Research School for Operations
Management and Logistics

Scalable Real-Time Integrated Learning and Decision Making for Synchronized Systems
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Global demand for sustainable energy, driven by climate change, spotlights renewable energy sources such as wind energy. Offshore wind turbine farms in the North Sea offer promise due to favorable conditions. We propose a novel maintenance model, considering economic dependencies through shared setup costs and heterogeneity in turbine degradation. We differentiate between preventive and corrective maintenance, aiming to optimize discounted costs over an infinite time horizon. Contributions include an enhanced heuristic approach to learning degradation parameters through an integrated Bayes methodology. Early experiments comparing the produced policies against state-of-the-art heuristics and an oracle policy trained using Deep Reinforcement Learning with access to all distributional information demonstrate the effectiveness of the proposed policies.