# SEAL'08 Program

| Program at a glance | | |
|---|---|---|
| **December 7, Sunday** | | |
| 8:30 – 17:30 | Registration at Lobby, ICT Building, 111 Barry Street. | |
| 8:30 – 10:10 | Tutorial: ***Recent Trends in Evolutionary Multi-Objective Optimization***, Professor Kalyanmoy Deb, Indian Institute of Technology Kanpur and Helsinki School of Economics | |
| 10:10 – 10:30 | Coffee Break | |
| 10:30 – 12:10 | Tutorial: ***Puzzle-Based Learning***, Professor Zbigniew Michalewicz, University of Adelaide | |
| | Tutorial: ***Evolving and Designing Neural Network Ensembles***, Professor Xin Yao, University of Birmingham | |
| 14:00 – 15:40 | Tutorial: ***Getting Evolution to Solve your Practical Problems***, Professor Hussein Abbass, University of New South Wales | |
| 15:40 – 16:00 | Coffee Break | |
| 16:00 – 17:40 | Tutorial: ***Immunological Computation***, Professor Dipankar Dasgupta, University of Memphis | |
| **December 8, Monday** | | |
| 9:00 – 9:40 | SEAL'08 Opening Ceremony | |
| 9:40 – 10:40 | Keynote speech: ***The Future of Intelligent Systems is Non-Dominance***, Professor Hussein Abbass, University of New South Wales | |
| 10:40 – 11:00 | Coffee Break | |
| 11:00 – 12:00 | Keynote speech: ***Cooperative Coevolution for Large Scale Evolutionary Optimisation***, Professor Xin Yao, University of Birmingham | |
| **Parallel sessions** | A | B |
| 14:00 – 16:00 | Mon-Pm-A1 | Mon-Pm-B1 |
| 16:00 – 16:20 | Coffee break | |
| 16:20 – 18:00 | Mon-Pm-A2 | Mon-Pm-B2 |
| 18:30 – 20:30 | Welcome Reception | |
| **December 9, Tuesday** | | |
| 8:30 – 9:30 | Keynote speech: ***Reliability Based Optimization for Handling Uncertainty in Evolutionary Algorithms***, Professor Kalyanmoy Deb, Indian Institute of Technology Kanpur and Helsinki School of Economics | |
| 9:30 – 10:00 | Coffee Break | |
| **Parallel sessions** | A | B |
| 10:00 – 12:00 | Tue-Am-A1 | Tue-Am-B1 |
| 14:00 – 15:00 | Keynote speech: ***The Future of Business Intelligence***, Professor Zbigniew Michalewicz, University of Adelaide | |
| 15:00 – 15:20 | Coffee Break | |
| **Parallel sessions** | A | B |

| | | |
|---|---|---|
| 15:20 – 17:20 | Tue-Pm-A1 | Tue-Pm-B1 |
| **December 10, Wednesday** | | |
| **Parallel sessions** | A | B |
| 8 :30 – 10 :10 | Wed-Am-A1 | Wed-Am-B1 |
| 10:10 – 10:30 | Coffee Break | |
| 10 :30 – 12 :10 | Wed-Am-A2 | Wed-Am-B2 |

## December 8, Monday

| Session Mon-Pm-A1: **Evolutionary Learning I**<br>December 8, Monday, 14:00-16:00 Chair: Gary Greenfield | | |
|---|---|---|
| Time | Paper ID | Title/Author(s) |
| 14:00 – 14:20 | 14 | *Modelling Behaviour Cycles for Life-Long Learning in Motivated Agents*<br>Kathryn Merrick |
| 14:20 – 14:40 | 38 | *Emergent Instinctive Behaviour in Evolved Neuro-inspired Agents*<br>Gul Muhammad Khan, Julian Miller, and David M. Halliday |
| 14:40 – 15:00 | 97 | *Evolving an Ensemble of Neural Networks Using Artificial Immune Systems*<br>Bruno Barbosa, Lam Bui, Hussein Abbass, Luis Aguirre, and Antonio Braga. |
| 15:00 – 15:20 | 66 | *Evolved Look-Up Tables for Simulated DNA Controlled Robots*<br>Gary Greenfield |
| 15:20 – 15:40 | 68 | *Multi-Objective Improvement of Software Using Co-evolution and Smart Seeding*<br>Andrea Arcuri, David White, John Clark, and Xin Yao |
| 15:40 – 16:00 | 80 | *A PSO Based AdaBoost Approach to Object Detection*<br>Ammar Mohemmed, Mengjie Zhang, and Mark Johnston |

| Session Mon-Pm-B1: **Numerical Optimization I**<br>December 8, Monday, 14:00-16:00 Chair: Tim Hendtlass | | |
|---|---|---|
| Time | Paper ID | Title/Author(s) |
| 14:00 – 14:20 | 69 | *Information Theoretic Classification of Problems for Metaheuristics*<br>Kent C. B. Steer, Andrew Wirth, and Saman Halgamuge |
| 14:20 – 14:40 | 20 | *An Island Based Hybrid Evolutionary Algorithm for Optimization*<br>Changhe Li and Shengxiang Yang |
| 14:40 – 15:00 | 51 | *A New Approach to Adapting Control Parameters in Differential Evolution Algorithm*<br>Liang Feng, Yin-Fei Yang, and Yu-Xuan Wang |
| 15:00 – 15:20 | 57 | *A Novel Genetic Algorithm with Orthogonal Prediction for Global Numerical Optimization*<br>Jun Zhang, Jing-hui Zhong, and Xiao-Min Hu |
| 15:20 – 15:40 | 109 | *Improving the Performance and Scalability of Differential Evolution*<br>Antony Iorio and Xiaodong Li |
| 15:40 – 16:00 | 140 | *A Weighted Local Sharing Technique for Multimodal Optimisation*<br>Grant Dick and Peter Whigham |

| Session Mon-Pm-A2: **Multiobjective Optimization**<br>December 8, Monday, 16:20-18:00 Chair: Hernan Aguirre | | |
|---|---|---|
| 16:20 – 16:40 | 17 | *Improving NSGA-II Algorithm Based on Minimum Spanning Tree*<br>Miqing Li, Jinhua Zheng, and Jun Wu |
| 16:40 – 17:00 | 29 | *Reference Point-Based Particle Swarm Optimization Using a Steady-State Approach*<br>Richard Allmendinger, Xiaodong Li, and Jürgen Branke |
| 17:00 – 17:20 | 81 | *Discussion of Search Strategy for Multi-objective Genetic Algorithm with Consideration of Accuracy and Broadness of Pareto Optimal Solutions*<br>Tomoyuki Hiroyasu, Masashi Nishioka, Mitunori Miki, and Hisatake Yokouchi |
| 17:20 – 17:40 | 107 | *A Study on the Performance of Substitute Distance Based Approaches for Evolutionary Many Objective Optimization*<br>Hemant Singh, Amitay Isaacs, Tapabrata Ray, and Warren Smith |
| 17:40 – 18:00 | 115 | *Robust Optimization by ε-ranking on High Dimensional Objective Spaces*<br>Hernan Aguirre and Kiyoshi Tanaka |

| Session Mon-Pm-B2: **Adaptive Systems and Theoretical Issues in EC**<br>December 8, Monday, 16:20-18:00 Chair: Per Kristian Lehre | | |
|---|---|---|
| Time | Paper ID | Title/Author(s) |
| 16:20 – 16:40 | 30 | *Genetic Synthesis of Software Architecture*<br>Outi Räihä, Kai Koskimies and Erkki Mäkinen |
| 16:40 – 17:00 | 43 | *Dual Phase Evolution and Self-Organisation in Networks*<br>Gregory Paperin, David Green, and Tania Leishman |
| 17:00 – 17:20 | 59 | *Heterogeneous Payoffs and Social Diversity in the Spatial Prisoner's Dilemma Game*<br>Golriz Rezaei and Michael Kirley |
| 17:20 – 17:40 | 127 | *Crossover can be constructive when computing unique input output sequences*<br>Per Kristian Lehre and Xin Yao |
| 17:40 – 18:00 | 48 | *Parameter Tuning of Real-valued Crossover Operators for Statistics Preservation*<br>Hiroshi Someya |

## December 9, Tuesday

| Session Tue-Am-A1: **Numerical Optimization II**<br>December 9, Tuesday, 10:00-12:00 Chair: Hisao Ishibuchi | | |
|---|---|---|
| Time | Paper ID | Title/Author(s) |
| 10:00 – 10:20 | 15 | *Generalized Extremal Optimization for Solving Multiprocessor Task Scheduling Problem*<br>Piotr Switalski and Franciszek Seredynski |
| 10:20 – 10:40 | 83 | *Discussion of Offspring Generation Method for interactive Genetic Algorithms with Consideration of Multimodal Preference*<br>Fuyuko Ito, Tomoyuki Hiroyasu, Mitunori Miki, and Hisatake Yokouchi |
| 10:40 – 11:00 | 122 | *An Evolutionary Method for Natural Language to SQL*<br>Leonardo Brito, Alexandre Afonso, and Oto Vale |
| 11:00 – 11:20 | 67 | *Use of Local Ranking in Cellular Genetic Algorithms with Two Neighborhood Structures*<br>Hisao Ishibuchi, Noritaka Tsukamoto, and Yusuke Nojima |
| 11:20 – 11:40 | 104 | *A Generalized Approach to Construct Benchmark Problems for Dynamic Optimization*<br>Changhe Li and Shengxiang Yang |
| 11:40 – 12:00 | 42 | *A Generator for Multimodal Function Optimization*<br>Jani Rönkkönen, Xiaodong Li, Ville Kyrki, and Jouni Lampinen |

| Session Tue-Am-B1: **Swarm Intelligence**<br>December 9, Tuesday, 10:00-12:00 Chair: Krzysztof Trojanowski | | |
|---|---|---|
| Time | Paper ID | Title/Author(s) |
| 10:00 – 10:20 | 22 | *A Particle Swarm Optimization Based Algorithm for Fuzzy Bilevel Decision Making with Objective-Shared Followers*<br>Ya Gao, Guangquan Zhang, and Jie Lu |
| 10:20 – 10:40 | 45 | *Choosing Leaders for Multi-objective PSO Algorithms using Differential Evolution*<br>Upali Wickramasinghe and Xiaodong Li |
| 10:40 – 11:00 | 49 | *Hybrid Particle Swarm Optimization Based on Thermodynamic Mechanism*<br>Yu Wu, Yuanxiang Li, Xing Xu, and Sheng Peng |
| 11:00 – 11:20 | 87 | *Adaptive Non-uniform Distribution of Quantum Particles in mQSO*<br>Krzysztof Trojanowski |
| 11:20 – 11:40 | 100 | *General Game Playing with Ants*<br>Shiven Sharma, Ziad Kobti , and Scott Goodwin |
| 11:40 – 12:00 | 113 | *Performance Evaluation of an Adaptive Ant Colony Optimization Applied to Single Machine Scheduling*<br>Davide Anghinolfi, Antonio Boccalatte, Massimo Paolucci, and Christian Vecchiola |

| Session Tue-Pm-A1: **Combinatorial Optimization**<br>December 9, Tuesday, 15:20-17:20 Chair: Marcus Randall | | |
|---|---|---|
| Time | Paper ID | Title/Author(s) |
| 15:20 – 15:40 | 34 | *Extremal Optimisation and Bin Packing*<br>Tim Hendtlass and Marcus Randall |
| 15:40 – 16:00 | 35 | *Extremal Optimisation with a Penalty Approach for the Multidimensional Knapsack Problem*<br>Pedro Gomez-Meneses and Marcus Randall |
| 16:00 – 16:20 | 52 | *Multiagent Evolutionary Algorithm for T-coloring Problem*<br>Jing Liu, Weicai Zhong, and Jinshu Li |
| 16:20 – 16:40 | 95 | *Solving Very Difficult Japanese Puzzles with a Hybrid Evolutionary-Logic Algorithm*<br>Emilio G. Ortiz-Garcia, Sancho Salcedo-Sanz, Angel M. Perez-Bellido, Antonio Portilla-Figueras, and Xin Yao |
| 16:40 – 17:00 | 124 | *Attributes of Dynamic Combinatorial Optimisation*<br>Philipp Rohlfshagen and Xin Yao |
| 17:00 – 17:20 | 72 | *Task Decomposition for Optimization Problem Solving*<br>Ehab Elfeky, Ruhul Sarker, and Daryl Essam |

| Session Tue-Pm-B1: **Genetic Programming**<br>December 9, Tuesday, 15:20-17:20 Chair: Jing Liu | | |
|---|---|---|
| Time | Paper ID | Title/Author(s) |
| 15:20 – 15:40 | 41 | *Hybrid Genetic Programming for Optimal Approximation of High Order and Sparse Linear Systems*<br>Jing Liu, Wenlong Fu, and Weicai Zhong |
| 15:40 – 16:00 | 62 | *Non-Photorealistic Rendering Using Genetic Programming*<br>Perry Barile, Vic Ciesielski, and Karen Trist |
| 16:00 – 16:20 | 79 | *Using Numerical Simplification to Control Bloat in Genetic Programming*<br>David Kinzett, Mengjie Zhang, and Mark Johnston |
| 16:20 – 16:40 | 108 | *Parameterised Indexed FOR-Loops in Genetic Programming and Regular Binary Pattern Strings*<br>Gayan Wijesinghe and Vic Ciesielski |
| 16:40 – 17:00 | 137 | *Genetic Programming for Feature Ranking in Classification Problems*<br>Kourosh Neshatian, Mengjie Zhang, and Peter Andreae |
| 17:00 – 17:20 | 46 | *Comparison between Genetic Algorithm and Genetic Programming Performances for Photomosaics Generation*<br>Shahrul Badariah Mat Sah, Vic Ciesielski, Daryl D'Souza, and Marsha Berry |

## December 10, Wednesday

| Session Wed-Am-A1: **Hybrid Learning**<br>December 10, Wednesday, 8:30-10:10 Chair: Russell Webb | | |
|---|---|---|
| Time | Paper ID | Title/Author(s) |
| 8:30 – 8:50 | 76 | *Pattern Learning and Decision Making in a Photovoltaic System*<br>Rongxin Li and Peter Wang |
| 8:50 – 9:10 | 91 | *Horn Query Learning with Multiple Refinement*<br>Josefina Sierra and Josefina Santibáñez. |
| 9:10 – 9:30 | 92 | *Evolving Digital Circuits in an Industry Standard Hardware Description Language*<br>Jamie Cullen |
| 9:30 – 9:50 | 132 | *Hierarchical Fuzzy Control for the Inverted Pendulum over the Set of Initial Conditions*<br>Juliusz Zajaczkowski and Brijesh Verma |
| 9:50 – 10:10 | 145 | *Time Series Prediction with Evolved, Composite Echo State Networks*<br>Russell Webb |

| Session Wed-Am-B1: **Real World Applications I**<br>December 10, Wednesday, 8:30-10:10 Chair: Cara MacNish | | |
|---|---|---|
| Time | Paper ID | Title/Author(s) |
| 8:30 – 8:50 | 32 | *Genetic Algorithm Based Methods for Identification of Health Risk Factors Aimed at Preventing Metabolic Syndrome*<br>Topon Kumar Paul, Ken Ueno, Koichiro Iwata, Toshio Hayashi, and Nobuyoshi Honda |
| 8:50 – 9:10 | 47 | *Genetic Vector Quantizer Design on Reconfigurable Hardware*<br>Ting-Kuan Lin, Hui-Ya Li, Wen-Jyi Hwang, Chien-Min Ou, and Sheng-Kai Weng |
| 9:10 – 9:30 | 71 | *Computational Intelligence in Radio Astronomy: Using Computational Intelligence Techniques to Tune Geodesy Models*<br>Daniel Angus and Adam Deller |
| 9:30 – 9:50 | 96 | *Joint Multicast Routing and Channel Assignment in Multiradio Multichannel Wireless Mesh Networks using Simulated Annealing*<br>Hui Cheng and Shengxiang Yang |
| 9:50 – 10:10 | *93* | *An Efficient Hybrid Algorithm for Optimization of Discrete Structures*<br>Amitay Isaacs, Tapabrata Ray, and Warren Smith |

| Session Wed-Am-A2: **Evolutionary Learning II**<br>December 10, Wednesday, 10:30-12:10 Chair: Rongxin Li | | |
|---|---|---|
| Time | Paper ID | Title/Author(s) |
| 10:30 – 10:50 | 75 | *Policy Evolution with Grammatical Evolution*<br>Yow Tzu Lim, Pau Chen Cheng, John Clark, and Pankaj Rohatgi |
| 10:50 – 11:10 | 89 | *Genetically Evolved Fuzzy Rule-Based Classifiers and Application to Automotive Classification*<br>Teck Wee Chua and Woei Wan Tan |
| 11:10 – 11:30 | 90 | *Improving XCS Performance by Distribution*<br>Urban Richter, Holger Prothmann, and Hartmut Schmeck |
| 11:30 – 11:50 | 60 | *Phylogeny Inference Using a Multi-objective Evolutionary Algorithm with Indirect Representation*<br>Md. Rafiul Hassan, M. Maruf Hossain, C. K. Karmakar, and Michael Kirley |
| 11:50 – 12:10 | 116 | *A Fuzzy-GA Decision Support System for Enhancing Postponement Strategies in Supply Chain Management*<br>Cassandra X.H. Tang and Henry C.W. Lau |

| Session Wed-Am-B2: **Real World Applications II**<br>December 10, Wednesday, 10:30-12:10 Chair: Jun Zhang | | |
|---|---|---|
| Time | Paper ID | Title/Author(s) |
| 10:30 – 10:50 | 12 | *Solving the Delay-Constrained Capacitated Minimum Spanning Tree Problem using a Dandelion-encoded Evolutionary Algorithm*<br>Angel Perez-Bellido, Sancho Salcedo-Sanz, Emilio Ortiz-Garcia, Antonio Portilla-Figueras, and Maurizio Naldi. |
| 10:50 – 11:10 | 56 | *Power Electronic Circuits Design: A Particle Swarm Optimization Approach*<br>Jun Zhang, Yuan Shi, and Zhi-hui Zhan |
| 11:10 – 11:30 | 114 | *Evolutionary Multi-Objective Optimization for Biped Walking*<br>Toshihiko Yanase and Hitoshi Iba |
| 11:30 – 11:50 | 121 | *A Method for Assigning Men and Women with Good Affinity to Matchmaking Parties through Interactive Evolutionary Computation*<br>Sho Kuroiwa, Yoshihiro Murata, Tomoya Kitani, Keiichi Yasumoto, and Minoru Ito |