

Einladung zum Vortrag

Vortragende: M. Sc. Yen-Tzu Huang, Institute of Industrial Engineering,
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Zeit: Donnerstag, 11.09.2025, von 10.00 Uhr bis 11.30 Uhr

Ort: Raum E408, Gebäude 8

Thema: A Deep Learning Approach for Dynamic Admission Control Under
Queue Time Constraints

Abstract

This presentation introduces a dynamic risk control framework for a two-stage production system with downstream queue time constraints. Queue time constraints are critical in semiconductor manufacturing, as their violations lead to quality degradation and production losses. To reduce the risk of violating queue time constraints, a key principle in queue time constraint management is controlling upstream production when downstream queue times exceed critical thresholds. Traditional control methods face challenges in accurately responding to dynamic manufacturing conditions. Our approach develops a dynamic admission control method that employs a deep neural network model to capture complex nonlinear relationships in dynamic manufacturing systems, predicting waiting times between upstream and downstream workstations as the core basis for admission decisions. We implement a two-stage system combining upstream admission control with downstream priority dispatching. Through simulation experiments in multi-machine, multi-product systems, we evaluate performance across various utilization rates and capacity configurations. Results show that our approach reduces total costs, including scrap and inventory holding costs, while maintaining optimal throughput.

Interessenten sind herzlich eingeladen.