



**Dr. Feras Alasali**

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### Research Interests and Skills

My current research interest is focused in the area of electrical power systems, power protection systems, smart grid, load forecasting as well as control system and modelling of energy storage systems. These interests include protection and control of energy storage and power systems based on load forecasting. Recent areas have included:

- Load Forecasting Modelling: Quantifying low voltage network demand uncertainty, developing different forecasts for network planning and management, and utilising scenario forecasts to estimate the impact of using energy storage systems in the low voltage network.
- Control: Utilising forecasting methodologies to optimise the control of energy storage devices connected to the low voltage network.
- Optimisation: Applying optimisation methods such as stochastic model predictive control and genetic algorithm to optimally simulate network loads and design protection systems for micro and smart grid and different engineering problems.

### Education:

- **University of Reading**, Reading, U.K. PhD. in Electronic and Electrical Engineering (Degree of Specialty: Power electrical engineering), 2016-2019.
  - Thesis Title: Optimal Energy Controllers of Energy Storage Systems Based on Load Forecasting for RTG Cranes Network.
  - Supervisors: Prof. William Holderbaum and Dr. Stephen Haben.
- **Yarmouk University**, Irbid -Jordan. Master degree in Electrical power Engineering, Department of Electrical Engineering, 2009-2013.
- **Al-Balqa' Applied University**, Amman-Jordan. B.Sc. degree in Electrical power Engineering, Department of Electrical Engineering, 2002-2006.

### Selected Publication:

- **Alasali, F.**; El-Naily, N.; Zarour, E.; Saad, S. Highly Sensitive and Fast Microgrid Protection Using Optimal Coordination Scheme and Nonstandard Tripping Characteristics. *International Journal of Electrical Power and Energy Systems*, Elsevier, accepted, Dec. 2020
- Nusair, K.; **Alasali, F.** Optimal Power Flow Management System for a Power Network with Stochastic Renewable Energy Resources using Golden Ratio Optimization Method. *Energies* 2020, 13, 3671.

- **Alasali, F.**; Haben, S.; Foudeh, H.; Holderbaum, W. A Comparative Study of Optimal Energy Management Strategies for Energy Storage with Stochastic Loads. *Energies* 2020, *13*, 2596.
- Pietrosanti, S.; **Alasali, F.**; Holderbaum, W. Power Management System for RTG Crane Using Fuzzy Logic Controller. *Sustainable Energy Technologies and Assessments*, Elsevier, vol. 37, 100639, 2020.
- **Alasali, F.**; Haben, S.; Holderbaum, W. Energy management systems for a network of electrified cranes with energy storage. *International Journal of Electrical Power and Energy Systems*, Elsevier, vol. 106, pp 210-222, 2019.
- **Alasali, F.**; Haben, S.; Holderbaum, W. Stochastic Optimal Energy Management System for RTG Cranes Network Using Genetic Algorithm and Ensemble Forecasts. *Journal of Energy Storage*, Elsevier, vol. 24, 100759, 2019.
- **Alasali, F.**; Luque, A.; Mayer, R.; Holderbaum, W. A Comparative Study of Energy Storage System and Active Front End for Network of two electrified RTG cranes. *Energies*, MDPI, vol. 12, 1771, 2019.
- **Alasali, F.**; Haben, S.; Becerra, V.; Holderbaum, W. Day-ahead industrial load forecasting for electric RTG cranes. *Journal of Modern Power Systems and Clean Energy*, Springer, vol.6, pp. 223- 234, 2018.
- **Alasali, F.**; Haben, S.; Becerra, V.; Holderbaum, W. Optimal energy management and MPC strategies for electrified RTG cranes with energy storage systems. *Energies*, MDPI, vol. 10, 2017.
- Ali, E.; Yahaya, N.; Al Assaf, A.; **Alasali, F.**; et al. Analysis and Maximizing RF Harvesting System based on Antenna Shapes for Aviation Applications. *IEEE International Conference on Electrical Engineering and Control Technologies (CEECT)*, Melbourne- Australia, 2020.
- **Alasali, F.**; Becerra, V.; Holderbaum, W. Peak power reduction for electrified Rubber-Tyred Gantry (RTG) cranes using energy storage. 8th International Symposium on Automatic Control - AUTSYM conference, Germany, 2017.
- **Alasali, F.**; Haben, S.; Becerra, V.; Holderbaum, W. Analysis of RTG Crane Load Demand and Short-term Load Forecasting. International Congress on Advances in Engineering and Technological Developments conference, London, 2016.
- Luque, A.; **Alasali, F.**; Holderbaum, W.; Becerra, V.; et al. Energy reduction on eRTG. IEEE 16th International Conference on Environment and Electrical Engineering (EEEIC), Florence, 2016.

## Teaching Interests

- Power system protection
- Electrical machine.
- Smart grid.
- Renewable energy.
- Power conversion.
- Power system analysis.
- Electrical circuits theory
- Load forecasting
- Control theory
- Simulation software (MATLAB, Etap, pspice).
- Supervising final year projects, Building prototypes, Measurements and Calibration

## Funded Projects

- Project title: Flood Forecasting and Early Warning System in Jordan, **August 2020- August 2021**
  - Project group: Dr. Feras Alasali (**investigator**), Dr. Rula Tawalbeh, Eng. Zahra Alsaleh
  - **Source:** UNICEF, Bassmati Innovation Community's , **Budget:** 20000 USD

## Professional Experience:

- September 2019 – present, Assistant Professor, The Hashemite University, Jordan.
- June 2019 – present, Visiting Researcher, University of Reading, UK.
- September 2015 until June 2019, Assistant Researcher, University of Reading, UK.
- December 2013 until September 2015, Project Manager in Al-Gihaz Co. for HV /MV substation 110/13.8 KV Saudi Arabia.
- October 2007 until September 2013, Protection and metering engineer, Electricity Distribution Company [EDCO]. Responsibilities & Experience in:
  - Participate in T&C (Testing and commissioning) for many stations.
  - MV and LV CT's and VT's (Testing and commissioning).
  - MV and LV panels (testing, design, commissioning).
  - Protection Relays (Installation & Testing).
  - Energy Meters (Installation, Testing, commissioning, maintenance, electrical tampering study).
  - Automatic meter reading AMR, AMI and smart grid, as a pilot and real project (Testing, preparing, specifications, study Installation, communications,) from many company ISKRA, HEXING and DMC.

## Reviewer:

- Since 2019: The International Journal of Power and Energy Systems.
- Since 2019: eTransportation Journal.
- Since 2019: Journal of Energy Storage.
- Since 2019: IEEE Access.
- Since 2019: Electronics.
- Since 2019: sustainability.
- Since 2018: Applied sciences.
- Since 2018: Energies.
- Since 2018: Processes.
- Since 2017: Journal of Modern power Systems and Clean Energy.

## Awards:

- (2015-2019) Hashemite University of Jordan sponsorship for 4 years for PhD in the University of Reading, UK, covering tuition fees and monthly allowances.
- Best Reviewer Prize 2018, Journal of Modern power Systems and Clean Energy.
- Best conference paper, International Congress on Advances in Engineering and Technological Developments conference, 2016.
- Young Engineer Prize 2013 by Jordan Engineers Association.

## Membership:

- Membership in Institute of Electrical and Electronics Engineers (IEEE).
- Membership in IEEE Young Professionals.
- Membership in Jordan Engineers Association.
- Membership in Saudi Council of Engineers

- Involvement in International Conferences, organisation and review process.
- Invited Lectured/Seminars (University of Reading and Aston University)
- Industrial Collaborations (SAM engineering , Electrical distribution company, Port of Felixstowe)
- Academic Collaborations (University of Reading and Aston University).

### Training Courses:

- “Applied Photovoltaic Systems” from SEED and Jordan Engineering Association, 2020.
- “Higher Education” which was held in deanship of academic development and international outreach at The Hashemite University, 2020.
- Creative thinking and problem solving, Reading, UK, 2017.
- Doctoral Research Conference , Reading, UK, 2017.
- Intermediate/Advanced LaTeX, Reading, UK, 2016.
- An introduction to LaTeX, Reading, UK, 2016.
- Doctoral Research Conference Reading, UK, 2016.
- An Introduction to Protective Relay Testing using the CMC 256 from OMICRON Academy.
- CYME 5.0 Training Sessions from CYME International T&D.
- ABB Relay (Ref 610, ref542+, REX521, Spaj relay) from ABB LTD in Jordan.
- DIGSI Software & (SIPROTEC Family ) From Ketaneh The local agent of the Siemens in Jordan.
- SCADA System SIMATIC WinCC from Jordan Engineering Association.
- Portable Meter Test Equipment; MTE Company; Germany.
- Stationary Meter Test Bench; ZERA Company; for one week in Germany.
- ELSTER Static Meters (PMU Programming Software) for two training days in Amman-Jordan
- ISKRA Static Meters (METERVIEW Programming Software) for one week in Slovenia.
- PMP (Project manager Professional) training in Amman-Jordan.
- Primavera project planner in Amman-Jordan.
- Introduction of ISO for one training day in Amman-Jordan.
- Uncertainty of measurement & verification of electrical measuring equipment in Amman-Jordan.

