

Special Issue

Machine Learning, Control, and Optimization in Manufacturing and Industry 4.0

Message from the Guest Editors

Artificial intelligence (AI), especially subset machine learning (ML), has been advancing the mechanical engineering area. In particular, ML could help fine-tune product quality and optimize operations during the manufacturing process. In addition, ML-based predictive failure enables optimal maintenance time. Furthermore, optimal control incorporated with reinforcement learning plays a key role in scheduling in production, supply chain, and Industry 4.0 systems. In the meantime, stakeholders achieve optimal product management through novel optimization architectures enabled by ML surrogate modeling. This Special Issue targets original and novel research products on ML, control, and optimization, with application emphasis on practical mechanical engineering problems. Topics include, but are not limited to: 1. Novel ML algorithm development demonstrated on mechanical engineering problems (including manufacturing, aerospace engineering, etc.).

2. State-of-the-art ML methods introduced for large-scale optimal control or practical mechanical engineering applications.

3. Challenging analysis or design under uncertainty for mechanical engineering problems through ML methods.

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