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Special Session on AI based Power Electronics and Electric Drives for Enhanced Performance

Organized and co-chaired by:

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Call for Papers

Technical Outline of the Session and Topics:

The integration of Artificial Intelligence (AI) into Power Electronics and Electric Drives signifies a paradigm shift that holds immense importance in advancing the efficiency, reliability, and overall performance of electrical systems. AI techniques, including machine learning and data-driven algorithms, bring a transformative dimension to power electronics by enabling intelligent control strategies, predictive maintenance, and fault diagnosis. In Electric Drives, AI plays a pivotal role in optimizing energy consumption, improving motor control accuracy, and enhancing system responsiveness. By harnessing the power of AI, engineers and researchers can unlock new levels of adaptability and efficiency in power conversion processes, resulting in systems that are not only more intelligent but also more resilient to dynamic operating conditions. The real-time decision-making capabilities of AI contribute to the realization of smart and autonomous electric drives, fostering a sustainable and technologically advanced landscape for the future of electrical power systems. The synergy between AI and Power Electronics/Electric Drives is instrumental in addressing the evolving demands of modern energy systems and accelerating the transition towards more intelligent and efficient electrical technologies.

This proposal seeks to introduce a special session dedicated to exploring the dynamic intersections between Artificial Intelligence (AI) and Power Electronics, with a specific focus on Electric Drives. The session aims to provide a platform for researchers, practitioners, and industry experts to share their insights, advancements, and challenges in leveraging AI techniques to enhance the performance, efficiency, and reliability of power electronics and electric drives.

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

- Application of AI algorithms for advanced control in power electronic converters
- Application of machine learning algorithms for advanced control in power electronic converters
- Adaptive and self-learning control strategies for electric drives
- Use of AI for predictive maintenance in power electronic devices and electric drive systems
- AI-based fault diagnosis and prognosis for early detection of anomalies
- AI-driven approaches to optimize energy consumption in power electronic systems
- Intelligent algorithms for improving the efficiency of electric drives
- Integration of machine learning techniques for motor control and drive systems
- AI applications in sensorless control and motor parameter estimation
- Innovations in power semiconductor devices enabled by AI.
- Intelligent control of wide-bandgap devices for improved performance.

Author's schedule:

Deadline for submission of special session papers	April 15, 2024
Notification of acceptance	June 10, 2024
Deadline for submission of final manuscript	July 01, 2024

Early submission is highly encouraged for early decision notifications!

All the instructions for paper submission are included in the conference website:

www.iecon-2024.org

