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Overview

Cyber-Physical Systems (CPSs) are in the center of the fourth industrial revolution. Implementations and trends regarding CPSs will shape the future of Smart and Sustainable Manufacturing and the Industrial Internet of Things. Traditional manufacturing processes like machining and new processes like additive manufacturing, are being incorporated into the trends of cloud computing, big data, and machine learning.

This special issue provides a wide vision of the landscape of research on the topic of CPSs for manufacturing. In particular, the special issue seeks to provide a framework from which the concepts of Digital Twins, Digital Threads, Product Life Cycle, and Big Data can be defined, categorized, designed and applied. This special issue presents works that deal with topics such as:

- Innovations on the topic of milling and turning on numerical control machines. In particular, special architectures to incorporate the internet of things and other digital platforms on the shop floor; monitoring of the health condition of the machines and their tools; monitoring by non-conventional means as vision; and the use of machine learning and deep learning to make data analysis.

- Innovations in techniques of industrial engineering. Concepts discussed are smart scheduling, supply and demand prediction, as well as agile manufacturing; technologies like blockchain and smart navigation for automated guided vehicles (AGV); and finally, works that focus on processes such as additive manufacturing and cold metal transfer.

We believe that the work presented in this special issue will provide both, a broad perspective of the scientific fields and technologies that have an impact on the development and deployment of CPS, as well as a glimpse to specific issues and bottlenecks that need to be addressed for successful implementation of CPS. We hope that the specialized audience will find this discussion to be useful in their own practice.

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