

# **Mechanics & Industry**

An International Journal on Mechanical Sciences  
and Engineering Applications

## Call for Papers

### Themed Issue on

**Robotic Process Automation for Smarter Devices  
in Manufacturing**

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## **Aims and Scope of the Themed Issue**

Software robotics, commonly referred to as robotic process automation (RPA), is the application of automation technology to replicate human workers' back-office operations, such as data extraction, form filling, file transfer, and so forth. Robots are used for high-accuracy, consistently-performed activities including cutting, drilling, and milling. The metal and plastic manufacturing industry now has more options because of their ability to accurately run and tend CNC machines. These robots adjust to the material they are working with, be it plastic or metal. Robots, computer-controlled machinery, and artificial intelligence are examples of programmable tools, systems, and technologies that are used in production to accomplish automation. Automation is most commonly utilised to free up human labour to focus on more highly skilled work by automating dangerous or repetitive tasks. IPA is made to support human workers by carrying out mundane, repetitive, and physical tasks that were previously done by people.

Artificial intelligence (AI), machine learning (ML), robotic process automation (RPA), and digital process automation (DPA) are the technologies combined in IPA. In essence, robots expedite procedures, reliably generate high-quality outcomes, and lower expenses. Robots are reliable and safe workers who don't need holidays, sleep cycles, or lunch breaks like humans do. Many different industries employ a number of automation tools these days. PLCs, PCS, robots, PACs (programmable automation controllers), and HMIs (human-machine interface) are used in manufacturing. SCADA systems and cloud-based technologies are used in process automation. DCS systems and field instruments are used for oil and gas. The five fundamental components of automated operations are automating robotic processes, data, business process management, automation tools, artificial intelligence, and robotic intelligence. Intelligent automation leverages multiple technologies to accomplish its capabilities. When it comes to automating commercial and organisational procedures, robotic process automation, or RPA, offers many benefits. In addition to these benefits, the complementing application of Artificial Intelligence (AI) methods and methodologies enables the RPA processes to be executed more accurately and accurately when it comes to information extraction, recognition, classification, forecasting, and process optimisation.

The use of Artificial Neural Network algorithms, Text Mining techniques, and Natural Language Processing techniques for information extraction and the ensuing process of optimisation and scenario forecasting to improve operational and business processes of organisations seems to extend the objectives of AI and improve the functionality of RPA tools. Although business process management is frequently used to enhance corporate integration, manufacturing processes have not yet seen the effects of this practice. In order to promote integration between business management and industrial operations, we put out the idea of unified process management. The proposal, which centres around a centralised process management system, is offered as an updated corporate architecture for computer integrated manufacturing. By assigning tasks to people and robots connected to the internet of things, the process management system may coordinate both business and operational activities. RPA systems are made to coordinate service workflows that automate laborious, rule-based, repetitive tasks. Within the linked enterprise, RPA brings automated workflows to maximise agility and resilience, while the cognitive Internet-of-things (CIoT) enables intelligent cyber-physical integration to boost ubiquitous operational intelligence. Based on the above, in the present Special Issue, we invite researchers to contribute original research articles and review papers that will approach the Robotic Process Automation for Smarter Devices in Manufacturing.

### **List of Topics Include but are not limited to the following:**

- Utilising robotic process automation to automate an operational process.
- Achieving business success with robotic process automation.
- Automation of robotic processes: developed abilities in the energy industry.
- Advancing in the direction of robotic process automation via process analysis.
- A technique to enhance the robotic process automation lifecycle's first phases.
- Integrating robotic process automation (RPA) in auditing.
- Intelligent apparatuses and machinery for sophisticated production.
- An industrial application case for Cyber Physical Systems for a Smarter Society.
- Applying cutting-edge manufacturing technology to more intelligent buildings.
- Foundational pieces for implementing smart manufacturing.
- Intelligent production using cyber-physical systems and other platforms.

## Submissions

All relevant papers will be carefully considered, peer-reviewed by a distinguished team of international experts. The instructions for authors are detailed at: <https://www.mechanics-industry.org/author-information/instructions-for-authors>

Authors are invited to submit, as soon as their manuscript is ready, online at: <https://articlestatus.edpsciences.org/is/mi/home.php> and choose, during the submission, the special issue: '**Robotic Process Automation for Smarter Devices in Manufacturing**'

### Important Dates:

<b>Submission Deadline</b>	-	<b>25, February 2025</b>
<b>Authors Notification</b>	-	<b>25, April 2025</b>
<b>Revised Papers Due</b>	-	<b>25, June 2025</b>
<b>Final notification</b>	-	<b>25, August 2025</b>

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