Challenges and Opportunities in Computing Research to Enable Next-Generation Engineering Applications

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Journal of Computing and Information Science in Engineering

Guest Editorial

Special Issue: Challenges and Opportunities in Computing Research to Enable Next-Generation Engineering Applications

Recent advances in computing and information science such as artificial intelligence (AI), machine learning (ML), edge computing, cloud computing, metacomputing, and quantum computing are creating new computing paradigms. These advances are providing new opportunities for new research and application development. For instance, the adoption of Industry 4.0 enabled by AI/ML is fundamentally changing how products are designed, manufactured, maintained, and recycled. It enables consideration of all aspects of the product life cycle and realizing sustainable designs and helps us in achieving carbon neutrality. Intelligent machines such as robots and autonomous vehicles are revolutionizing human–machine interactions and increasing digitalization in the manufacturing and transportation industries. It is important for the *Journal of Computing and Information Science in Engineering* (JCISE) community to identify challenges and opportunities in these emerging areas and inspire new researchers to join the field and become a part of the community. This Special Issue consists of 19 position papers that span a wide variety of topics of interest to the JCISE community. These position papers identify challenges and opportunities, outline new areas of research, and point out new applications that will be enabled by advances in this field.

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