

Digital Technologies and Tools for Energy Efficient Manufacturing



Scope and Topics

In the United Kingdom, industry accounts for roughly a quarter of greenhouse gas emissions. The UK Government has set ambitious net-zero targets committed to the decarbonization of heavy industry, and the Industrial Clusters mission aims to establish the world's first net-zero carbon industrial cluster by 2040. To reduce the energy costs and carbon footprint of industry, an emerging effective solution is the use of digital tools to enable businesses to monitor, visualize, predict and optimize their operations, potentially reducing energy consumption and associated costs/emissions in real-time. Due to recent advancements in industrial digitalization, many industrial sites already generate data, including energy monitoring data, with varying degrees of digital maturity. However, major challenges remain in the development of advanced, computationally efficient methods and tools for modeling, predicting and optimizing industrial manufacturing energy data in modern environments. Recent advances in industrial informatics concepts and infrastructure related IoT/Web3.0

paradigms, coupled with AI-based predictive analytics and agent-based control, offers a fertile ground for research and innovation and are catalysing smart factory development. The focus of this special session will be on the recent advancement in key technologies for Smart Systems and Energy Efficient Manufacturing, including but not limited to:

- ✦ Manufacturing Energy Efficiency Monitoring and Optimization
- ✦ Energy Informatics, Forecasting and Digital Twin
- ✦ Industrial IoT and Embedded Systems
- ✦ Smart Grids, Microgrids and Renewables Integration
- ✦ IoT, Machine Learning and Artificial Intelligence
- ✦ Digitalization, Robotics, Control and Automation in Manufacturing
- ✦ Digital tools for industrial decarbonization

Paper Submission Guidelines:

The submitted papers should be no more than 6 pages (A4 paper) with IEEE conference paper format. The conference details and the paper template for ICAC2024 are available on the conference website. The first page of each paper should include the title of the paper, an abstract with no more than 200 words, up to 5 key words, authors' name(s), complete postal addresses, and email address for correspondence. Electronic form of submission, in Word or PDF, is acceptable and preferred. Accepted papers will be submitted for inclusion into IEEE Xplore subject to meeting IEEE Xplore's scope and quality requirements.

The Proceedings of International Conference on Automation and Computing have been published on IEEE Xplore since 2011. Authors of selected papers will be invited to submit extended article versions to a special issue of Systems Science & Control Engineering and a special issue of Sensors.

The papers should be submitted online at <https://cmt3.research.microsoft.com/ICAC2024>.

For detailed up-to-date information, please visit the conference website <http://www.cacsuk.co.uk/icac>.

Important Dates:

Paper submission deadline ----- **31 Mar 2024**
Notification of acceptance ----- **31 May 2024**
Camera-ready copy due ----- **30 June 2024**

Organizing Committee

Chair



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