

Opportunities and Challenges in Applying Deep Reinforcement Learning to Support Production-Inventory Planning at ASML

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Production-inventory planning is a complex task for low-volume high-tech manufacturing supply chains due to long production lead times, capacitated resources, and highly volatile and non-stationary demand. In this research, we explore the opportunities and challenges in applying deep reinforcement learning (DRL) to solve this problem at our high-tech industry partner ASML. Our first results for a reduced serial supply chain are promising, showing that the DRL algorithm outperforms canonical benchmarks and stays close to optimal in the non-stationary demand setting.