

Sandy Spiers



Sandy Spiers

PhD Student

Theme 3

PHD Research - Sandy has a background in optimisation, both in application and theory. He is well versed in the building and application of mathematical models that replicate scheduling decisions, both in the deterministic case and when uncertainties should be included. These models often pose computationally intensive challenges and hence require well developed solution algorithms. Sandy plans to focus his theoretical work on building solution algorithms for discrete programs, a class of optimisation problem that is common in industry.

Industry research - areas of interest:

- Mathematical optimisation and modelling, especially discrete and stochastic optimisation
- How to model the maintenance scheduling of complicated, network-connected assets

Publications

- [Bayer digestion maintenance optimisation with lazy constraints and Benders decomposition \(...\)](#) —

Journal Article

Sandy Spiers

Authors: Sandy Spiers, Hoa T. Bui, Ryan Loxton, Moussa Reda Mansour, Kylie Hollins, Richard Francis, Christopher Martindale, Yogesh Pimpale

2023-09-16

- [An exact cutting plane method for solving p-dispersion-sum problems \(...\)](#) —

Journal Article

Sandy Spiers

Authors: Sandy Spiers, Hoa T. Bui, Ryan Loxton

2022-07-22

Presentations

- [An exact cutting plane algorithm for the Euclidean Max-Sum Diversity Problem \(...\)](#) —



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2024-02-16

- [WOMBAT 2023 - Cutting Plane Methods are Exact for Euclidean Max-Sum Problems \(...\)](#) —

effectively and accurately

Sandy is skilled programmer, with experience in Python, R, MATLAB and Gams. He completed his Honours Thesis with the Centre; Sandy's research Thesis is Maintenance Optimisation for Network-Connected Assets

Sandy will complete his PhD with Professor Ryan Loxton and Dr Hoa Bui at Curtin University. He will be focusing on research associated with Theme 3 - Support the Manager.

PHD Research - Maintenance Optimisation for Network Connected Assets

Sandy is focussing his research on optimising maintenance strategies for network connected assets. Sandy will build a maintenance optimisation model for a critical path asset where redundancy maintenance strategies are common.

His initial focus will be on Digester banks; a connected network of assets used in production and subject to several scheduling complexities. While his research will look at a specific fleet of digester banks, many of the key contributions are transferrable to other assets and systems in the resources industry.

His outcomes will apply to any asset systems that use redundant assets to mitigate risks and where hard scheduling constraints govern maintenance activities

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Theme 3

2023-12-11

- [Understanding the Difficulties of Optimisation \(...\)](#) —



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Theme 3

2023-10-20

- [Maintenance Optimisation for Network Connected Assets \(...\)](#) —



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Theme 3

2021-08-27

- [An exact cutting plane method for the Euclidean Max-Sum Diversity Problem \(...\)](#) —



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Theme 3

2023-07-13

- [Optimal maintenance scheduling for Alcoa digester banks \(...\)](#) —



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Theme 3

2022-06-03

Awards and Prizes

- [2020 Best Mathematics and Statistics 4th Year/Honours Student Award \(...\)](#)
- [SigmaOPT Best Student Paper Prize \(...\)](#)

Tools

Content by label

There is no content with the specified labels