

Process Optimisation Using Evolutionary Computing

Large Board, Mechanical Engineering

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1:00 till 3:00



UNIVERSITY OF LEEDS

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Title: Process Optimisation Using Evolutionary Computing

Abstract:

Abstract: As industry faces the current global economic slowdown, it is looking for innovative solutions to improve its processes. Processes are traditionally improved within industry by following certain guiding principles, such as lean initiatives, business process re-engineering, total quality management and six sigma. However, most of these initiatives are manual, expensive and time-consuming due to the complex subjective nature of process re-design. This talk investigates the application of evolutionary computing for providing computer-assisted continued/automated optimisation and adaptation of processes. Process optimisation problems are complex and are characterised by their multiple stages and hierarchical nature. This talk will consist of two parts: the first part will focus on the optimisation of multi-stage production processes and the second on the optimisation of complex, non-sequential business processes. Production processes deal with product manufacture, while business processes (such as customer order taking, servicing and information exchange) support the production processes and the services offered throughout the lifecycle of a specific product. This talk will present new modeling and optimisation techniques for production and business processes. The proposed techniques identify a variety of near-optimal solutions from which one could be finally chosen based on the decision maker's preferences. It is also shown how the obtained solutions compare with previous results reported in literature and those currently used in industry.