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**Cognitive Robotics and Advanced Mechatronics in Human-Centric  
Smart Manufacturing**

**organized by**

Shin Horng CHONG, Advanced Remanufacturing & Technology Centre, Singapore,  
[Chong\\_Shin\\_Horng@artc.a-star.edu.sg](mailto:Chong_Shin_Horng@artc.a-star.edu.sg)

Sho YOKOTA, Toyo University, Japan, [s-yokota@toyo.jp](mailto:s-yokota@toyo.jp)

Jinhua SHE, Tokyo University of Technology, Japan, [she@stf.teu.ac.jp](mailto:she@stf.teu.ac.jp)

## **Call for Papers**

### **Outline of the Session (Max 250 words)**

Industry needs human-centric smart manufacturing to enhance collaboration between workers and machines, enabling greater flexibility and adaptability to change market demands. By focusing on ergonomics and safety, these approaches create safer work environments and empower employees, improving job satisfaction and motivation. Furthermore, human-centric systems allow for the customisation and personalisation of products, meeting specific consumer preferences while boosting efficiency and productivity by streamlining processes and reducing waste. Moreover, they promote sustainable practices through resource optimisation and provide opportunities for skill development, ensuring a more adaptable workforce. With its numerous benefits, this paradigm is reassuring and instils confidence as it aligns with the workforce's and the market's evolving needs, driving innovation and sustainability in manufacturing.

Harnessing cutting-edge technologies like cognitive robotics and advanced mechatronic control systems is the prevailing strategy for elevating performance and ensuring unparalleled precision and strength. Robots' exceptional repeatability, a pivotal performance indicator, is amplified by human operators' remarkable flexibility and adaptability, culminating in unmatched overall productivity.

Therefore, this special session aims to bring together specialists in manufacturing systems, robotics, artificial intelligence, and other engineering domains to share their findings, thoughts, and reviews.

### **Topics of the Session**

- Cognitive human-robot collaboration systems
- Intuitive safety concerns in human-robot collaboration systems
- Adaptive motion planning and control
- Human-robot collaborative assembly/disassembly in smart manufacturing
- Ergonomics interfaces for smart manufacturing systems
- Adaptive learning in robotics – applications in smart manufacturing

- Mechatronics in sustainability in smart manufacturing
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