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Special Issue Reprint

Challenges and Directions Forward for Dealing with the Complexity of Future Smart Cyber–Physical Systems

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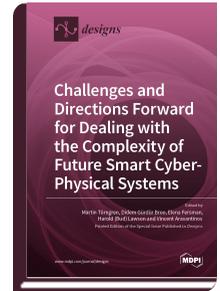
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A key aspect of cyber-physical systems (CPS) is their potential for integrating information technologies with embedded control systems and physical systems to form new or improved functionalities. CPS thus draws upon advances in many areas. This positioning provides unprecedented opportunities for innovation, both within and across existing domains. However, at the same time, it is commonly understood that we are already stretching the limits of existing methodologies. In embarking towards CPS with such unprecedented capabilities, it becomes essential to improve our understanding of CPS complexity and how we can deal with it. Complexity has many facets, including complexity of the CPS itself, of the environments in which the CPS acts, and in terms of the organizations and supporting tools that develop, operate, and maintain CPS. This book is a result of a journal Special Issue, with the objective of providing a forum for researchers and practitioners to exchange their latest achievements and to identify critical issues, challenges, opportunities, and future directions for how to deal with the complexity of future CPS. The contributions include 10 papers on the following topics: (I) Systems and Societal Aspects Related to CPS and Their Complexity; (II) Model-Based Development Methods for CPS; (III) CPS Resource Management and Evolving Computing Platforms; and (IV) Architectures for CPS.



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