



# SMART MANUFACTURING SEMINAR SERIES

Frontiers of Emerging Manufacturing Technologies

## From Data to Insights: In-situ Data Mining in Advanced Manufacturing

### Abstract

A new generation of multistream in-situ and in-line data is now available for the monitoring, control, and optimization of manufacturing processes. Signals, images, and video data in the visible and infrared ranges can be easily acquired using cost-effective solutions. However, the key challenge lies in effectively leveraging this vast amount of data for meaningful insights and actionable improvements.

This talk presents recent research in this area, with a special focus on in-situ data mining in Additive Manufacturing and Bioprinting applications. It explores emerging opportunities and challenges, addressing critical questions on how to harness these data streams to enhance process quality, efficiency, and innovation. The discussion aims to provide valuable directions for future research and technological advancements in this rapidly evolving field.

### Speaker Bio

Bianca Maria Colosimo is a Professor in the Department of Mechanical Engineering at Politecnico di Milano and currently a Visiting Professor at MIT. Her research focuses on big data mining, in-situ monitoring, and process control for advanced manufacturing, with a particular emphasis on additive manufacturing (AM) and bioprinting. She holds key editorial roles in leading scientific journals, including IISE Transactions, INFORMS Journal of Data Science, Journal of Quality Technology and Progress in Additive Manufacturing. Her work has been recognized with numerous prestigious awards, including the 2023 George Box Medal (ENBIS). She has also been recognized among the Top 100 Italian Women Scientists in STEM (100esperte.it).



**Dr. Bianca Maria Colosimo**  
Professor,  
Mechanical Engineering  
Politecnico di Milano

Visiting Professor  
MIT

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**Friday, March 28**  
**11:30 a.m.- 12:30 p.m.**

(a follow up one hour for lunch and discussion).

### In-Person Only:

Location: GGB 2540 -  
Grand Conference Room

G.G. Brown Building  
2350 Hayward St, Ann Arbor

### Host

Judy Jin  
A Galip Ulsoy Collegiate  
Professor of Engineering  
Professor, Department of  
Industrial and Operations  
Engineering

### Organizer

Wenda Tan  
Associate Professor,  
Mechanical Engineering



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