



Annual International Symposium on Industrial Electronics (ISIE) 2023

Special Sessions on

“Emerging Machine Learning-based Technologies in Electric Machines and Power Electronics”

Principal Organizer:

First Name: Zaixin

Last Name: Song

Email: zaixin.song@polyu.edu.hk

Affiliations: The Hong Kong Polytechnic University, Hong Kong

Co-Organizer 1:

First Name: Chunhua

Last Name: Liu

Email: chunliu@cityu.edu.hk

Affiliations: City University of Hong Kong, Hong Kong.

Co-Organizer 2:

First Name: Tao

Last Name: Yang

Email: Tao.Yang@nottingham.ac.uk

Affiliations: University of Nottingham, U.K.

Co-Organizer 3:

First Name: Senyi

Last Name: Liu

Email: senyiliu2-c@my.cityu.edu.hk

Affiliations: City University of Hong Kong, Hong Kong

Call for Papers

Theme:

There is a promising trend that machine learning techniques are being used in the field of electrical engineering. In particular, the design, control of electric machines and power electronics benefit from emerging machine learning techniques for a higher level of performance and reliability. By predicting the performance characteristics of different machine schemes, the most efficient and cost-effective design options can be shortlisted. By setting the coupling electromechanical model to training and computation, more complex drive topologies and control algorithms become accessible. By predefined and trained models, the real-time implementation and stability of power converters can be greatly enhanced. In short, the aim of this special session is to highlight the most recent techniques involving machine learning for electric machine design, motor control, and power electronics. Any contribution in this technical field is welcomed in this special session.

Topics of interest include, but are not limited to:

1	Multi-objective optimization methods for electric machine design
2	Surrogate models for permanent magnet machines
3	Complex rotor design for PM-assisted synchronous reluctance machines
4	Model-based strategies for motor control and motion control
5	Fault-tolerant design, control, and diagnosis by learning techniques
6	State monitoring strategies for motor systems by learning techniques
7	Computational burden reduction of motor controller
8	Deep learning-based predictive control for resonant power converters
9	Stability control and predictive maintenance of power converters
10	Load prediction and energy management of power electronics systems

Submissions Procedure:

All the instructions for paper submission are included in the conference website:
<https://2023.ieee-isie.org/>

Deadlines:

Full paper submission:	January 31, 2023
Paper acceptance notification:	April 15, 2023
Camera-ready paper submission:	April. 30, 2023