

CALL FOR PAPERS
SPECIAL SESSION ON
Challenges in developing Circular Industrial Systems
for ICCAD'20
July 1-3, 2020, Paris-France

Session Co-Chairs:

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Session description:

Industrial systems will have to face the main Industry of the Future challenges: resource scarcity, energy efficiency, customization expectations, etc. In a classical industrial system, materials entering in systems and machines are controlled and so, the processes are repeatable. Although in a circular industrial system, post-used products are distributed, their quality, quantity and return date cannot be managed accurately. So, all the processes along the value chain have to adapt to the state of the collected post-used products.

This special session deals with the problem of transforming post-used products into new added-value products to prolong their life. Among the different challenges in developing a circular industrial system, we can mention: 1) the diagnosis and prognostics of post-used products; 2) the development of a new human-industrial robot cooperation in the de- and re- manufacturing workplaces and taking into account the safety of operators when they cooperate with industrial robots in a common workspace; 3) the development of a new industrial robot programming paradigm: due to the heterogeneity of the post-used products and their small quantities regardless to the amount manipulated by the traditional manufacturing systems, industrial robots used in the de- and re- manufacturing workplaces must be frequently reprogrammed. Industrial robot programming by demonstration seems a promising approach to respond to this challenge.

The goal of this special session is to study the different challenges that we must meet in developing a circular industrial system and to highlight the approaches taken to address the related problems. We invite original papers relating the development of a circular industrial system and proposing new results with this field.

The topics of interest include, but are not limited to:

- Modelling and design of de- and re- manufacturing structures
- Simulation of circular industrial systems
- Performance evaluation of circular industrial systems
- Diagnosis and prognosis of recyclable products
- Collaboration between an operator and a robot in circular industrial systems
- Robot programming by demonstration in circular industrial systems

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SUBMISSION

Papers must be submitted electronically for peer review by: **April 10, 2020**

<http://www.iccad-conf.com/submission.html>

All papers must be written in English and should describe original work. The length of the paper is limited to a maximum of 6 pages (in the standard IEEE conference double column format).