Applied Computational Intelligence and Soft Computing

Hindawi

Special Issue on

Intelligent Design and Creativity for "Industry 4.0"

CALL FOR PAPERS

Reflecting one of the most innovative activities in today's businesses, design and creativity are essential to the world's economy and manufacturing industries. A rising demand for an intelligent design system has been seen in the increased requirements of customisation, flexibility, efficiency, responsiveness, and cost-effectiveness of products and their manufacturing. These requirements become urgent in the international race to the next "industrial revolution," as highlighted by the "Industry 4.0" initiative which aims at upgrading the entire manufacturing value chain through turning the factory floor into an innovation centre capable of mass customisation. According to the research by consultancy.uk, "Industry 4.0" is to add EUR140b p.a. to the European revenue. However, it is the designer, rather than the manufacturer, that will profit most from innovation in this added-value upgrade.

The special issue includes theoretical, numerical, and experimental contributions that describe original research results, innovative concepts that address all aspects of intelligent design, multiobjective approaches, and Industry 4.0 and CI approaches and are applying their results in the context of design and creativity, automation, and control. The aim would be to establish a common understanding about the state of the field and draw a roadmap to where the research is heading, highlight the issues, and discuss the possible solutions. It is also available to concerned review/regular articles that support and stimulate the continuing efforts to understand the research and development of computational intelligence-based approaches for optimisations and field applications.

Potential topics include but are not limited to the following:

- Computer automatic intelligent design theory and its applications
- High-volume industrial products for Industry 4.0 customisation and innovation
- Big Data and deep learning
- Multiobjective optimisations for design and manufacturing
- Hardware and software platform for intelligent design automation
- Intelligent manufacturing systems design, optimisation, control theory, and operational research
- Cyberphysical systems
- Computer vision and robotics
- Human-machine interface and integration
- Robotics-related computer hardware, software, and architectures
- Robotics in manufacturing and flexible automation
- Autonomous design and manufacturing
- Intelligent operational research and management

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