

# Application of AI for supporting industrial decarbonisation: handling operational complexity with intelligent systems

Dr Mehmet Mercangoz

Applies intelligent systems to cut emissions while preserving throughput and quality across complex, multi-unit sites. Uses hybrid digital twins, online optimisation, and decision support to coordinate energy use, schedule low-carbon modes, and exploit flexibility (fuel switching, demand response, heat integration). Delivers measurable CO<sub>2</sub> reduction with auditable, operations-grade recommendations.