

Yingying Yang - Profile Section

PHD Research - Yingying is keen to apply mathematics and optimization methods in real-world problems. She is passionate about solving optimization problems, algorithms and complexity.

Yingying completed her master's degree in Applied Mathematics in China. She mainly majored in Graph Theory and Combinatorial Optimisation. Her previous research focused on optimising reliability and fault tolerance of interconnect networks. The analysis of the optimal properties of large-scale networks helped engineers to design more reliable networks and to minimise the cost.

Yingying will complete her PhD with Professor Ryan Loxton and Professor Andrew Rohl at Curtin University. She will be focusing on research associated with Theme 3 - Support the Manager.

PHD Research - Optimal Maintenance Scheduling via Mathematical Programming

Yingying is focusing her PhD on developing new algorithms for optimising short- and long-term industrial maintenance schedules and determining maintenance cycle times in an interconnected system. Her work will include overcoming the dimensionality challenges in large-scale industrial optimisation problems.

A large amount of maintenance work must be conducted regularly, which may require the whole plant, or sub-units of the plant, to be taken out of service for overhauling, preventive maintenance, corrective repairs, etc. This shutdown process provides an opportunity for conducting maintenance that cannot be performed while the plant is operating, and it is a crucial maintenance strategy to restore plant processes to an optimal state. Therefore, optimised shutdown maintenance scheduling will offer companies significant efficiency gains.

Yingying will develop mathematical optimization models to minimize the total cost, and maximize synergies and profits in maintenance operations.

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