## Call for Papers

## Special Issue on Artificial Intelligence Predication and Application

## for Energy-saving Smart Manufacturing System

As global awareness of energy conservation, carbon reduction, and achieving net-zero emissions continues to grow, countries are implementing corresponding policies and actions. This includes developing specific action plans based on their carbon reduction commitments, which cover various sectors such as energy, industry, and manufacturing. According to a report by the International Energy Agency, to achieve net-zero carbon dioxide emissions by 2050, countries must take immediate action, particularly in enhancing energy efficiency and reducing industrial energy consumption.

Simultaneously, with the advent of Industry 4.0, smart manufacturing has evolved from a distant vision to a current reality within the industry. It is no longer an unattainable concept but a tangible presence in every forward-thinking manufacturing company. In this era, smart manufacturing applications and software have become the driving forces behind the upgrading of the manufacturing industry and its transformation toward Environmental, Social, and Governance (ESG) goals. Smart manufacturing integrates advanced information and AI technologies with traditional manufacturing processes to achieve high efficiency, flexibility, cost reduction, and personalized production.

In this transformative process, smart manufacturing applications offer a variety of solutions, ranging from automation on the production line to supply chain optimization, ultimately leading to the intelligent transformation of entire factories and facilitating low-carbon transitions. Therefore, understanding the emerging trends in smart manufacturing, along with the roles of smart manufacturing applications and software in the current industrial landscape, is crucial for any manufacturing enterprise aiming to remain competitive. Only through continuous innovation and adaptation can we thrive in this industrial revolution.

Numerous researchers have dedicated significant efforts to developing AI methodologies, energy-saving technologies, and low-carbon emission strategies. Their findings have profoundly influenced the establishment of goals aimed at achieving carbon

neutrality. Driven by this momentum, innovative AI predictions and applications for manufacturing systems—including production systems, intelligent sensing control, smart materials application, and decarbonization analysis—are being proposed not only in engineering but also as new paradigms in smart science.

This special issue encompasses the mathematical and physical theories of AI system analysis and optimization in physics and engineering, along with their diverse applications. We invite prospective authors to submit original papers for consideration in this special issue.

## Indicative Topics/Areas

The topics of interest include, but are not limited to

- AI Energy-saving Systems
- AI Prediction and Application
- Intelligent Sensor Networks of IoT for Carbon Emission and Energy
- Intelligent Sensing Control Systems
- Smart Materials Development
- Inventions/Innovative Methods for Reduction of Energy Consumption and Carbon Emission
- Optimization Schemes
- Other Energy-saving Systems, Sensing Methods, and Applications

All papers will be selected from the excellent papers presented in 2025 ISME International Conference of Mechanical and Electrical Engineering. Prospective contributors are invited to submit their paper to Prof. Wang by email to wcc@mail.nsysu.edu.tw.

## Schedule

| Submission Deadline | August 31, 2025 |
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| Acceptance Notice | September 30, 2025 |
| Final Manuscript | October 31, 2025 |
| Publication Date (Planned) | November 30, 2025 |

## Lead Guest Editor：

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**(Attention)**

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