OPTiMA

ARC TRAINING CENTRE IN OPTIMISATION TECHNOLOGIES INTEGRATED METHODOLOGIES AND APPLICATIONS

GRADUATE RESEARCHERS CONFERENCE 2023

Conference Program

Monday 29 May 2023

8:30 am - 9:00 am	**Registration and Coffee** **Level 7 - Manhari room**	
9:00 am - 9:30 am	**Welcome** **Keynote Address: Prof. Kate Smith-Miles & Prof. Peter Stuckey** **Level 7 - Manhari room**	
9:30 am -10:30 am	**Keynote: Assoc. Prof. Jen Martin** **Science Communication** **Level 7 - Manhari room**	
10:30 am -10:45 am	**Tea Break** **Level 7 - Manhari room**	
10:45 am - 12:00 pm	**Presentations Session 1 Stream 1** **Level 7 - Manhari room**	**Presentations Session 1 Stream 2** **Level 7 - Conference room 7320**
	Braden Kidd A novel peer to peer distributed energy trading system accounting for distribution losses and constraints	**Hajar Sadegh Zadeh** Data-Driven Preventive Planning of Surgeries in Flexible Operating Rooms Using Stochastic Optimization
	Rehan Mendis Optimal deployment of smart meters and monitoring devices in water networks	**Jae Myeong Lee** A Computational Approach to the k-Steiner Tree Problem
	Yi Zhen Multi-objective optimization in urban water systems	**Ruth-Emely Pierau** Distributed Acoustic Sensing based on fibre sensors integrated with spatio-temporal object detection on hyper-spectral images for fence installation and buried system monitoring
	Vincent Barbosa Vaz Predict-and-Optimise Strategies at Treatment Plant	**Harry McArthur** Preserving Privacy while Publishing Information
12:00 pm - 12:30 pm	**Posters Session** **Level 7 - Manhari room**	
12:30 pm - 1:15 pm	**Lunch Break** **Level 7 - Kitchen area**	
1:15 pm - 2:45 pm	**Presentations Session 2** **Level 7 - Manhari room**	
	Helani Chathurika Wickramaarachchi Wickramaarachchilage Collaborative Multi-Agent Multi-objective Reinforcement Learning with Dynamic Target Localization: A Reward Sharing Approach	

	Sameela Wijesundara Domain Specific Languages for Optimisation Modelling
	Anthony Rasulo Exploring Racing Methods for the Automatic Construction of Synergistic Portfolios of Algorithm Configurations
	Hritika Gupta Expected Number of Call Abandonments in a Call Centre
	Amin Karimi Two-echelon vehicle routing problem with delivery options under a stochastic environment
2:45 pm - 3:00 pm	**Tea Break** **Level 7 - Manhari room**
3:00 pm - 5:00 pm	**Workshop: Prof. Andreas Ernst & Assoc. Prof. Alysson M. Costa** **Benders Decomposition Tutorial** **Level 7 - Manhari room**
	Mixed-Integer Programming (MIP) is a highly effective method for solving optimisation problems. The remarkable progress made by MIP solvers such as CPLEX and GUROBI in the last three decades has resulted in the widespread use of the technique as the approach of choice for tackling many industrial applications. The complexity of some industrial applications exceeds the capabilities of these solvers. In order to advance the use of MIP, decomposition techniques are a popular approach. These methods divide the problem into smaller sub-problems that fall into the solvers reach. Benders decomposition is one of the most successful techniques in this regard. In this workshop, we provide a gentle introduction to the core concepts of Benders decomposition. This includes a hands-on tutorial on implementing an algorithm for a toy problem. In the second part of the workshop, we will discuss recent advances in the field and exemplify how the technique can be applied to solve large-scale industrial problems. Participants are requested to bring their laptops and register for an account at Google Colaboratory (https://colab.research.google.com/) to participate in the hands-on tutorial.
5:00 pm - 6:00 pm	**Closing Ceremony and Refreshments** **Level 7 - Manhari room**