Julio Perez Olvera

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Professional Profile

Electrical and mechanical engineer currently pursuing a PhD in Electrical Power Systems. Through my education, research and professional experience, I have developed expertise across the various phases of the design and operation of renewable energy projects and electrical distribution systems. I am passionate about continuing my career in the energy industry and using my knowledge and experience to support our transition towards a carbon-neutral economy.

Relevant Experience

Power System Consultant — Feb 2020 – Present
ABB Power Grids UK

RESPONSIBILITIES

- Delivered grid connection studies (reactive power requirements, energy losses, short-circuit, harmonics, etc.) for several wind park projects to ensure compliance with the Grid Code under different scenarios.
- Developed Python scripts for the automation of large-scale Power Factory simulations and data processing.
- Contributed to the preparation of reports for clients based on grid studies.

Technical Officer — July 2017 – July 2018
Repowering London

RESPONSIBILITIES

- Completed a range of solar feasibility studies for various community energy projects in London.
- Developed 3D CAD models of buildings to estimate solar resource availability and onsite energy consumption.
- Analysed data to support the development of financial models and delivered reports for management review.

Internship - Renewable Energy — Apr 2014 – Sep 2014
Abengoa Mexico

RESPONSIBILITIES

- Worked within the proposal department throughout the planning, assessment and bidding process for both photovoltaic and wind power plants, as well as reviewed contracts and permits for grid connection.

Education

PhD in Electrical Power Systems with a focus on distribution networks — Oct 2016 – Present
Imperial College London

RESEARCH

Investigated the main factors affecting the hosting capacity in distribution networks and proposed methods to increase such capacity using power electronic devices to optimise the overall utilisation of the network.

NOTABLE MODULES

Optimisation; Stochastic Processes; Smart Grid Technologies.

PUBLICATIONS

- Using Multi-Terminal DC Networks to Improve the Hosting Capacity of Distribution Networks, IEEE ISGT 2018
- Active network management in LV networks: a case study in the UK, IEEE PES GM 2020

SUPERVISION AND TEACHING

Supervised two MSc students on their final project focused on using data analytics for distribution networks

MSc in Electrical Power Systems (Distinction) Sep 2014 – Sep 2015
University of Birmingham

FINAL PROJECT

Stochastic modelling of a Micro Grid for reliability assessment in a distribution network.

NOTABLE MODULES

Power systems operation and control; Power systems economics; HVDC and FACTS; Intelligent systems.

Bachelor's Degree in Mechanical and Electrical Engineering Sep 2009 – May 2014
Tecnologico de Monterrey (ITESM), Mexico

NOTABLE MODULES

Transformers and electric machinery; Power electronics and converters; Renewable energy.

Achievements and Projects

- OpenLV project – Imperial College London/Western Power Distribution

As a participant in the OpenLV project, I contributed to the analysis of large amounts of data coming from several low-voltage substations in the UK. The goal of the analysis was to identify the state of the networks and evaluate the potential benefits of active network management schemes.

- Analytics & Data Science Summer School – Institute for Analytics and Data Science, University of Essex

During the summer school, I completed a one-week course on neural networks and deep learning, as well as an introductory course on TensorFlow. Also, I established a research collaboration with an academic at the university.

- Global Fellows Programme participant – Imperial College London/Tsinghua University

I attended a one-week development programme to develop self-awareness and team working skills. This was followed by a three-week research visit at Tsinghua University, Beijing, during which I explored potential research collaborations.

- Top China Scholarship – Beijing Institute of Technology

I received a scholarship, sponsored by Santander Bank, to attend 4-week summer course on electric vehicles, green transport and climate change.

- Mentoring – Tecnologico de Monterrey (ITESM)

During the final year of my bachelor's degree, I volunteered to support a group of high school students in the design and construction of two electric karts. I managed the logistics and technical aspects of the project to ensure completion.

Technical Competencies

- DIgSILENT Power Factory and OpenDSS (EPRI) to model and analyse multi-phase distribution networks and the impact of low-carbon technologies.
- Python, Pandas, Scikit-Learn and Keras to clean and process large datasets (e.g. energy demand, network measurements) and to implement machine learning algorithms.
- MATLAB/SimPowerSystems libraries to analyse dynamics of power network components and to perform optimal power flow analysis.
- Microsoft Project 2010 to keep track of energy projects during internship at Abengoa Mexico.

Professional Memberships

- CIGRE UK Member and part of the CIGRE UK NGN steering committee, supporting the communications team with the organisation of events and by keeping the website up to date.
- IEEE Graduate Student Member and Member of the Power and Energy Society (PES)
- IET Member and working towards chartership

Languages

English – Proficient Level Spanish – Native German – Intermediate Level