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Call for Papers for the Special Session on

AI-ENABLED PROTECTION, AUTOMATION AND CONTROL FOR DIGITAL ENERGY SYSTEMS

Organized and co-chaired by

Prof. F. Gonzalez-Longatt, Digital Energy Systems Laboratory, Loughborough University, Loughborough, United Kingdom and fglongatt LTD, London, UK — e-mail: fglongatt@fglongatt.org

Dr. Eduardo J. Salazar, Institut de Recerca en Energia de Catalunya (IREC), Barcelona, Spain — e-mail: ejsalazar@irec.cat

Dr. Verónica Rosero, INESC TEC, Universidade do Porto, Porto, Portugal — e-mail: veronica.a.morillo@inesctec.pt

Technical Outline of the Session and Topics

This special session focuses on recent advances in artificial intelligence, machine learning, and data-driven methods for the protection, automation, and control of digital energy systems. It addresses the growing need for intelligent and adaptive solutions in modern power systems characterized by high penetration of inverter-based resources, distributed energy resources, advanced sensing, communication networks, and cyber-physical interactions. The session aims to bring together researchers and practitioners working on novel methods for monitoring, situational awareness, fault and anomaly detection, predictive and resilient control, adaptive protection, and cybersecurity-aware operation.

Topics of the session include, but are not limited to:

- End-to-end AI-based protection schemes for power and energy systems
- Intelligent automation and adaptive control of smart grids
- Fault detection, localization, and diagnosis using data-driven methods
- Predictive control and decision-making for power system operation
- Monitoring, state estimation, and situational awareness in digital energy systems
- AI applications for inverter-based resources and power-electronics-dominated systems
- AI-enabled management of distributed energy resources, microgrids, and smart grids
- Real-time implementation, hardware-in-the-loop validation, and industrial applications
- Foundation and pre-trained AI models for monitoring, protection, and control in digital energy systems

Timeline for Authors

All the instructions for paper submission are available on the conference website. Please visit www.iecon2026.org or scan the QR code for the timeline.