEE Transactions on Smart Grid, ٢٠٢٣.

[٢] **O. Alrumayh**, "Flexibility Provisions from Energy Storage Systems and Loads in Smart Grid," ٢٠٢١.

[٣] **O. Alrumayh**, S. Wong and K. Bhattacharya, "Inclusion of Battery SoH Estimation in Smart Distribution Planning With Energy Storage Systems," in IEEE Transactions on Power Systems.

[٤] **O. Alrumayh** and K. Bhattacharya, "Flexibility of Residential Loads for Demand Response Provisions in Smart Grid," in IEEE Transactions on Smart Grid.

[٥] **O. Alrumayh**, S. Wong, H. Alharbi and K. Bhattacharya, "Incentives for Demand Response and Flexibility Services Procured from Energy Storage Systems," ٢٠٢٠ IEEE Power & Energy Society General Meeting (PESGM), ٢٠٢٠.

[٦] **O. Alrumayh** and K. Bhattacharya, "Model predictive control-based home energy management system in smart grid," *2015 IEEE Electrical Power and Energy Conference (EPEC)*, London, ON, ٢٠١٥.

[٧] A. Almutairi and **O. Alrumayh**, “An intelligent deep learning based prediction model for wind power generation,” Computers and Electrical Engineering.

[٨] A. Almutairi and **O. Alrumayh**, “Optimal charging infrastructure portfolio for minimizing grid impact of plug-in electric vehicles,” IEEE Transactions on Industrial Informatics

[٩] **O. Alrumayh**, “Optimal coordination of home energy management systems in a distribution grid,” ٢٠١٦.