



Western Australian Centre of Excellence
in Industrial Optimisation



Report on the Industrial Optimisation Symposium and 9th Australian Optimisation Day held at Curtin University of Technology, Perth, Western Australia, September 30 – October 3, 2002.

The meeting was hosted and organised by the Western Australian Centre of Excellence in Industrial Optimisation (WACEIO). The Symposium will become a regular (perhaps annual) event sponsored by WACEIO. The aim is to provide a forum for the exchange of ideas and information between users and developers of optimisation technology. The theme of the Symposium extends to both the practical and fundamental aspects of industrial optimisation. The inaugural Symposium was a great success thanks to the participants. The Optimisation Day continued the great tradition of the previous eight meetings.

Over the four days we had 6 invited talks and 44 contributed papers which spanned all areas of optimisation: theory, method and applications. The papers are listed below. A full conference proceedings and two special publications (Journal volume plus a book) will result.

Key Note Lectures	
Lou Caccetta Application of Optimisation Techniques in open pit mining.	
Peter Fleming Managing Competing Objectives using evolutionary multicriteria optimisation.	
Kees Roos Robust truss topology design by means of cone optimisation.	
Alexander Rubinov Clustering via nonsmooth and global optimisation	
Bruno Simeone How to make – and maintain – Industrial Optimisation Specialists	
Professor Kok Lay Teo Control Parameterization Enhancing Technique and Optimal Control Problems with Best Observation Time Points and Multiple Characteristic Time Points in the Cost and Constraint Functions	
Presenter	Contributed Paper
Nadejda Soukhoroukova	A new algorithm to find a shape of a finite set of points.
XQ Yang	A Solution Method for Generalized Semi-Infinite Programming
Zhonghau Tang	An optimisation model for recovering petroleum by using horizontal wells
Roger Collinson	Capacitated Vehicle Routing Problem: Subtour Elimination Constraints and a Related Maximum Flow Problem.

Ventsi Rumchev	Constructing reachable sets of discrete-time positive linear systems: the neural networks approach.
YH Leung	Direction-of-arrival estimation with non-ideal uniform Circular Arrays
Siarhei Dymkou	Discrete approximations for nonsmooth control optimal problem with max-min constraints.
Musa Mamedov	Dynamical Systems based on a Fuzzy Derivative and its applications to data classification.
Ian Wright	Estimation of Process and Observation Volatility in Fisheries State Space Models
Sven Nordholm	Filter Bank Optimization for Delay-less Multi-rate Equalizers
Wei Rong Lee	FIR Filter Design with Powers-of-Two Coefficients and Least Square Criterion
Jiapu Zhang	Hybrid simulated annealing and discrete gradient method for global optimisation.
Zari Dzalilov	Mathematical models of dynamic reconfiguration of Telecommunication Networks
Wolfgang Ernst	Mathematical Programming of Individual Consumer Behaviour: a proposition for urban traffic assignment.
Adil Bagirov	Max-min separability
Peter Lee	Modelling alternatives for scheduling mixed batch/continuous process plants with variable cycle time
Monty Craine	Modelling the spatial distribution of the prawn fisheries in Shark Bay, Western Australia, by seasonal autoregressive moving average models.
CC Lim	Multi-Class Image Recognition Using Dual-nu Support Vector Machines
Yong Hong Wu	Numerical Solution of an Inverse Stefan problem Using Mathematical Programming
Long Jia	Optimisation in Telecommunication Network Maintenance.
Henry Cheng	Predicting the Australia wool auction price by tree-based regression
Tom Mason	Production forecasting/Planning and optimisation in the North West Shelf venture.
Julien Ugon	Queueing programming models in Telecommunication Network Maintenance.
Adrian Thompson	Reducing the effect of non-response bias in estimating ratios from mail surveys
NR Achuthan	Resource Constrained Project Scheduling Problem with Discounted Cash Flows
Xian Zhou	Scheduling with Multi-processor Jobs
Sharlene Andrijich	Solving the Multisensor Data Association Problem
Soonyi Wu	Solving Variational Inequalities Defined on A Domain with Infinitely Many Linear Constraints
EK Lai	Time series modelling for south and west coastal finfish fisheries of Western Australia and implications for management.

Presenter	Optimisation Day Paper
Adil Bagirov	An approximate bundle method.
Phil Howlett	Application of Laguerre polynomials to the generation of synthetic rainfall data.
Andrew Eberhard	Finding an Initial Feasible Point for Interior Point Methods.
Wamiliana	Heuristics Algorithms for The Degree Constrained Minimum Spanning Tree Problems

Kees Roos	New search directions for primal-dual interior-point methods.
Adil Bagirov	Nonlinear penalty functions with a small penalty parameter: numerical experiments
Alexander Rubinov	On augmented Lagrangians for optimisation problems with a single constraint.
Volker Rehbock	Optimal Design and Operation of Hybrid Power Systems.
Lou Caccetta	Optimal Paths in Time Constrained Networks
Alexander Rubinov	Penalty functions with a small exact penalty parameters: theory
XQ Yang	Penalty Type Methods for Mathematical Programs with Complementarity Constraints.
Nadejda Soukhoroukova	Polynomial Splines and Data Approximation.
Charles Pearce	Quasiconvexity, fractional programming and teletraffic congestion.
Bruno Simeone	Special classes of path covering problems in graphs: algorithms and complexity.
Musa Mamedov	Turnpike Theorem for Nonconvex Continuous-time Control Systems.

The Symposium dinner was held at the Boatshed Restaurant where, in addition to delicious food and fine wine, delegates enjoyed the fabulous views of the Swan River and the City of Perth.

I warmly thank all the participants for their participation and assistance.

Lou Caccetta