

Proposal for Special Session at IEEE CASE 2021

Goal:

Modeling, analysis and control play crucial roles in the production management of advanced manufacturing systems. They are very helpful for managers to understand the system dynamics and operate it in the optimal ways.

The advancement of new IT technologies, such as internet of things (IoT), big data and sensor technology has led to a drastic increase in available data from sensors throughout the manufacturing systems. Based on these data, there arise many research opportunities in developing better modeling, analysis and control methods to improve system performance and optimize decision-making.

This special session will focus on research advances in the data-driven modeling, analysis and control methods for advanced manufacturing systems characterized by the complex and nonlinear dynamics. The goals of the session highlight comprehensive reviews, recent mathematical theory, analytical methods, development tools, future research trends, application fields, and evaluation techniques in the advanced manufacturing environments. The topics include but are not limited to:

- Sensor-based monitoring
- Data-driven modeling
- Performance evaluation
- Real-time control of production process
- Energy efficiency management
- Dynamic maintenance decision making
- New developments and techniques
- Applications and Case Studies

Session Title: [Data-driven Modeling, Analysis and Control of Advanced Manufacturing Systems]

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