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PREFACE

Preface for Robots for Manufacturing Processes and Systems

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Manufacturing processes and systems form the backbone of the global economy and support the production of goods across a variety of industries. The manufacturing industries have seen considerable changes in recent years because of technological breakthroughs and a changing environment (e.g., COVID-19). Industries are quickly adopting advanced technology and automation to streamline processes, increase productivity, and improve overall efficiency. This trend enables faster and more accurate manufacturing while reducing human error and operating costs.

Industrial robots are playing a significant part in the advancement of manufacturing processes and systems. First, robots, which are designed to do repetitive operations with precision, speed, and consistency, boost efficiency and productivity by functioning 24 h a day, reducing production cycle times, and improving output. Robots optimize overall operations by freeing operators to focus on more difficult and value-added jobs. Secondly, robots can significantly reduce the risk of injury to operators. Tasks can be handled in hazardous manufacturing processes and systems without the associated risk of accidents by utilizing robots. Furthermore, robots offer scalability and flexibility in the manufacturing process. They can be easily programmed and reconfigured to meet changing production needs, allowing manufacturers to respond quickly to market demands and new product launches. As a result, manufacturers benefit greatly from robots, which range from enhanced efficiency and productivity in manufacturing processes and systems to improved quality, workplace safety, and adaptation to new technologies.

The papers in this special issue, "Robots for Manufacturing Processes and Systems", discuss the various aspects of robot applications for improving the performance of manufacturing processes and systems. More specifically, this special issue includes papers in the following areas:

- CAD/CAM for manufacturing robots
- Robotic machining
- Robot and machine tool integration
- Mobile robots for factory floor
- Next generation collaborative robots for advanced
- manufacturing
- Robotic material handling and assembly automation

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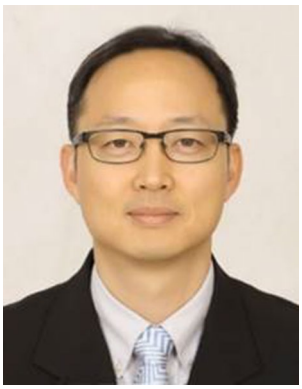

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