

## Tuesday, 25 September 2007

Time 08:15–11:00 hrs  
Tutorial 1 Evolutionary Computation: A Unified Approach  
*Kenneth A. De Jong*  
Venue Enterprise

Time 08:15–11:00 hrs  
Tutorial 2 Evolutionary Computation in Finance and Economics  
*Edward Tsang*  
Venue Mercury

Time 08:15–11:00 hrs  
Tutorial 3 From Evolving Single Neural Networks to Evolving Ensembles  
*Xin Yao*  
Venue Minto

Lunch Break 11:00–12:00 hrs

Time 12:00–14:45 hrs  
Tutorial 4 Evolving Soccer Teams for RoboCup Simulation  
*Tomoharu Nakashima*  
Venue Enterprise

Time 12:00–14:45 hrs  
Tutorial 5 Evolutionary Computation in Bioinformatics  
*Gary Fogel and Kay Wiese*  
Venue Mercury

Time 12:00–14:45 hrs  
Tutorial 6 Evolutionary Multi-Criterion Optimization (EMO): Fundamentals, State-of-the-art Methodologies and Future Challenges  
*Kalyanmoy Deb*  
Venue Minto

Tea Break 14:45–15:15 hrs

Time 15:15–18:00 hrs  
Tutorial 7 Adaptive Business Intelligence – Evolutionary Computation for Real World Problems  
*Zbigniew Michalewicz*  
Venue Enterprise

*Technical Program*

Time 15:15–18:00 hrs  
Tutorial 8 Genetic Programming Practice and Theory  
*Riccardo Poli*  
Venue Mercury

Time 15:15–18:00 hrs  
Tutorial 9 Particle Swarm Optimization and Differential Evolution  
*Ponnuthurai Nagaratnam Suganthan*  
Venue Minto

Welcome Reception @ River Room at Asian Civilisations Museum

19:00 hrs

## Wednesday, 26 September 2007

Time Opening Ceremony  
08:00–08:30 hrs  
Venue Stamford Ballroom

Time 08:30–09:30 hrs  
Keynote 1 A Rigorous Theoretical Framework for Measuring Generalisation of Co-evolutionary Learning  
*Xin Yao*  
Venue Stamford Ballroom

Tea Break @ Stamford Foyer & Bencoolen Room

09:30–10:30 hrs

Time 10:30–11:30 hrs  
Invited Talk 1 Evolvable Artificial Creature  
*Jong-Hwan Kim*  
Venue Stamford Ballroom

Time 11:30–12:30 hrs  
Invited Talk 2 Hidden (Tabu) Secrets of Successful Evolutionary Search Methods  
*Peng-Yeng Yin and Fred Glover*  
Venue Stamford Ballroom

**Session** Evolutionary Data Mining – Part I  
**Date/Time** Wednesday, 26 September 2007 / 10:30 – 12:30 hrs  
**Venue** Orchard  
**Chair(s)** Maoguo Gong and Kevin Seppi

10:30 [1399] A Modified Approach to Speed up Genetic-Fuzzy Data Mining with Divide-and-Conquer Strategy  
*Chun-Hao Chen, Tzung-Pei Hong and Vincent S. Tseng*

## Technical Program

- 10:50 [1802] Parallel PSO Using Map Reduce  
*Andrew W. McNabb, Christopher K. Monson and Kevin D. Seppi*
- 11:10 [1656] Solving Multiobjective Clustering Using an Immune-Inspired Algorithm  
*Maoguo Gong, Lining Zhang, Licheng Jiao and Shuiping Gou*
- 11:30 [1757] Symbolic Regression of Discontinuous and Multivariate Functions by Hyper-Volume Error Separation (HVES)  
*Cyril Fillon and Alberto Bartoli*
- 11:50 [1285] Genetic Programming-Based Clustering Using an Information Theoretic Fitness Measure  
*Neven Boric and Pablo A. Estévez*
- 12:10 [1179] Evolutionary Data Mining of Digital Logic and the Effects of Uncertainty  
*James F. Smith*

**Session** Representation & Operators  
**Date/Time** Wednesday, 26 September 2007 / 10:30 – 12:30 hrs  
**Venue** Enterprise  
**Chair(s)** Daniel Tauritz and Shengxiang Yang

- 10:30 [1278] Implicit Alternative Splicing for Genetic Algorithms  
*Philipp Rohlfshagen and John A. Bullinaria*
- 10:50 [1229] An Efficient Genetic Algorithm with Uniform Crossover for the Multi-Objective Airport Gate Assignment Problem  
*X. B. Hu and E. Di Paolo*
- 11:10 [1485] Toward Automating EA Configuration: The Parent Selection Stage  
*Ekaterina Smorodkina and Daniel Tauritz*
- 11:30 [1449] Parameter Calibration Using Meta-Algorithms  
*W. A. de Landgraaf, A. E. Eiben and V. Nannen*
- 11:50 [1599] Self-Adaptation of Mutation Distribution in Evolutionary Algorithms  
*Renato Tinós and Shengxiang Yang*
- 12:10 [1770] A Fractal Representation for Real Optimization  
*Daniel Ashlock and Justin Schonfeld*

**Session** sp05: Evolutionary Algorithms Based on Probabilistic Models – Part I  
**Date/Time** Wednesday, 26 September 2007 / 10:30 – 12:30 hrs  
**Venue** Moor  
**Chair(s)** Qingfu Zhang and José Antonio Lozano

- 10:30 [1517] On the Diversity of Diversity  
*David Wallin and Conor Ryan*
- 10:50 [1547] Efficient Relevance Estimation and Value Calibration of Evolutionary Algorithm Parameters  
*Volker Nannen and A. E. Eiben*
- 11:10 [1124] Reducing Computational Complexity of Estimating Multivariate Histogram-Based Probabilistic Model  
*Nan Ding, Ji Xu, Shude Zhou and Zengqi Sun*
- 11:30 [1929] Estimation of Distribution Algorithms with Niche Separation Mechanism  
*Hisashi Handa*
- 11:50 [1744] Bayesian Inference in Estimation of Distribution Algorithms  
*Marcus Gallagher, Ian Wood, Jonathan Keith and George Sofronov*
- 12:10 [1506] Hierarchical Importance Sampling Instead of Annealing  
*Takayuki Higo and Keiki Takadama*



**Session** sp02: Ant Colony Optimization  
**Date/Time** Wednesday, 26 September 2007 / 10:30 – 12:30 hrs  
**Venue** Mercury  
**Chair(s)** Hai-Bin Duan and Jurij Silc

- 10:30 [1245] An Ant-Based Algorithm for Annular Sorting  
*Martyn Amos and Oliver Don*
- 10:50 [1741] Experimental Study of the Adjustable Parameters in Basic Ant Colony Optimization Algorithm  
*Haibin Duan, Guanjun Ma and Senqi Liu*
- 11:10 [1214] The Differential Ant-Stigmergy Algorithm: An Experimental Evaluation and a Real-World Application  
*Peter Korošec, Jurij Šilc, Klemen Oblak and Franc Kosel*
- 11:30 [1672] A Boundary Search based ACO Algorithm Coupled with Stochastic Ranking  
*Guillermo Leguizamón and Carlos A. Coello Coello*
- 11:50 [1219] Solving Quadratic Assignment Problems with the Cunning Ant System  
*Shigeyoshi Tsutsui and Lichi Liu*
- 12:10 [1512] A Comprehensive Formal Framework for Analyzing the Behavior of Nature-Inspired Routing Protocols  
*Saira Zahid, Muhammad Shahzad, Syed Usman Ali and Muddassar Farooq*



**Session** sp15: Evolutionary Computation in Finance and Economics – Part I  
**Date/Time** Wednesday, 26 September 2007 / 10:30 – 12:30 hrs  
**Venue** Morrison  
**Chair(s)** Pedro Isasi and Edward Tsang

- 10:30 [1998] Evolutionary Computation and Economic Time Series Forecasting  
*V. Sharma and D. Srinivasan*
- 10:50 [1706] Modelling Cost into a Genetic Algorithm-Based Portfolio Optimization System by Seeding and Objective Sharing  
*C. Aranha and H. Iba*
- 11:10 [1994] A Realistic Approach to Evolutionary Multiobjective Portfolio Optimization  
*S. C. Chiam, A. Al Mamun and Y. L. Low*
- 11:30 [1718] Use of Heuristic Rules in Evolutionary Methods for the Selection of Optimal Investment Portfolios  
*Rubén Ruiz-Torrubiano and Alberto Suárez*
- 11:50 [1636] Genetic Network Programming with Sarsa Learning and Its Application to Creating Stock Trading Rules  
*Yan Chen, Shingo Mabui, Kotaro Hirasawa and Jinglu Hu*
- 12:10 [1704] Bidding with Memory in the Presence of Synergies: A Genetic Algorithm Implementation  
*A. Mochon, Y. Saez, D. Quintana and P. Isasi*

Technical Program

**Session** sp14: Evolutionary Computation in Dynamic and Uncertain Environments – Part I  
**Date/Time** Wednesday, 26 September 2007 / 10:30 – 12:30 hrs  
**Venue** Minto  
**Chair(s)** Yaochu Jin, Shengxiang Yang and Andries P. Engelbrecht

- 10:30 [1467] Continuous Dynamic Problem Generators for Evolutionary Algorithms  
*Renato Tinós and Shengxiang Yang*
- 10:50 [1401] Construction of Surrogate Model Ensembles with Sparse Data  
*Dingding Chen, Allan Zhong, John Gano, Syed Hamid, Orlando De Jesus and Stan Stephenson*
- 11:10 [1292] A Simple and Efficient Multi-Component Algorithm for Solving Dynamic Function Optimisation Problems  
*I. Moser and T. Hendtlass*
- 11:30 [1072] A Local Network Neighbourhood Artificial Immune System for Data Clustering  
*A. J. Graaff and A. P. Engelbrecht*
- 11:50 [1940] Inventory Management and the Impact of Anticipation in Evolutionary Stochastic Online Dynamic Optimization  
*P. A. N. Bosman and H. La Poutré*
- 12:10 [1783] Improving Memory's Usage in Evolutionary Algorithms for Changing Environments  
*A. Simões and E. Costa*

**Session** Bioinformatics & Bioengineering – Part I  
**Date/Time** Wednesday, 26 September 2007 / 10:30 – 12:30 hrs  
**Venue** Hullet  
**Chair(s)** Kalyanmoy Deb and Goutam Chakraborty

- 10:30 [1735] Gene Selection in Cancer Classification Using PSO/SVM and GA/SVM Hybrid Algorithms  
*Enrique Alba, José García-Nieto, Laetitia Jourdan and El-Ghazali Talbi*
- 10:50 [1671] Grid-Based Evolutionary Strategies Applied to the Conformational Sampling Problem  
*Benjamin Parent, Alexandru Tantar, Nouredine Melab, El-Ghazali Talbi and Dragos Horvath*
- 11:10 [1859] A Novel Fuzzy and Multiobjective Evolutionary Algorithm Based Gene Assignment for Clustering Short Time Series Expression Data  
*Ashish Anand, P. N. Suganthan and Kalyanmoy Deb*
- 11:30 [1978] Efficient Assembling of Genome Fragments Using Genetic Algorithm Enhanced by Heuristic Search  
*Satoko Kikuchi and Goutam Chakraborty*
- 11:50 [1815] Evolving Hypernetwork Classifiers for microRNA Expression Profile Analysis  
*Sun Kim, Soo-Jin Kim and Byoung-Tak Zhang*
- 12:10 [1192] Prediction of Protein Interactions by Combining Genetic Algorithm with SVM Method  
*Bing Wang, Lu-Sheng Ge, Wen-You Jia, Li Liu and Fu-Chun Chen*

Technical Program



**Session** sp24: Linkage in Evolutionary Computation  
**Date/Time** Wednesday, 26 September 2007 / 10:30 – 12:30 hrs  
**Venue** Indiana  
**Chair(s)** Ying-ping Chen and Meng-Hiot Lim

10:30 [1677] An Empirical Evaluation of Linkage Learning Strategies for Multimodel Optimization  
*L. R. Emmendorfer and A. T. R. Pozo*

10:50 [1784] Case-Based Reasoning and Object-Oriented Data Structures Exploit Biological Analogs to Generate Virtual Evolutionary Linkages  
*Corie L. Cobb, Ying Zhang, Alice M. Agogino and Jennifer Mangold*

11:10 [1995] A Simple Real-Coded Extended Compact Genetic Algorithm  
*Luca Fossati, Pier Luca Lanzi, Kumara Sastry, David E. Goldberg and Osvaldo Gomez*

11:30 [1363] A Network Design Problem by a GA with Linkage Identification and Recombination for Overlapping Building Blocks  
*Miwako Tsuji, Masaharu Munetomo and Kiyoshi Akama*

11:50 [1923] Linkage Identification by Perturbation and Decision Tree Induction  
*Chung-Yao Chuang and Ying-ping Chen*

12:10 [1763] The Limitations of Distribution Sampling for Linkage Learning  
*D. J. Coffin and R. E. Smith*

Lunch Break @ Canning/Padang Room

12:30–13:30 hrs



**Session** sp01: Analysis of Genetic Representations and Operators  
**Date/Time** Wednesday, 26 September 2007 / 13:30 – 15:30 hrs  
**Venue** Enterprise  
**Chair(s)** Francisco Baptista Pereira, David Joslin and Jorge Tavares

13:30 [1364] Evolvability and Redundancy in Shared Grammar Evolution  
*Martin H. Luerssen and David M. W. Powers*

13:50 [1935] Specific Crossover and Mutation Operators for a Grouping Problem Based on Interaction Data in a Regional Science Context  
*Francisco Flórez-Revueña, José M. Casado-Díaz and Lucas Martínez-Bernabeu*

14:10 [1348] Graph Design by Graph Grammar Evolution  
*Martin H. Luerssen and David M. W. Powers*

14:30 [1990] Calibrating Strategies for Evolutionary Algorithms  
*Elizabeth Montero and María-Cristina Riff*

14:50 [1324] Excluding the Best and Worst Individuals from Parent Selection  
*L. Poladian*

15:10 [1078] Greedy Transformation of Evolutionary Algorithm Search Spaces for Scheduling Problems  
*David Joslin and Justin Collins*

Technical Program

<b>Session</b>	sp05: Evolutionary Algorithms Based on Probabilistic Models – Part II
<b>Date/Time</b>	Wednesday, 26 September 2007 / 13:30 – 15:30 hrs
<b>Venue</b>	Moor
<b>Chair(s)</b>	Qingfu Zhang and José Antonio Lozano
13:30	[1065] Covariance Matrix Repairing in Gaussian Based EDAs <i>Weishan Dong and Xin Yao</i>
13:50	[1798] A Versatile Quantum-Inspired Evolutionary Algorithm <i>Michaël Defoin Platel, Stefan Schliebs and Nikola Kasabov</i>
14:10	[1711] Adaptive Modelling Strategy for Continuous Multi-Objective Optimization <i>Aimin Zhou, Qingfu Zhang, Yaochu Jin and Bernhard Sendhoff</i>
14:30	[1988] Estimation of Distribution Algorithms for Testing Object Oriented Software <i>Ramón Sagarna, Andrea Arcuri and Xin Yao</i>
14:50	[1119] A Comprehensive Comparison Between Real Population Based Tournament Selection and Virtual Population Based Tournament Selection <i>Yi Hong, Sam Kwong, Qingsheng Ren and Xiong Wang</i>
15:10	[1068] On the Analysis of Average Time Complexity of Estimation of Distribution Algorithms <i>Tianshi Chen, Ke Tang, Guoliang Chen and Xin Yao</i>

<b>Session</b>	Ant Colony Optimization
<b>Date/Time</b>	Wednesday, 26 September 2007 / 13:30 – 15:30 hrs
<b>Venue</b>	Mercury
<b>Chair(s)</b>	Michael Geis and Amine Boumaza
13:30	[1450] An Ant Colony Optimizer for Melody Creation with Baroque Harmony <i>Michael Geis and Martin Middendorf</i>
13:50	[1150] Convergence and Rate of Convergence of a Foraging Ant Model <i>Amine Boumaza and Bruno Scherrer</i>
14:10	[1787] An Ant System with Steps Counter for the Job Shop Scheduling Problem <i>Emanuel Téllez-Enríquez, Efrén Mezura-Montes and Carlos A. Coello Coello</i>
14:30	[2080] An Effective Ant-Based Algorithm for the Degree-Constrained Minimum Spanning Tree Problem <i>Minh N. Doan</i>
14:50	[1269] Strategies for Accelerating Ant Colony Optimization Algorithms on Graphical Processing Units <i>Alejandro Catala, Javier Jaen and Jose A. Mocholi</i>
15:10	[2012] Refined Runtime Analysis of a Basic Ant Colony Optimization Algorithm <i>Benjamin Doerr and Daniel Johannsen</i>

<b>Session</b>	sp15: Evolutionary Computation in Finance and Economics – Part II
<b>Date/Time</b>	Wednesday, 26 September 2007 / 13:30 – 15:30 hrs
<b>Venue</b>	Morrison
<b>Chair(s)</b>	Edward Tsang and Pedro Isasi
13:30	[1684] Stock Trading Rules Using Genetic Network Programming with Actor-Critic <i>Shingo Mabu, Yan Chen, Kotaro Hirasawa and Jinglu Hu</i>

Technical Program

- 13:50 [1807] Portfolio Optimization Using Multi-Objective Genetic Algorithms  
*Prisadarnng Skolpadungket, Keshav Dahal and Napat Harnpornchai*
- 14:10 [1915] Learning Agents in a Monopolistic Competition Framework  
*Eric Guerci, Stefano Ivaldi, Marco Raberto and Silvano Cincotti*
- 14:30 [1792] Applications of Multi-Objective Evolutionary Algorithms in Economics and Finance: A Survey  
*Ma. Guadalupe Castillo Tapia and Carlos A. Coello Coello*
- 14:50 [1953] Computational Intelligence Algorithms for Risk-Adjusted Trading Strategies  
*N. G. Pavlidis, E. G. Pavlidis, M. G. Efitropakis, V. P. Plagianakos and M. N. Vrahatis*
- 15:10 [1223] Classification Rule Mining for Automatic Credit Approval Using Genetic Programming  
*Sum Sakprasat and Mark C. Sinclair*

**Session** sp14: Evolutionary Computation in Dynamic and Uncertain Environments – Part II  
**Date/Time** Wednesday, 26 September 2007 / 13:30 – 15:30 hrs  
**Venue** Minto  
**Chair(s)** Andries P. Engelbrecht, Shengxiang Yang and Yaochu Jin

- 13:30 [1887] Uncertainties Reducing Techniques in Evolutionary Computation  
*P. G. Balaji, D. Srinivasan and C. K. Tham*
- 13:50 [1468] A Collaborative Model for Tracking Optima in Dynamic Environments  
*Rodica Ioana Lung and D. Dumitrescu*
- 14:10 [1585] Noise-Induced Features in Robust Multi-Objective Optimization Problems  
*C. K. Goh, K. C. Tan, C. Y. Cheong and Y. S. Ong*
- 14:30 [1635] On Performance Metrics and Particle Swarm Methods for Dynamic Multiobjective Optimization Problems  
*Xiaodong Li, Jürgen Branke and Michael Kirley*
- 14:50 [1824] An Adaptive Prudent-Daring Evolutionary Algorithm for Noise Handling in On-line PMSM Drive Design  
*Ferrante Neri, Giuseppe L. Cascella, Nadia Salvatore and Silvio Stasi*
- 15:10 [1555] Using Regression to Improve Local Convergence  
*Stefan Bird and Xiaodong Li*

**Session** Bioinformatics & Bioengineering – Part II  
**Date/Time** Wednesday, 26 September 2007 / 13:30 – 15:30 hrs  
**Venue** Hullet  
**Chair(s)** M. V. Judy and Andreas Herzog

- 13:30 [1283] Case-Base Reduction for a Computer Assisted Breast Cancer Detection System Using Genetic Algorithms  
*Maciej A. Mazurowski, Piotr A. Habas, Jacek M. Zurada and Georgia D. Tourassi*
- 13:50 [1604] Improving the Performance of ICA Based Microarray Data Prediction Models with Genetic Algorithm  
*Kun-Hong Liu, De-Shuang Huang and Bo Li*
- 14:10 [1534] Evolutionary Algorithm to *ab initio* Protein Structure Prediction with Hydrophobic Interactions  
*T. W. de Lima, P. H. R. Gabriel, A. C. B. Delbem, R. A. Faccioli and I. N. da Silva*
- 14:30 [1256] Comparing Various Evolutionary Algorithms on the Parameter Optimization of the Valine and Leucine Biosynthesis in *Corynebacterium glutamicum*  
*Andreas Dräger, Jochen Supper, Hannes Planatscher, Jørgen B. Magnus, Marco Oldiges and Andreas Zell*

## Technical Program

14:50 [1747] Multi-Population Approach to Approximate the Development of Neocortical Networks  
*Andreas Herzog, Karsten Kube, Bernd Michaelis, Ana D. de Lima and Thomas Voigt*

15:10 [1610] Microarray Data Prediction by Evolutionary Classifier Ensemble System  
*Kun-Hong Liu, De-Shuang Huang and Jun Zhang*

**Session** sp03: Constraint-Handling Techniques Used in Evolutionary Algorithms  
**Date/Time** Wednesday, 26 September 2007 / 13:30 – 15:30 hrs  
**Venue** Indiana  
**Chair(s)** Efrén Mezura-Montes and Arturo Hernandez-Aguirre

13:30 [1400] Directed Intervention Crossover Applied to Bio-Control Scheduling  
*Paul M. Godley, David E. Cairns and Julie Cowie*

13:50 [1674] A Hybrid Genetic Algorithm for Constrained Optimization Problems in Mechanical Engineering  
*H. S. Bernardino, H. J. C. Barbosa and A. C. C. Lemonge*

14:10 [1961] Constraint Handling Techniques for a Non-Parametric Real-valued Estimation Distribution Algorithm  
*Arturo Hernández Aguirre, Enrique Villa Diharce and Carlos Coello Coello*

14:30 [1768] Comparing Bio-Inspired Algorithms in Constrained Optimization Problems  
*Efrén Mezura-Montes and Blanca Cecilia López-Ramírez*

14:50 [1745] A Bi-Population PSO with a Shake-Mechanism for Solving Constrained Numerical Optimization  
*Leticia C. Cagnina, Susana C. Esquivel and Carlos A. Coello Coello*

15:10 [1093] Local Search with Quadratic Approximation in Genetic Algorithms for Expensive Optimization Problems  
*Elizabeth F. Wanner, Frederico G. Guimaraes, Ricardo H. C. Takahashi and Peter J. Fleming*

**Session** Evolutionary Data Mining – Part II  
**Date/Time** Wednesday, 26 September 2007 / 13:30 – 15:30 hrs  
**Venue** Orchard  
**Chair(s)** Shingo Mabu and Bijan Misra

13:30 [1451] Multiple Objective Particle Swarm for Classification-Rule Discovery  
*Augusto de Almeida Prado G. Torácio and Aurora Trinidad Ramirez Pozo*

13:50 [1050] Feature Selection Using Double Parallel Feedforward Neural Networks and Particle Swarm Optimization  
*Rui Huang and Mingyi He*

14:10 [1346] On Some Symmetry Based Validity Indices  
*Sriparna Saha and Sanghamitra Bandyopadhyay*

14:30 [1409] Mining Equalized Association Rules from Multi Concept Layers of Ontology Using Genetic Network Programming  
*Guangfei Yang, Kaoru Shimada, Shingo Mabu, Kotaro Hirasawa and Jinglu Hu*

14:50 [1778] A Genetic Algorithm for Solving the Binning Problem in Networked Applications Detection  
*Maxim Shevertalov, Edward Stehle and Spiros Mancoridis*

15:10 [1858] Simplified Polynomial Neural Network for Classification Task in Data Mining  
*B. B. Misra, B. N. Biswal, P. K. Dash and G. Panda*

Tea Break

15:30–16:00 hrs

Technical Program

**Session** sp34: Evolutionary Techniques for Decentralized and P2P Systems  
**Date/Time** Wednesday, 26 September 2007 / 16:00 – 18:00 hrs  
**Venue** Mercury  
**Chair(s)** Giovanna Di Marzo Serugendo and Xin Yao

16:00 [1487] Emergent (Re)Optimization for Stream Queries in Grids  
*Saikat Mukherjee, Srinath Srinivasa and Sanket Patil*

16:20 [1949] Evolving Cooperation in the Non-Iterated Prisoner's Dilemma: A Social Network Inspired Approach  
*T. S. Ellis and X. Yao*

16:40 [1250] Decentralised Car Traffic Control using Message Propagation Optimized with a Genetic Algorithm  
*Martin Kelly and Giovanna Di Marzo Serugendo*

17:00 [1906] A Framework for Empirical Evaluation of Nature Inspired Routing Protocols for Wireless Sensor Networks  
*Muhammad Saleem and Muddassar Farooq*

17:20 [1331] Evolutionary Search for Cellular Automata that Exhibit Self-Organizing Properties Induced by External Perturbations  
*Yusuke Iwase, Reiji Suzuki and Takaya Arita*

17:40 [1232] Performance Variation Due to Interference Among a Large Number of Self-Interested Agents  
*Toshiharu Sugawara, Toshio Hirotsu, Satoshi Kurihara and Kensuke Fukuda*

**Session** sp15: Evolutionary Computation in Finance and Economics – Part III  
**Date/Time** Wednesday, 26 September 2007 / 16:00 – 18:00 hrs  
**Venue** Morrison  
**Chair(s)** Pedro Isasi and Edward Tsang

16:00 [2043] Co-Evolutionary Algorithms for Evolving Buyers' Bidding Strategies in an Electrical Power Market  
*Dipti Srinivasan, Chen Khong Tham and Chengyu Wu*

16:20 [1882] Evolutionary Simulation of Hedging Pressure in Futures Markets  
*J. Duke and C. D. Clack*

16:40 [1986] Repository Method to Suit Different Investment Strategies  
*Alma Lilia Garcia-Almanza and Edward P. K. Tsang*

17:00 [1354] A Computational Intelligence Portfolio Construction System for Equity Market Trading  
*Adam Ghandar, Zbigniew Michalewicz, Martin Schmidt, Thuy-Duong Tô and Ralf Zurbruegg*

17:20 [1376] A Polygon Description Based Similarity Measurement of Stock Market Behavior  
*Por-Shen Lai and Hsin-Chia Fu*

17:40 [1947] ALPS Evaluation in Financial Portfolio Optimisation  
*S. Patel and C. D. Clack*

**Session** Coevolution & Collective Behavior  
**Date/Time** Wednesday, 26 September 2007 / 16:00 – 18:00 hrs  
**Venue** Minto  
**Chair(s)** Chun-Kit Au and Michael Emmerich

16:00 [1499] Self-Adaptive Niching CMA-ES with Mahalanobis Metric  
*Ofer M. Shir, Michael Emmerich and Thomas Bäck*

16:20 [1259] Biasing Mutations in Cooperative Coevolution  
*Chun-Kit Au and Ho-Fung Leung*

## Technical Program

- 16:40 [1288] A Study on Social Diffusive Impacts of a Novel Car-Navigation-System Sharing Individual Information in Urban Traffic Systems  
*Hiroki Sagara and Jun Tanimoto*
- 17:00 [1332] A Simulative Study of the Roles of Cultural Transmission in Language Evolution  
*Tao Gong, James W. Minett and William S.-Y. Wang*
- 17:20 [1181] Genetic Swarm Grammar Programming: Ecological Breeding Like a Gardener  
*Sebastian von Mammen and Christian Jacob*
- 17:40 [2023] Building Performance Analysis Supported by GA  
*Özer Ciftcioglu, I. Sevil Sariyildiz and Michael S. Bittermann*

**Session** sp31: Computational Systems Biology  
**Date/Time** Wednesday, 26 September 2007 / 16:00 – 18:00 hrs  
**Venue** Hullet  
**Chair(s)** Till Steiner and Yaochu Jin

- 16:00 [1732] Emergence of Feedback in Artificial Gene Regulatory Networks  
*T. Steiner, L. Schramm, Y. Jin and B. Sendhoff*
- 16:20 [1139] Evolving Genetic Regulatory Networks for Systems Biology  
*Dominique Chu*
- 16:40 [1489] Psim: A Simulator for Biomolecular Dynamics Based on P Systems  
*Luca Bianco, Vincenzo Manca, Luca Marchetti and Michele Petterlini*
- 17:00 [2060] Using the Pareto Frontier to Detect Deficiencies in a Biological Simulation Model  
*Rié Komuro, Joel H. Reynolds and E. David Ford*
- 17:20 [1752] Benchmarking Evolutionary Algorithms on Convenience Kinetics Models of the Valine and Leucine Biosynthesis in *C. glutamicum*  
*Andreas Dräger, Marcel Kronfeld, Jochen Supper, Hannes Planatscher, Jørgen B. Magnus Marco Oldiges and Andreas Zell*
- 17:40 [1568] A Neuro-Fuzzy Inference System to Infer Gene-Gene Interactions Based on Recognition of Microarray Gene Expression Patterns  
*Cheng-Long Chuang, Chung-Ming Chen, Grace S. Shieh and Joe-Air Jiang*

**Session** Constraint & Uncertainty Handling  
**Date/Time** Wednesday, 26 September 2007 / 16:00 – 18:00 hrs  
**Venue** Indiana  
**Chair(s)** Kalyanmoy Deb and Cai Zixing

- 16:00 [1939] Reliability-Based Optimization for Multiple Constraints with Evolutionary Algorithms  
*David A. Daum, Kalyanmoy Deb and Jürgen Branke*
- 16:20 [2027] Trading on Infeasibility by Exploiting Constraint's Criticality Through Multi-Objectivization: A System Design Perspective  
*Dhish Kumar Saxena and Kalyanmoy Deb*
- 16:40 [1644] A Multi-Objective Evolutionary Algorithm for Berth Allocation in a Container Port  
*C. Y. Cheong, C. J. Lin, K. C. Tan and D. K. Liu*
- 17:00 [1669] SAT-Decoding in Evolutionary Algorithms for Discrete Constrained Optimization Problems  
*Martin Lukaszewycz, Michael Glaß, Christian Haubelt and Jürgen Teich*
- 17:20 [1420] A Good Nodes Set Evolution Strategy for Constrained Optimization  
*Chixin Xiao, Zixing Cai and Yong Wang*
- 17:40 [1004] A Novel General Framework for Evolutionary Optimization: Adaptive Fuzzy Fitness Granulation  
*M. Davarynejad, M.-R. Akbarzadeh-T and N. Pariz*



<b>Session</b>	sp35: Evolutionary Computation in Space
<b>Date/Time</b>	Wednesday, 26 September 2007 / 16:00 – 18:00 hrs
<b>Venue</b>	Orchard
<b>Chair(s)</b>	Massimiliano Vasile and Matteo Rosa Sentinella
16:00	[1771] Search Space Pruning and Global Optimization of Multiple Gravity Assist Trajectories with Deep Space Manoeuvres <i>V. M. Becerra, S. J. Nasuto, J. Anderson, M. Ceriotti and C. Bombardelli</i>
16:20	[1268] Optimizing Low-Thrust Gravity Assist Interplanetary Trajectories Using Evolutionary Neurocontrollers <i>I. Carnelli, B. Dachwald and M. Vasile</i>
16:40	[1261] Comparison and Integrated Use of Differential Evolution and Genetic Algorithms for Space Trajectory Optimisation <i>Matteo Rosa Sentinella</i>
17:00	[1728] Optimal Design for a NEO Tracking Spacecraft Formation <i>Christie Alisa Maddock and Massimiliano Vasile</i>
17:20	[1679] Multi-Objective Optimisation on Motorised Momentum Exchange Tether for Payload Orbital Transfer <i>Yi Chen and Matthew P. Cartmell</i>
17:40	[1415] A Time-Fuel Optimal Algorithm for Spacecraft Formation Reconfiguration <i>Shuyan Wang, Changwen Zheng and Yuxin Wang</i>



<b>Session</b>	Evolutionary Intelligent Agents
<b>Date/Time</b>	Wednesday, 26 September 2007 / 16:00 – 18:00 hrs
<b>Venue</b>	Enterprise
<b>Chair(s)</b>	Ruhul Sarker and Kwang
16:00	[1685] An Agent-Based Memetic Algorithm (AMA) for Solving Constrained Optimization Problems <i>Abu S. S. M. Barkat Ullah, Ruhul Sarker, David Cornforth and Chris Lokan</i>
16:20	[2061] Adaptive Bargaining Agents That Negotiate Optimally and Rapidly <i>Kwang Mong Sim, Yuanyuan Guo and Benyun Shi</i>
16:40	[1081] Double-Deck Elevator Group Supervisory Control System Using Genetic Network Programming with Ant Colony Optimization <i>Lu Yu, Jin Zhou, Shingo Mabu, Kotaro Hirasawa, Jinglu Hu and Sandor Markon</i>
17:00	[1128] Genetic Network Programming with Control Nodes <i>Shinji Eto, Shingo Mabu, Kotaro Hirasawa and Takayuki Huruzuki</i>
17:20	[1280] Solving Decentralized Multi-Agent Control Problems with Genetic Algorithms <i>Maciej A. Mazurowski and Jacek M. Zurada</i>
17:40	[2059] Evolving the Best-Response Strategy to Decide When to Make a Proposal <i>Bo An, Kwang Mong Sim and Victor Lesser</i>



<b>Session</b>	sp05: Evolutionary Algorithms Based on Probabilistic Models – Part III
<b>Date/Time</b>	Wednesday, 26 September 2007 / 16:00 – 18:00 hrs
<b>Venue</b>	Moor
<b>Chair(s)</b>	Qingfu Zhang and José Antonio Lozano
16:00	[1692] Estimation of Distribution Algorithm Based on Probabilistic Grammar with Latent Annotations <i>Yoshihiko Hasegawa and Hitoshi Iba</i>
16:20	[1928] Exact Bayesian Network Learning in Estimation of Distribution Algorithms <i>Carlos Echegoyen, Jose A. Lozano, Roberto Santana and Pedro Larrañaga</i>

## Technical Program

- 16:40 [1851] Parallel BMDA with Probability Model Migration  
*Jiří Jaroš and Josef Schwarz*
- 17:00 [1951] A Utile Function Optimizer  
*Christopher K. Monson, Kevin D. Seppi and James L. Carroll*
- 17:20 [1120] Over-Selection: An Attempt to Boost EDA Under Small Population Size  
*Yi Hong, Sam Kwong, Qingsheng Ren and Xiong Wang*
- 17:40 [1661] Influence of Selection and Replacement Strategies on Linkage Learning in BOA  
*Claudio F. Lima, Martin Pelikan, David E. Goldberg, Fernando G. Lobo, Kumara Sastry and Mark Hauschild*

**Session** Plenary Poster Session I  
**Date/Time** Wednesday, 26 September 2007 / 09:30 – 10:30 hrs  
**Venue** Stamford Foyer & Bencoolen Room  
**Chair(s)**

- [1553] Scalability in Evolved Multi-Agent Systems  
*Marko Privošnik*
- [1062] A New Local Search Algorithm for Continuous Spaces Based on Army Ant Swarm Raids  
*Garrison W. Greenwood and Hussein Abbass*
- [1748] Stability Analysis of the Ant System Dynamics with Non-Uniform Pheromone Deposition Rules  
*Ajith Abraham, Amit Konar, Nayan R. Samal and Swagatam Das*
- [1565] Computational Chemotaxis in Ants and Bacteria over Dynamic Environments  
*Vitorino Ramos, Carlos Fernandes, Agostinho C. Rosa and Ajith Abraham*
- [1416] A Hybrid Ant Colony Optimization Approach for the Design of Reliable Networks  
*B. Dengiz, F. Altıparmak and O. Belgin*
- [1427] Cooperative Coevolutionary Algorithms for Fuzzy Vehicular Routing Problem: An Analysis of Efficiency vs. Geographical Distribution  
*Latif Polat, Adnan Acan and Ahmet Unveren*
- [1523] Multiple Solution Search Based on Hybridization of Real-Coded Evolutionary Algorithm and Quasi-Newton Method  
*Satoshi Ono, Yusuke Hirotsu and Shigeru Nakayama*
- [1967] On Gray-Coded Binary Representation for Supporting a (Repair-by-Interpolation) Genetic Operator for Constrained Optimization Problems  
*Steven Orla Kimbrough and David Harlan Wood*
- [1290] Comparative Study with Several GAs for Optimal Component Arrangement in a Circular Consecutive- $k$ -out-of- $n$ : F System  
*K. Shingyochi, H. Yamamoto, Y. Tsujimura and Y. Kambayashi*
- [1600] Enhanced Differential Evolution Hybrid Scatter Search for Discrete Optimization  
*Donald Davendra and Godfrey Onwubolu*
- [1822] Experimental Analysis of Dynamic Migration Intervals on 0/1 Knapsack Problems  
*Tzung-Pei Hong, Wen-Yang Lin, Shu-Min Liu and Jiann-Horng Lin*
- [1021] Evolutionary Combinatorial Optimization for Recursive Supervised Learning with Clustering  
*Kiruthika Ramanathan and Sheng Uei Guan*
- [1959] Efficient Evolutionary Algorithm for the Vehicle Routing Problem with Time Windows: Edge Assembly Crossover for the VRPTW  
*Yuichi Nagata*

## Technical Program

- [1539] Species-Based Differential Evolution with Switching Search Strategies for Multimodal Function Optimization  
*Miyuki Shibasaki, Akira Hara, Takumi Ichimura and Tetsuyuki Takahama*
- [1433] Optimization Problem Solving Framework Employing GAs with Linkage Identification Over a Grid Environment  
*Asim Munawar, Masaharu Munetomo and Kiyoshi Akama*
- [1563] A Parallel Evolutionary Approach to Multi-objective Optimization  
*Xiang Feng and Francis C. M. Lau*
- [1522] A Bacterial Swarming Algorithm for Global Optimization  
*W. J. Tang, Q. H. Wu and J. R. Saunders*
- [1675] Adaptive Farming Strategies for Dynamic Economic Environment  
*Nanlin Jin, Mette Termansen, Klaus Hubacek, Joseph Holden and Mike Kirkby*
- [2087] GA Based FCMAC-BYY Model for Bank Solvency Analysis  
*K. S. Lum, M. N. Nguyen and D. Shi*
- [2089] Predicting Impact of News on Stock Price: An Evaluation of Neuro Fuzzy Systems  
*C. Quek, P. Cheng and A. Jain*
- [2045] Dynamic Adjustment of Age Distribution in Human Resource Management by Genetic Algorithms  
*Napat Harnpornchai, Nopasit Chakpitak, Tirapot Chandarasupsang, Tuang-Ath Chaikijikosi and Keshav Dahal*
- [2034] Approximate Inference in Dynamic Possibilistic Networks  
*Abdelkader Heni and Adel M. Alimi*
- [1394] A New Constrained Optimization Evolutionary Algorithm by Using Good Point Set  
*Hui Liu, Zixing Cai and Yong Wang*
- [1413] A Lower-Dimensional-Search Evolutionary Algorithm and Its Application in Constrained Optimization Problems  
*Sanyou Zeng, Hui Shi, Hui Li, Guang Chen, Lixin Ding and Lishan Kang*
- [1695] Evolution of Classification Rules for Comprehensible Knowledge Discovery  
*Emiliano Carreño, Guillermo Leguizamón and Neal Wagner*
- [1490] Toward a Winning GP Strategy for Continuous Nonlinear Dynamical System Identification  
*Thomas Buchsbaum*
- [1723] Time-Series Infectious Disease Data Analysis Using SVM and Genetic Algorithm  
*Xiuju Fu, Christina Liew, Harold Soh, Gary Lee, Terence Hung and Lee-Ching Ng*
- [1113] Binary Classification Using Parallel Genetic Algorithm  
*Cuong To and Jiri Vohradsky*
- [1242] The Boosting Technique Using Correlation Coefficient to Improve Time Series Forecasting Accuracy  
*Luzia Vidal de Souza, Aurora T. R. Pozo, Joel M. C. da Rosa and Anselmo Chaves Neto*
- [1361] Multiobjective Approach to Categorical Data Clustering  
*Anirban Mukhopadhyay and Ujjwal Maulik*
- [1989] Genetic Programming — A Tool for Flexible Rule Extraction  
*R. König, U. Johansson and L. Niklasson*
- [1162] Mining Association Rules from Databases with Continuous Attributes using Genetic Network Programming  
*Karla Taboada, Eloy Gonzales, Kaoru Shimada, Shingo Mabu, Kotaro Hirasawa and Jinglu Hu*

## Technical Program

- [2053] A Novel Selection-Learning Algorithm for Multi-Satellite Scheduling Problems  
*Yan Zhang, Feng Yang and YongXuan Huang*
- [2032] Evolutionary Algorithm Based on Topological Sort for Precedence Constrained Sequencing  
*Chiung Moon, Young Su Yun and Choonseong Leem*
- [1513] Some Aspects of Parallel Genetic Algorithms with Population Re-Initialization  
*I. Sekaj and J. Perkacz*
- [1515] Genetic Programming - based Controller Design  
*I. Sekaj and J. Perkacz*
- [1440] A Cost Benefit Operator for Efficient Multi Level Genetic Algorithm Searches  
*George G. Mitchell, Barry McMullin and James Decraene*
- [1891] Using the Differential Evolution Algorithm for the Multi-Objective Optimization of a Switched-Current Circuit  
*Lukáš Dolířka and Jiří Hospodka*
- [2098] Range Juggling for Better Convergence in Genetic Range Genetic Algorithms  
*Masao Arakawa*
- [1919] Interactive Genetic Algorithms for User Interface Design  
*Juan C. Quiroz, Sushil J. Louis, Anil Shankar and Sergiu M. Dascalu*
- [1030] Emergence of Cooperation Supported by Communication in a One-Shot  $2 \times 2$  Game  
*Jun Tanimoto*
- [1445] Solving, Rating and Generating Sudoku Puzzles with GA  
*Timo Mantere and Janne Koljonen*
- [1159] Evolutionary Optimization of Parameters for Distributed Virtual Environments  
*Simon E. Parkin, Peter Andras and Graham Morgan*
- [1472] Neural-Based Agents Cooperate to Survive in the Defend and Gather Computer Game  
*Joseph Qualls, Max Garzon and David J. Russomanno*
- [1056] A Hybrid Hopfield Network-Genetic Algorithm Approach for the Lights-up Puzzle  
*Emilio G. Ortiz-García, Sancho Salcedo-Sanz, 'Angel M. Pérez-Bellido and Antonio Portilla-Figueras*
- [1470] Self-Organized Over-Clustering Avoidance in Tuple-Space System  
*Matteo Casadei, Ronaldo Menezes, Mirko Viroli and Robert Tolksdorf*
- [1028] Solving SAT Problem with a Multiagent Evolutionary Algorithm  
*Jinshu Li, Heyong Wang, Jing Liu and Licheng Jiao*
- [1806] MultiObjective Genetic Algorithm based Adaptive QoS Routing in MANET  
*Ketan Kotecha and Sonal Popat*
- [1516] Enhanced Prediction of Protein Cellular Localization Sites with Genetic Algorithm Optimal Kernel Projection Analysis  
*Jason C. Isaacs, Simon Foo and Anke Meyer-Baese*
- [1590] Concerning the Potential of Evolutionary Support Vector Machines  
*Ruxandra Stoean, Mike Preuss, Catalin Stoean and D. Dumitrescu*
- [1497] Conditional Independence Based Learning of Bayesian Classifiers Guided by a Variable Ordering Genetic Search  
*Edimilson Batista dos Santos, Estevam Rafael Hruschka Junior and Maria do Carmo Nicoletti*
- [1729] A Study on Application of Fitness Inference Method to PC-IGA  
*Yoshinobu Watanabe, Tomohiro Yoshikawa and Takeshi Furuhashi*

## Technical Program

- [2002] Behavior Learning of Multiple Mobile Robots Based on Spiking Neural Networks with A Parallel Genetic Algorithm  
*Hironobu Sasaki and Naoyuki Kubota*
- [2099] Developing Control Table for Multiple Agents Using GA-Based Q-Learning with Neighboring Crossover  
*Tadahiko Murata and Yusuke Aoki*
- [2049] Evolutionary Random Neural Ensembles Based on Negative Correlation Learning  
*Huanhuan Chen and Xin Yao*
- [1738] Grammatical Evolution Guided by Reinforcement  
*Jack Mario Mingo and Ricardo Aler*
- [1359] From Real Robot Swarm to Evolutionary Multi-Robot Organism  
*S. Kornienko, O. Kornienko, A. Nagarathinam and P. Levi*
- [1773] Evolutionary Robot Vision for Human Tracking of Partner Robots in Ambient Intelligence  
*Naoyuki Kubota and Yu Tomioka*
- [1776] Trajectory Generation Based on a Steady-State Genetic Algorithm for Imitative Learning of a Partner Robot  
*Naoyuki. Kubota and Toshiyuki. Shimizu*
- [1952] A Biologically Inspired Approach for the Control of the Hand  
*Emmanouil Hourdakis, Michail Maniadakis and Panos Trahanias*
- [1418] Combine and Compare Evolutionary Robotics and Reinforcement Learning as Methods of Designing Autonomous Robots  
*Sergiu Goschin, Eduard Franti, Monica Dascalu and Sanda Osiceanu*
- [1537] Evolving Neural Network Which Control a Robotic Agent  
*Roman Neruda*
- [1356] Learning Based Gaits Evolution for an AIBO Dog  
*Jiaqi Zhang and Qijun Chen*
- [1249] Mobile Robot Global Localization Using Differential Evolution and Particle Swarm Optimization  
*Ali R. Vahdat, Naser NourAshrafoddin and Saeed Shiry Ghidary*
- [1987] Evolutionary Robot Vision and Particle Swarm Optimization for Multiple Human Heads Tracking of A Partner Robot  
*Indra Adji Sulistijono and Naoyuki Kubota*
- [1872] Compact GAs for Neural Network Online Training in Tubular Linear Motor Control  
*F. Cupertino, E. Mininno, D. Naso, B. Turchiano and L. Salvatore*
- [1948] Towards Evolving Fault Tolerant Biologically Inspired Hardware Using Evolutionary Algorithms  
*Elhadj Benkhelifa, Anthony Pipe, Gabriel Dragffy and Mokhtar Nibouche*
- [1375] Evolving Virtual Reconfigurable Circuit for a Fault Tolerant System  
*P. Nirmal Kumar, S. Anandhi and J. Raja Paul Perinbam*
- [1977] Multiobjective Techniques for the Use of State in Genetic Programming Applied to Simulated Car Racing  
*Alexandros Agapitos, Julian Togelius and Simon M. Lucas*
- [1789] Effects of Program Simplification on Simple Building Blocks in Genetic Programming  
*Phillip Wong and Mengjie Zhang*
- [2046] Type-2 GA-TSK Fuzzy Neural Network  
*Alvin Cai, Chai Quek and Douglas L. Maskell*

## Technical Program

- [1707] Multi-Objective Evolutionary Recurrent Neural Networks for System Identification  
*J. H. Ang, C. K. Goh, E. J. Teoh and A. A. Mamun*
- [1896] Generic GA-Based Meta-Level Parameter Optimization for Pattern Recognition Systems  
*Ernest Lumanpauw, Michel Pasquier and Richard J. Oentaryo*
- [1345] Evolving Fuzzy Classifiers Using a Symbiotic Approach  
*M. Soleymani Baghshah, S. Bagheri Shouraki, R. Halavati and C. Lucas*
- [1434] Migration Based Parallel Differential Evolution Learning in Asymmetric Subsethood Product Fuzzy Neural Inference System : A Simulation Study  
*Lotika Singh and Satish Kumar*
- [1146] Control of Nonlinear Systems with a Linear State-Feedback Controller and a Modified Neural Network Tuned by Genetic Algorithm  
*H. K. Lam, S. H. Ling, H. H. C. Iu, C. W. Yeung and F. H. F. Leung*
- [2006] Hybrid Evolutionary Algorithm for Multilayer Perceptron Networks with Competitive Performance  
*Roman Neruda*
- [1701] A Global-Local Hybrid Evolutionary Strategy (ES) for Recurrent Neural Networks (RNNs) in System Identification  
*E. J. Teoh and C. Xiang*
- [1330] Bacterial Foraging based Identification of Nonlinear Dynamic System  
*Babita Majhi and G. Panda*
- [1633] A Hierarchical Fuzzy System with High Input Dimensions for Forecasting Foreign Exchange Rates  
*France Cheong*
- [1277] Fuzzy Logic for Priority Based Genetic Search in Evolving a Neural Network Architecture  
*S. K. Sharma, G. W. Irwin and R. Sutton*
- [1902] Pattern Classification with a PSO Optimization based Elliptical Basis Function Neural Networks  
*Ji-Xiang Du, De-Shuang Huang and Zeng-Fu Wang*
- [1071] An Evolutionary Modular Neural Network for Unbalanced Pattern Classifications  
*Zhong-Qiu Zhao and De-Shuang Huang*
- [2037] A New Evolutionary Neural Network For Forecasting Net Flow of A Car Sharing System  
*J.-X. Xu and J. S. Lim*
- [2039] GA Optimisation of Non-Singleton Fuzzy Logic System for ECG Classification  
*Teck Wee Chua and Woei Wan Tan*
- [1423] A Genetic ant Colony Optimization Approach for Concave Cost Transportation Problems  
*F. Altıparmak and I. Karaoglan*
- [1176] Hybridisation of Evolutionary Programming and Machine Learning with  $k$ -Nearest Neighbor Estimation  
*Jingsong He, Zhenyu Yang and Xin Yao*
- [1185] A Hybrid Evolutionary Algorithm with Simplex Local Search  
*A. Isaacs, T. Ray and W. Smith*
- [1203] Hybrid Optimization Using DIRECT, GA, and SQP for Global Exploration  
*Satoru Hiwa, Tomoyuki Hiroyasu and Mitsunori Miki*
- [2064] LisBON: A Framework for Parallelisation and Hybridisation of Optimisation Algorithms  
*C. Dürr, T. Fühner and P. N. Suganthan*

Technical Program

[2005] Crew Scheduling Urban Problem: An Exact Column Generation Approach Improved by a Genetic Algorithm

*André G. Santos and Geraldo R. Mateus*

[1803] An Investigation into Dynamic Problem Solving in a Hybrid Evolutionary Market-Based Multi-Agent System

*D. J. Cornforth*

[1909] Multi-Agent System based Urban Traffic Management

*P. G. Balaji, Gaurav Sachdeva, D. Srinivasan and Chen-Khong Tham*

[1271] Dynamic Evolutionary Algorithm with Variable Relocation Vectors

*Yonas G. Woldesenbet and Gary G. Yen*

[1134] Grid Task Scheduling Algorithm R3Q for Evolution Strategies

*Yoshiyuki Matsumura, Kazuhiro Ohkura, Yoshiki Matsuura, Masashi Oiso, Noriyuki Fujimoto and Kenichi Hagihara*

[1211] A Hybrid Evolutionary Approach to the University Course Timetabling Problem

*Salwani Abdullah, Edmund K. Burke, and Barry McCollum*

[1765] A Closed Loop Stability Analysis and Parameter Selection of the Particle Swarm Optimization Dynamics for Faster Convergence

*Nayan R. Samal, Amit Konar, Swagatam Das and Ajith Abraham*

## Thursday, 27 September 2007

Time 08:30–09:30 hrs  
Keynote 2 Medical Applications of Evolutionary Computation  
*Gary B. Fogel*

Venue Stamford Ballroom

Tea Break @ Stamford Foyer & Bencoolen Room

09:30–10:30 hrs

Time 10:30–11:30 hrs  
Invited Talk 3 Bio-inspired Continuous Optimization: The Coming of Age  
*Marc Schoenauer*

Venue Stamford Ballroom

Time 11:30–12:30 hrs  
Invited Talk 4 Hot Issues in Evolutionary Multiobjective Optimization  
*Hisao Ishibuchi*

Venue Stamford Ballroom

**Session** Real-World Applications – Part I  
**Date/Time** Thursday, 27 September 2007 / 10:30 – 12:30 hrs  
**Venue** Mercury  
**Chair(s)** Wei-Chiang Samuelson Hong and Juan M. Estevez-Tapiador

10:30 [1683] Acceleration of Experiment-Based Evolutionary Multi-objective Optimization of Internal-Combustion Engine Controllers Using Fitness Estimation  
*Hiroataka Kaji and Hajime Kita*

## Technical Program

- 10:50 [1396] Traffic Signal Control using Fuzzy Logic and Evolutionary Algorithms  
*Yi Hu, Peter Thomas and Russel J. Stonier*
- 11:10 [1588] An Evolutionary Computation Approach to Cognitive States Classification  
*Rafael Ramirez and Montserrat Puiggros*
- 11:30 [1089] Applying GA to Self-allotment of Rewards in Event-driven Hybrid Learning Classifier Systems  
*Yuji Sato, Yuhki Inoue and Yosuke Akatsuka*
- 11:50 [1648] Using Evolution Strategies to Perform Stellar Population Synthesis for Galaxy Spectra from SDSS  
*J. C. Gomez and O. Fuentes*
- 12:10 [1731] A New Reduced Space Searching Algorithm (RSSA) and Its Application in Optimal Design of Alloy Steels  
*Qian Zhang and Mahdi Mahfouf*

**Session** sp26: Molecular Computing for Information Processing and Self-Assembly  
**Date/Time** Thursday, 27 September 2007 / 10:30 – 12:30 hrs  
**Venue** Minto  
**Chair(s)** Zuwairie Ibrahim, Jerzy W. Jaromczyk, Danny van Noort and John A. Rose

- 10:30 [1657] A DNA Sequence Design for Molecular Computation of HPP with Output Visualization Based on Real-Time PCR  
*Zuwairie Ibrahim, Tri Basuki Kurniawan and Marzuki Khalid*
- 10:50 [1095] An Improved Readout Method of Molecular Computation Based on Real-Time PCR Implemented on DNA Engine Opticon 2 System  
*Zuwairie Ibrahim, Muhammad Faiz Mohamed Saaid, Adi S. Paramita, Akira Suyama and John A. Rose*
- 11:10 [1795] Making the SAT Decision Based on a DNA Computation  
*Joseph Ibershoff, Jerzy W. Jaromczyk and Danny van Noort*
- 11:30 [2050] An Implementation of Aqueous Memory Molecules with Light Responsive DNAs  
*Masayuki Yamamura, Noriko Hirayama and Ken Komiya*
- 11:50 [1456] Self-Assembly of Graphs  
*L. Jeganathan, K. Krithivasan and R. Rama*
- 12:10 [1746] Evolving Hypernetworks for Pattern Classification  
*Joo-Kyung Kim and Byoung-Tak Zhang*

**Session** Theory of Evolutionary Computation – Part I  
**Date/Time** Thursday, 27 September 2007 / 10:30 – 12:30 hrs  
**Venue** Hullet  
**Chair(s)** Benjamin Doerr and Xin Yao

- 10:30 [1293] Population Diversity Measure Based on Singular Values of the Distance Matrix  
*Bakir Lacevic, Samim Konjicija and Zikrija Avdagic*
- 10:50 [1430] Evolutionary Algorithms and the Vertex Cover Problem  
*P. S. Oliveto, J. He and X. Yao*
- 11:10 [1857] Combining Exhaustive Search with Evolutionary Computation via Computational Resource Allocation  
*S. Y. Zhao and K. Y. Szeto*
- 11:30 [1945] Runtime Analysis of (1+1) EA on Computing Unique Input Output Sequences  
*Per Kristian Lehre and Xin Yao*

Technical Program

- 11:50 [1936] A Tight Analysis of the (1 + 1)-EA for the Single Source Shortest Path Problem  
*Benjamin Doerr, Edda Happ and Christian Klein*
- 12:10 [2057] Evolutionary Computation Enabled Game Theory Based Modelling of Electricity Market Behaviours and Applications  
*Jin Yin, Wei Chen and Yun Li*

**Session** sp04: Differential Evolution – Part I  
**Date/Time** Thursday, 27 September 2007 / 10:30 – 12:30 hrs  
**Venue** Indiana  
**Chair(s)** Uday K. Chakraborty and Andries Engelbrecht

- 10:30 [1302] A Parametric Study on Differential Evolution Based on Benchmark Electromagnetic Inverse Scattering Problem  
*Anyong Qing*
- 10:50 [1052] Deterministic versus Evolutionary Optimisation Methods for Nonlinear Robustness Analysis of Flight Control Laws  
*Prathyush P. Menon, Declan G. Bates and Ian Postlethwaite*
- 11:10 [1340] A New Self Adaptive Differential Evolution: Its Application in Forecasting the Index of Stock Exchange of Thailand  
*Chukiat Worasuchep*
- 11:30 [1938] Annealed Differential Evolution  
*Swagatam Das, Amit Konar and Uday K. Chakraborty*
- 11:50 [1812] Differential Evolution in High-Dimensional Search Spaces  
*Olusegun Olorunda and Andries P. Engelbrecht*
- 12:10 [1628] Binary Differential Evolution Strategies  
*A. P. Engelbrecht and G. Pampará*

**Session** Particle Swarm Intelligence  
**Date/Time** Thursday, 27 September 2007 / 10:30 – 12:30 hrs  
**Venue** Orchard  
**Chair(s)** Riccardo Poli and Robert Ian (Bob) McKay

- 10:30 [1367] A New PSO Approach to Constraint Satisfaction  
*Mihaela Breaban, Madalina Ionita and Cornelius Croitoru*
- 10:50 [1243] Theoretical Derivation, Analysis and Empirical Evaluation of a Simpler Particle Swarm Optimiser  
*Riccardo Poli, Dan Bratton, Tim Blackwell and Jim Kennedy*
- 11:10 [1258] A New Pheromone Design in ACS for Solving JSP  
*Xiao-Lan Zhuo, Jun Zhang and Wei-neng Cheng*
- 11:30 [1370] Particle Swarm Optimization with Area Extension (AEPSO)  
*A. Atiyabi and S. Phon-Amnuaisuk*
- 11:50 [1334] A New Hybrid Particle Swarm Optimization with Wavelet Theory Based Mutation Operation  
*S. H. Ling, C. W. Yeung, K. Y. Chan, H. H. C. Iu and F. H. F. Leung*
- 12:10 [1471] Initialising PSO with Randomised Low-Discrepancy Sequences: The Comparative Results  
*Nguyen Quang Uy, Nguyen Xuan Hoai, RI McKay and Pham Minh Tuan*

Technical Program

<b>Session</b>	Evolutionary Design
<b>Date/Time</b>	Thursday, 27 September 2007 / 10:30 – 12:30 hrs
<b>Venue</b>	Enterprise
<b>Chair(s)</b>	Shingo Mabu and Kotaro Hirasawa
10:30	[1691] Control System Design Optimisation via Genetic Programming <i>A. Bourmistrova and S. Khantsis</i>
10:50	[1483] Evolving Tiles for Automated Self-Assembly Design <i>Germán Terrazas, Marian Gheorghe, Graham Kendall and Natalio Krasnogor</i>
11:10	[2000] Target Shape Design Optimization by Evolving Splines <i>Pan Zhang, Xin Yao, Lei Jia, B. Sendhoff and T. Schmier</i>
11:30	[1518] Measuring Complexity by Measuring Structure and Organization <i>Gregory S. Hornby</i>
11:50	[1339] Double-Deck Elevator Systems Using Genetic Network Programming with Reinforcement Learning <i>Jin Zhou, Lu Yu, Shingo Mabu, Kotaro Hirasawa, Jinglu Hu and Sandor Markon</i>
12:10	[2066] A Multi-Layered Solution for Supporting ISP Traffic Demand Using Genetic Algorithm <i>G. Kandavanam, D. Botvich, S. Balasubramaniam, P. N. Suganthan and W. Donnelly</i>

<b>Session</b>	Memetic & Hybrid Algorithms
<b>Date/Time</b>	Thursday, 27 September 2007 / 10:30 – 12:30 hrs
<b>Venue</b>	Moor
<b>Chair(s)</b>	Massimiliano Vasile and Shingo Mabu
10:30	[1912] Entropy-Based Memetic Particle Swarm Optimization for Computing Periodic Orbits of Nonlinear Mappings <i>Y. G. Petalas, K. E. Parsopoulos and M. N. Vrahatis</i>
10:50	[1447] A Memetic Algorithm for Test Data Generation of Object-Oriented Software <i>Andrea Arcuri and Xin Yao</i>
11:10	[1709] A Behavioral-Based Meta-Heuristic for Robust Global Trajectory Optimization <i>Massimiliano L. Vasile</i>
11:30	[1584] Training of Multi-Branch Neural Networks using RasID-GA <i>Dongkyu Sohn, Shingo Mabu, Kaoru Shimada, Kotaro Hirasawa and Jinglu Hu</i>
11:50	[2055] Investigating Hybrids of Evolutionary Search and Linear Discriminant Analysis for Authorship Attribution <i>Kareem Shaker, David Corne and Richard Everson</i>
12:10	[1429] A Shared-Memory ACO+GA Hybrid for Combinatorial Optimization <i>Adnan Acan and Ahmet Unveren</i>

<b>Session</b>	Multiobjective Optimization
<b>Date/Time</b>	Thursday, 27 September 2007 / 10:30 – 12:30 hrs
<b>Venue</b>	Morrison
<b>Chair(s)</b>	Kalyanmoy Deb and Gideon Avigad
10:30	[1762] Improving Hypervolume-based Multiobjective Evolutionary Algorithms by Using Objective Reduction Methods <i>Dimo Brockhoff and Eckart Zitzler</i>
10:50	[1209] Proposal of Transmission Line Modeling Using Multi-Objective Optimization Techniques <i>Yosuke Iijima, Masahiro Murakawa, Yuji Kasai, Eiichi Takahashi and Tetsuya Higuchi</i>

*Technical Program*

- 11:10 [1625] The Sequential Optimization-Constraint Multi-Objective Problem and its Applications for Robust Planning of Robot Paths  
*Gideon Avigad and Kalyanmoy Deb*
- 11:30 [1601] Finding Trade-off Solutions Close to KKT Points Using Evolutionary Multi-Objective Optimization  
*Kalyanmoy Deb, Rahul Tewari, Mayur Dixit and Joydeep Dutta*
- 11:50 [1593] A Simultaneous EMO for the Solution of the Multi-Multi-Objective Optimization Problem  
*Gideon Avigad*
- 12:10 [2035] Light Beam Search Based Multi-Objective Optimization Using Evolutionary Algorithms  
*Kalyanmoy Deb and Abhay Kumar*

Lunch & Grant Awards Presentation @ Canning/Padang Room 12:30–13:30 hrs

**Session** sp22: Genetics-Based Machine Learning  
**Date/Time** Thursday, 27 September 2007 / 13:30 – 15:30 hrs  
**Venue** Minto  
**Chair(s)** Hai Huang (Helen) Dam, Kamran Shafi and Hussein A. Abbass

- 13:30 [1927] Anticipation Mappings for Learning Classifier Systems  
*Larry Bull, Pier Luca Lanzi and Toby O'hara*
- 13:50 [1931] Support Vector Machines for Computing Action Mappings in Learning Classifier Systems  
*Daniele Loiacono, Andrea Marelli and Pier Luca Lanzi*
- 14:10 [1934] An Analysis of Generalization in XCS with Symbolic Conditions  
*Pier Luca Lanzi*
- 14:30 [1495] Improved Natural Crossover Operators in GBML  
*Cristiano Pitangui and Gerson Zaverucha*
- 14:50 [1482] A Recursive Clustering Methodology using a Genetic Algorithm  
*Amit Banerjee and Sushil J. Louis*
- 15:10 [1455] A Learning Classifier System with Mutual-Information-Based Fitness  
*R. E. Smith and Max Kun Jiang*

**Session** Theory of Evolutionary Computation – Part II  
**Date/Time** Thursday, 27 September 2007 / 13:30 – 15:30 hrs  
**Venue** Hullet  
**Chair(s)** Daniel Tauritz and Markus Borschbach

- 13:30 [2086] Greedy Population Sizing for Evolutionary Algorithms  
*Ekaterina Smorodkina and Daniel Tauritz*
- 13:50 [1562] On the Role of an Evolutionary Solution for the Brachistochrone-Problem  
*Markus Borschbach and Winfried Dreckmann*
- 14:10 [1435] Real-Coded ECGA for Solving Decomposable Real-Valued Optimization Problems  
*Minqiang Li, David E. Goldberg, Kumara Sastry and Tian-Li Yu*
- 14:30 [1405] Performance Tuning of Genetic Algorithms with Reserve Selection  
*Yang Chen, Jinglu Hu, Kotaro Hirasawa and Songnian Yu*
- 14:50 [1317] A Foundational Study on the Applicability of Genetic Algorithm to Software Engineering Problems  
*Hsinyi Jiang, Carl K. Chang, Dan Zhu and Shuxing Cheng*

## Technical Program

15:10 [1958] An Approximate Gaussian Model of Differential Evolution with Spherical Fitness Functions  
*Jingqiao Zhang and Arthur C. Sanderson*

**Session** sp04: Differential Evolution – Part II  
**Date/Time** Thursday, 27 September 2007 / 13:30 – 15:30 hrs  
**Venue** Indiana  
**Chair(s)** Uday K. Chakraborty and Andries Engelbrecht

13:30 [1303] Quasi-Oppositional Differential Evolution  
*Shahryar Rahnamayan, Hamid R. Tizhoosh and Magdy M. A. Salama*

13:50 [1025] Differential Evolution for Integer Programming Problems  
*Mahamed G. H. Omran and Andries P. Engelbrecht*

14:10 [1254] Solving Transportation Bi-Level Programs with Differential Evolution  
*Andrew Koh*

14:30 [1957] JADE: Self-Adaptive Differential Evolution with Fast and Reliable Convergence Performance  
*Jingqiao Zhang and Arthur C. Sanderson*

14:50 [1308] Empirical Testing on 3-Parents Differential Evolution (3PDE) for Unconstrained Function Optimization  
*Teng Nga Sing, Jason Teo and Mohd. Hanafi Ahmad Hijazi*

15:10 [1248] A Novel Binary Differential Evolution Algorithm Based on Artificial Immune System  
*Xingshi He and Lin Han*

**Session** sp27: New Particle Swarm Optimization Methods  
**Date/Time** Thursday, 27 September 2007 / 13:30 – 15:30 hrs  
**Venue** Orchard  
**Chair(s)** Andries Engelbrecht, Mario Koeppen and Frans van den Bergh

13:30 [1608] Evolutionary Multi-Objective Optimization of Particle Swarm Optimizers  
*Christian Veenhuis, Mario Köppen and Raul Vicente-Garcia*

13:50 [1315] Adaptive Multi-objective Particle Swarm Optimization Algorithm  
*P. K. Tripathi, Sanghamitra Bandyopadhyay and S. K. Pal*

14:10 [1316] Scatter PSO — A More Effective Form of Particle Swarm Optimization  
*Peng-Yeng Yin, Fred Glover, Manuel Laguna and Jia-Xian Zhu*

14:30 [1665] Enhancing the NichePSO  
*A. P. Engelbrecht and L. N. H. van Loggenberg*

14:50 [1786] Clonal Particle Swarm Optimization and Its Applications  
*Y. Tan and Z. M. Xiao*

15:10 [1184] Hybrid Particle Swarm Optimizer with Tabu Strategy for Global Numerical Optimization  
*Yu-Xuan Wang, Zhen-Dong Zhao and Ran Ren*

**Session** sp10: Evolutionary Computation for Power Engineering Applications – Part I  
**Date/Time** Thursday, 27 September 2007 / 13:30 – 15:30 hrs  
**Venue** Enterprise  
**Chair(s)** Wong Kit Po, ZhaoYang Dong and S. Mishra

13:30 [1289] Robust Tuning of Modern Power System Stabilizers Using Bacterial Foraging Algorithm  
*B. Sumanbabu, S. Mishra, B. K. Panigrahi and G. K. Venayagamoorthy*

13:50 [1022] Efficient Trade-Off Algorithm for Hydrothermal Power Systems  
*Chao-Lung Chiang*

Technical Program

- 14:10 [1914] Implementation of New Evolutionary Techniques for Transmission Loss Reduction  
*S. Mishra, G. Dilip Reddy, P. Eswar Rao and K. Santosh*
- 14:30 [1017] Electricity Reference Price Forecasting with Fuzzy C-means and Immune Algorithm  
*Ke Meng, Rui Xia, Ting Ji and Feng Qian*
- 14:50 [1727] Optimal Location of FACTS Devices by A Bacterial Swarming Algorithm for Reactive Power Planning  
*Z. Lu, M. S. Li, W. J. Tang and Q. H. Wu*
- 15:10 [1997] A Dual Layered PSO Algorithm for Evolving an Artificial Neural Network Controller  
*V. Subramanyam, D. Srinivasan and R. Oruganti*

**Session** sp25: Memetic Algorithms – Part I  
**Date/Time** Thursday, 27 September 2007 / 13:30 – 15:30 hrs  
**Venue** Moor  
**Chair(s)** Ferrante Neri, Yew-Soon Ong, Hisao Ishibuchi and Meng-Hiot Lim

- 13:30 [1431] Topology Management in Unstructured P2P Networks Using Neural Networks  
*Annemari Auvinen, Teemu Keltanen and Mikko Vapa*
- 13:50 [2010] Fitness Diversity Based Adaptive Memetic Algorithm for Solving Inverse Problems of Chemical Kinetics  
*Anna V. Kononova, Kevin J. Hughes, Mohamed Pourkashanian and Derek B. Ingham*
- 14:10 [1582] Fitness Diversity Based Adaptation in Multimeme Algorithms: A Comparative Study  
*Ferrante Neri, Ville Tirronen, T. Kärkkäinen and T. Rossi*
- 14:30 [1266] A Genetic Algorithm for the Generalized Traveling Salesman Problem  
*M. Fatih Tasgetiren, P. N. Suganthan, Quan-Ke Pan and Yun-Chia Liang*
- 14:50 [2106] A Study on the Design Issues of Memetic Algorithm  
*Q. H. Nguyen, Y. S. Ong and N. Krasnogo*
- 15:10 [2044] Memetic Algorithm Based Fuzzy Clustering  
*Anh-Duc Do and Siu-Yeung Cho*

**Session** Real-World Applications – Part II  
**Date/Time** Thursday, 27 September 2007 / 13:30 – 15:30 hrs  
**Venue** Mercury  
**Chair(s)** David Cornforth and Mario Koeppen

- 13:30 [1204] A Genetic Algorithm with Cycle Representation and Contraction Digraph Model for Guideway Network Design of Personal Rapid Transit  
*Jin-Myung Won and Fakhreddine Karray*
- 13:50 [1298] An Approach for Multi-Objective Robust Optimization Assisted by Response Surface Approximation and Visual Data-Mining  
*Koji Shimoyama, Jin Ne Lim, Shinkyu Jeong, Shigeru Obayashi and Masataka Koishi*
- 14:10 [1805] Multiple Sensors Data Integration Using MFAM for Mobile Robot Navigation  
*S. Parasuraman, V. Ganapathy and Bijan Shirinzadeh*
- 14:30 [1386] Use of a Genetic Algorithm in a Distributed Resource Management Software  
*Rolf Dornberger, Lukas Frey and Claudia Schmid*
- 14:50 [1755] Techniques for the Design of Molecules and Combinatorial Chemical Libraries  
*A. N. Sedwell and I. C. Parmee*
- 15:10 [1849] Constrained Genetic Algorithm Based Independent Component Analysis  
*D. P. Acharya, G. Panda and Y. V. S. Lakshmi*

Technical Program



**Session** Artificial Life  
**Date/Time** Thursday, 27 September 2007 / 13:30 – 15:30 hrs  
**Venue** Morrison  
**Chair(s)** Jong-Hwan Kim and Dario Floreano

- 13:30 [1388] Evolutionary Multi-Objective Optimization for Generating Artificial Creature's Personality  
*Chi-Ho Lee, Kang-Hee Lee and Jong-Hwan Kim*
- 13:50 [1491] A Genetic Approach to Search for Glider Guns in Cellular Automata  
*E. Sapin, L. Bull and A. Adamatzky*
- 14:10 [1279] Asynchronous Spatial Evolutionary Games: Spatial Patterns, Diversity and Chaos  
*D. Newth and D. Cornforth*
- 14:30 [1847] Evolving Neuromodulatory Topologies for Reinforcement Learning-Like Problems  
*Andrea Soltoggio, Peter Dürr, Claudio Mattiussi and Dario Floreano*
- 14:50 [1189] A Game Theory and BCC Based Flexible QoS Unicast Routing Scheme  
*Xingwei Wang, Lin Han and Min Huang*
- 15:10 [1933] Achieving Environmental Tolerance through the Initiation and Exploitation of External Information  
*Gunnar Tufte and Pauline C. Haddow*

Tea Break 15:30–16:00 hrs



**Session** Evolutionary Learning Systems  
**Date/Time** Thursday, 27 September 2007 / 16:00 – 18:00 hrs  
**Venue** Minto  
**Chair(s)** RI (Bob) McKay and Hussein Abbass

- 16:00 [1408] Extraction of Hybrid Trace Features with Evolutionary Computation for Face Recognition  
*Nan Liu and Han Wang*
- 16:20 [1917] Using Compression to Understand the Distribution of Building Blocks in Genetic Programming Populations  
*R. I. McKay (Bob), Shin Jungseok, Hoang Tuan Hao, Nguyen Xuan Hoai and Mori Naoki*
- 16:40 [1698] Real Time Signature Extraction From a Supervised Classifier System  
*Kamran Shafi, Hussein A. Abbass and Weiping Zhu*
- 17:00 [1772] Learnability in Human Gesture Recognition for a Partner Robot Based on Computational Intelligence  
*Naoyuki Kubota and Yu Tomioka*
- 17:20 [1544] LS-DRAUGHTS – A Draughts Learning System based on Genetic Algorithms, Neural Network and Temporal Differences  
*Henrique Castro Neto and Rita Maria Silva Julia*
- 17:40 [1668] The Scalability of Evolved on Line Bin Packing Heuristics  
*E. K. Burke, M. R. Hyde, G. Kendall and J. R. Woodward*

Technical Program



**Session** Computational Finance & Economics  
**Date/Time** Thursday, 27 September 2007 / 16:00 – 18:00 hrs  
**Venue** Morrison  
**Chair(s)** Mengjie Zhang and Shigeyoshi Watanabe

16:00 [1682] Genetic Programming for New Zealand CPI Inflation Prediction  
*Huayang Xie, Mengjie Zhang and Peter Andreae*

16:20 [1118] Comparison of Discriminatory Pricing and Uniform Pricing Rules in Electricity Markets Using an Agent Model with Risk Consideration  
*G. Zhi and S. Watanabe*

16:40 [2094] MNFS-FPM: A Novel Memetic Neuro-fuzzy System Based Financial Portfolio Management  
*Ernest Lumanpauw, Michel Pasquier and Chai Quek*

17:00 [1321] Index Fund Optimization Using a Genetic Algorithm and a Heuristic Local Search Algorithm on Scatter Diagrams  
*Y. Orito and H. Yamamoto*

17:20 [1327] Stock Market Prediction of S&P 500 and DJIA using Bacterial Foraging Optimization Technique  
*Ritanjali Majhi, G. Panda, G. Sahoo, P. K. Dash and D. P. Das*

17:40 [2078] A Foreign Exchange Portfolio Management Mechanism Based on Fuzzy Neural Networks  
*Shuo Yao, Michel Pasquier and Chai Quek*



**Session** sp33: Theoretical Foundations of Evolutionary Computation  
**Date/Time** Thursday, 27 September 2007 / 16:00 – 18:00 hrs  
**Venue** Hullet  
**Chair(s)** Benjamin Doerr and Frank Neumann

16:00 [1533] Random Search Can Outperform Mutation  
*Cameron Skinner and Patricia J. Riddle*

16:20 [2024] A Rigorous View on Neutrality  
*Benjamin Doerr, Michael Gnewuch, Nils Hebbinghaus and Frank Neumann*

16:40 [1629] Linear Selection  
*Mario Graff, Riccardo Poli and Alberto Moraglio*

17:00 [1901] An Improvement of the “Quotient Construction” Method and Further Asymptotic Results on the Stationary Distributions of the Markov Chains Modeling Evolutionary Algorithms  
*Boris Mitavskiy and Chris Cannings*

17:20 [1726] On Improving Approximate Solutions by Evolutionary Algorithms  
*Tobias Friedrich, Jun He, Nils Hebbinghaus, Frank Neumann and Carsten Witt*

17:40 [1736] Plateaus Can Be Harder in Multi-Objective Optimization  
*Tobias Friedrich, Nils Hebbinghaus and Frank Neumann*

Technical Program



**Session** Cognitive Systems & Applications  
**Date/Time** Thursday, 27 September 2007 / 16:00 – 18:00 hrs  
**Venue** Indiana  
**Chair(s)** Geok See Ng and Chai Quek

- 16:00 [2093] A Computational Intelligence System Based on Memory Consolidation Model  
*T. Z. Tan, G. S. Ng and C. Quek*
- 16:20 [1717] GPES: An Algorithm for Evolving Hybrid Kernel Functions of Support Vector Machines  
*Tanasanee Phienthrakul and Boonserm Kijirikul*
- 16:40 [2069] A Personalised Approach to Insulin Regulation Using Brain-Inspired Neural Semantic Memory in Diabetic Glucose Control  
*H. K. Phee, W. L. Tung and C. Quek*
- 17:00 [1749] On the Fuzzy Cognitive Map Attractor Distance  
*Alex Chong and Kok Wai Wong*
- 17:20 [2067] Speech Emotion Recognition Using Auditory Cortex  
*Abdul Wahab, Chai Quek and Sussan De*
- 17:40 [1442] Simultaneous Gradient and Evolutionary Neural Network Weights Adaptation Methods  
*Pavol Maliňák and Rudolf Jakša*



**Session** sp37: Evolutionary Computation for Process Optimisation  
**Date/Time** Thursday, 27 September 2007 / 16:00 – 18:00 hrs  
**Venue** Orchard  
**Chair(s)** Ashutosh Tiwari and Kostas Vergidis

- 16:00 [1297] Composite Business Processes: An Evolutionary Multi-objective Optimization Approach  
*Kostas Vergidis, Ashutosh Tiwari and Basim Majeed*
- 16:20 [1174] An Experimental Evaluation of Feedback Loops in a Business Process Mining Genetic Algorithm  
*C. J. Turner and A. Tiwari*
- 16:40 [1645] Introducing User Preference Using Desirability Functions in Multi-Objective Evolutionary Optimisation of Noisy Processes  
*Jörn Mehmert, Heike Trautmann and Ashutosh Tiwari*
- 17:00 [1578] Context-Aware Task Assignment in Ubiquitous Computing Environment - A Genetic Algorithm Based Approach  
*Pravin Pawar, Hailiang Mei, Ing Widya, Bert-Jan van Beijnum and Aart van Halteren*
- 17:20 [1964] Solving Multimodel Problems via Multiobjective Technique with Application to Phase Equilibrium Detection  
*Mike Preuss, Günter Rudolph and Feelly Tumakaka*
- 17:40 [2058] Exploring Knowledge and Population Swarms via an Agent-Based Cultural Algorithms Simulation Toolkit (CAT)  
*Robert G. Reynolds and Mostafa Z. Ali*



**Session** sp10: Evolutionary Computation for Power Engineering Applications – Part II  
**Date/Time** Thursday, 27 September 2007 / 16:00 – 18:00 hrs  
**Venue** Enterprise  
**Chair(s)** Wong Kit Po, ZhaoYang Dong and Nand Kishor

16:00 [1985] Optimization of Warship Degaussing Decision Based on Poly-Population Particle Swarm Algorithm  
*Hongda Liu and Zhongli Ma*

16:20 [1663] Particle Swarm Optimization Based Neural-Network Model for Hydro Power Plant Dynamics  
*Nand Kishor, Madhusudan Singh and A. S. Raghuvanshi*

16:40 [1173] Multi-Objective Differential Evolution (MODE) for Optimization of Supply Chain Planning and Management  
*B. V. Babu and Ashish M. Gujarathi*

17:00 [1844] Optimal Parameter Setting of Performance Based Regulation with Reward and Penalty  
*Nuo Xu, Fushuan Wen, Minxiang Huang and Zhaoyang Dong*

17:20 [1837] Conditional Value-at-Risk Based Mid-Term Generation Operation Planning in Electricity Market Environment  
*Gang Lu, Fushuan Wen, C. Y. Chung and K. P. Wong*

17:40 [1135] Genetic Programming Approach for Model Structure Determination of Hydro Turbine in Closed Loop Operation  
*Nand Kishor, Madhusudan Singh and A. S. Raghuvanshi*



**Session** sp25: Memetic Algorithms – Part II  
**Date/Time** Thursday, 27 September 2007 / 16:00 – 18:00 hrs  
**Venue** Moor  
**Chair(s)** Ferrante Neri, Yew-Soon Ong, Hisao Ishibuchi and Meng-Hiot Lim

16:00 [2038] Hierarchical Model Parallel Memetic Algorithm in Heterogeneous Computing Environment  
*J. Tang, M. H. Lim, Y. S. Ong and L. Q. Song*

16:20 [2097] A Memetic Algorithm Configured via a Problem Solving Environment for the Hamiltonian Cycle Problems  
*X. S. Chen, M. H. Lim and D. C. Wunsch II*

16:40 [1463] A Memetic Algorithm for Dynamic Design of Wireless Sensor Networks  
*Konstantinos P. Ferentinos and Theodore A. Tsiligiridis*

17:00 [1528] Development and Validation of Different Hybridization Strategies between GA and PSO  
*A. Gandelli, F. Grimaccia, M. Mussetta, P. Pirinoli and R. E. Zich*

17:20 [2009] An Empirical Study on the Specification of the Local Search Application Probability in Multiobjective Memetic Algorithms  
*Hisao Ishibuchi, Yasuhiro Hitotsuyanagi and Yusuke Nojima*

17:40 [1129] A New Hybrid Self Organizing Migrating Genetic Algorithm for Function Optimization  
*Kusum Deep and Dipti*



**Session** Real-World Applications – Part III  
**Date/Time** Thursday, 27 September 2007 / 16:00 – 18:00 hrs  
**Venue** Mercury  
**Chair(s)** Ian C. Parmee and Mengjie Zhang

- 16:00 [1908] SVMs Ensemble for Radar Target Recognition Based on Evolutionary Feature Selection  
*Xiangrong Zhang, Licheng Jiao and Shuiping Gou*
- 16:20 [1715] Evolutionary Optimization of Ship Propulsion Systems  
*Boris Naujoks, Max Steden, Sven-Brian Müller and Jochen Hundemer*
- 16:40 [2072] Optimal Model Detection in Distributed Sensor Networks Using Genetic-Fuzzy Clustering  
*Mohammad Mehdi Korjani, Ahmad Afshar, Mohammad Bagher Menhaj and Mohammad Reza Rajati*
- 17:00 [1222] Cooperative Ant Colony Optimization for Multisatellite Resource Scheduling Problem  
*Na Zhang and Zuren Feng*
- 17:20 [1294] Distributed Classifier Migration in XCS for Classification of Electroencephalographic Signals  
*B. T. Skinner, H. T. Nguyen and D. K. Liu*
- 17:40 [1779] Towards an Immune System that Solves CSP  
*María-Cristina Riff and Marcos Zúñiga*



**Session** Plenary Poster Session II  
**Date/Time** Thursday, 27 September 2007 / 09:30 – 10:30 hrs  
**Venue** Stamford Foyer & Bencoolen Room  
**Chair(s)**

- [1922] How Redundancy and Neutrality May Affect Evolution on NK Fitness Landscapes  
*Marisol B. Correia and Carlos M. Fonseca*
- [1714] The Effect of a Stochastic Step Length on the Performance of the Differential Evolution Algorithm  
*Omar S. Soliman, Lam T. Bui and Hussein A. Abbass*
- [1130] Self-Adaptive Barebones Differential Evolution  
*Mahamed G. H. Omran, Andries P. Engelbrecht and Ayed Salman*
- [1362] Study of Operator's Adaptability and Scale-Up Study for RAGA  
*M. M. Raghuvanshi and O. G. Kakde*
- [1190] Composite of Support Vector Regression and Evolutionary Algorithms in Car-Rental Revenue Forecasting  
*Wei-Chiang Hong, Young-Jou Lai, Ping-Feng Pai, Shao-Lun Lee and Shun-Lin Yang*
- [2021] Stock Price Forecasting Using PSO-Trained Neural Networks  
*Boo Junyou*
- [1213] Using Genetic Algorithms to Solve Luggage Typesetting Problem  
*Shao-Lun Lee and Wei-Chiang Hong*
- [1501] Non-separable Fitness Functions for Evolutionary Shape Optimization Benchmarking  
*Tim A. Yates and Thorsten Schmier*
- [1149] Solving Multi-Contingency Transient Stability Constrained Optimal Power Flow Problems with an Improved GA  
*K. Y. Chan, S. H. Ling, K. W. Chan, H. H. C. Iu and G. T. Y. Pong*
- [1067] Measurement-based Load Modeling Using Genetic Algorithms  
*Jin Ma, Zhao-yang Dong, Ren-mu He and David J. Hill*

*Technical Program*

- [1598] Hybrid PSO/Self-Adaptive Improved EP for Economic Dispatch with Nonsmooth Cost Function  
*Nidul Sinha, Bipul Syam Purkayastha and Biswajit Purkayastha*
- [1225] Locating Voltage Collapse Points Using Evolutionary Computation Techniques  
*S. H. Goh, Z. Y. Dong and T. K. Saha*
- [1326] An Effective Method for Total Transfer Capability Calculation  
*Qiang Zhang, Xueshan Han and Mingqiang Wang*
- [1525] TS-Based Generation and Transmission Maintenance Scheduling  
*Dayang Yu, Qiang Zhang, Xueshan Han and Jianguo Zhao*
- [1509] Cryptanalysis of Pointcheval's Identification Scheme Using Ant Colony Optimization  
*Mohammad Faisal Uddin and Amr M. Youssef*
- [1699] A Hybrid Genetic Algorithm for Multiobjective Structural Optimization  
*N. Wang and K. Tai*
- [1452] Design for Manufacture of Optimal Compliant Topologies with Honeycomb Continuum Representation  
*Anupam Saxena and Nilesh D. Mankame*
- [1274] Enabling Generative Behavior within an Interactive Evolutionary Design System Using a Component-Based Representation  
*Azahar T. Machwe and Ian C. Parmee*
- [1193] Design for Self-Organizing Fuzzy Neural Networks Using a Novel Hybrid Learning Algorithm  
*Liang Zhao and Fei-Yue Wang*
- [1314] Integrated-Optimal Design of Airplane and Flight Control Using Genetic Algorithms  
*Yifeng Zhang and Kai-Yew Lum*
- [1926] A New Elitist Multi-Objective Stochastic Search Technique and its Application to Economic-Emission Dispatch Problem in Power Systems  
*K. Srinivas, C. Patvardhan and D. Bhagwan Das*
- [1115] A Memetic Co-Evolutionary Differential Evolution Algorithm for Constrained Optimization  
*Bo Liu, Hannan Ma, Xuejun Zhang, Bo Liu and Yan Zhou*
- [2107] Hybridization of SBX Based NSGA-II and Sequential Quadratic Programming for Solving Multi-Objective Optimization Problems  
*Deepak Sharma, Abhay Kumar, Kalyanmoy Deb and Karthik Sindhya*
- [2109] A Hybrid Multi-Objective Optimization Procedure Using PCX Based NSGA-II and Sequential Quadratic Programming  
*Abhay Kumar, Deepak Sharma and Kalyanmoy Deb*
- [1654] Adaptive Parameter Setting for a Multi-Objective Particle Swarm Optimization Algorithm  
*Karin Zielinski and Rainer Laur*

## Technical Program

- [2030] On the Adaptation of Noise Level for Stochastic Optimization  
*O. Teytaud and A. Auger*
- [1108] A Simple Genetic Algorithm for Music Generation by Means of Algorithmic Information Theory  
*Manuel Alfonseca, Manuel Cebrián and Alfonso Ortega*
- [1488] Projection-Based Local Search Operator for Multiple Equality Constraints within Genetic Algorithms  
*Gustavo Peconick, Elizabeth F. Wanner and Ricardo H. C. Takahashi*
- [1886] Designing Memetic Algorithms for Real-World Applications Using Self-Imposed Constraints  
*T. Michelitsch, T. Wagner, D. Biermann and C. Hoffmann*
- [1641] A Solution Method Employing a Multi-Objective Genetic Algorithm to Search for Pareto Solutions of Series-Parallel System Component Allocation Problem  
*Hidemi Yamachi, Hisashi Yamamoto, Yasuhiro Tsujimura and Yasushi Kambayashi*
- [1476] Multi-Objective Optimization with Cross Entropy Method: Stochastic Learning with Clustered Pareto Fronts  
*Ahmet Ünveren and Adnan Acan*
- [2071] Improved MOCLPSO Algorithm for Environmental/Economic Dispatch  
*T. A. A. Victoire and P. N. Suganthan*
- [1270] Constraint Handling in Multi-Objective Evolutionary Optimization  
*Yonas G. Woldesenbet, Biruk G. Tessema and Gary G. Yen*
- [1407] MOGA-Based Time-Cost Tradeoffs: Responsiveness for Project Uncertainties  
*Bhupendra Kumar Pathak and Sanjay Srivastava*
- [1175] A Multiobjective Non-Linear Dynamic Programming Approach for Optimal Biological Control in Soy Farming via NSGA-II  
*André R. da Cruz, Rodrigo T. N. Cardoso, Elizabeth F. Wanner and Ricardo H. C. Takahashi*
- [1171] Indicator-Based Multi-Objective Local Search  
*M. Basseur and E. K. Burke*
- [1265] NEMO: Neural Enhancement for Multiobjective Optimization  
*Aaron Garrett, Gerry Dozier and Kalyanmoy Deb*
- [1320] Generalization of HSO Algorithm for Computing Hypervolume for Multiobjective Optimization Problems  
*Zhou XiuLing, Sun ChengYi, Mao Ning and Li WenJuan*
- [1874] Obtaining Better Non-Dominated Sets Using Volume Dominance  
*Khoi Le and Dario Landa-Silva*
- [1084] A Primal-Dual Multiobjective Evolutionary Algorithm for Approximating the Efficient Set  
*Thomas Hanne*
- [1406] Cross-Searching Strategy for Multi-Objective Particle Swarm Optimization  
*Shih-Yuan Chiu, Tsung-Ying Sun, Sheng-Ta Hsieh and Cheng-Wei Lin*
- [1369] Multiobjective Algorithms to Optimize Broadcasting Parameters in Mobile Ad-hoc Networks  
*R. Pérez-Pérez, C. Luque, A. Cervantes and P. Isasi*

*Technical Program*

- [1761] A New Multi-Objective Evolutionary Algorithm Based on Convex Hull for Binary Classifier Optimization  
*Marco Cococcioni, Pietro Ducange, Beatrice Lazzerini and Francesco Marcelloni*
- [1558] Integrated Radiation Optimization: Inspired by the Gravitational Radiation in the Curvature of Space-Time  
*Cheng-Long Chuang and Joe-Air Jiang*
- [1381] Multi-Objective Optimization Approach to the PI Tuning Problem  
*Saeed Tavakoli, Ian Griffin and Peter J. Fleming*
- [1276] Dynamic Swarms in PSO-Based Multiobjective Optimization  
*Wen-Fung Leong and Gary G. Yen*
- [1616] A Cooperative Coevolutionary Algorithm for Multiobjective Particle Swarm Optimization  
*C. H. Tan, C. K. Goh, K. C. Tan and A. Tay*
- [1253] IPGA Based Multi-Objective Compatible Control Algorithm and Its Application in Oversaturated Adjacent Intersection Control  
*Juan Chen, Lihong Xu and Changliang Yuan*
- [1570] Three-Dimensional Offline Path Planning for UAVs Using Multiobjective Evolutionary Algorithms  
*Shashi Mittal and Kalyanmoy Deb*
- [1950] Incrementally Maximising Hypervolume for Selection in Multi-Objective Evolutionary Algorithms  
*Lucas Bradstreet, Lyndon While and Luigi Barone*
- [1180] Towards the Best Points of Interpolation Using Particles Swarm Optimisation Approach  
*L. Djerou, M. Batouche, N. Khelil and A. Zerarka*
- [1750] Multi-Sub-Swarm Particle Swarm Optimization Algorithm for Multimodal Function Optimization  
*Jun Zhang, De-Shuang Huang and Kun-Hong Liu*
- [1823] A New Particle Swarm Optimization Based Algorithm for Solving Shortest-Paths Tree Problem  
*Ammar W. Mohammed, Nirod Chandra Sahoo and Tan Kim Geok*
- [1503] Problem Solving by Intelligent Water Drops  
*Hamed Shah\_Hosseini*
- [1465] Optimized Fuzzy Clustering by Predator Prey Particle Swarm Optimization  
*Woo-seok Jang, Hwan-il Kang, Byung-hee Lee, Kab il Kim, Dong-il Shin and Seung-chul Kim*
- [1596] An Experimental Study of the Emergent Behaviors of Self-Organized Agent Communities  
*Shufeng Wang and Hong Zhu*
- [1496] Barebones Particle Swarm Methods for Unsupervised Image Classification  
*M. Omran and S. Al-Sharhan*
- [1426] Identification of Nonlinear Systems using Particle Swarm Optimization Technique  
*G. Panda, D. Mohanty, Babita Majhi and G. Sahoo*

## Technical Program

- [1733] Particle Swarm Optimization Based on the Concept of Tabu Search  
*Shinichi Nakano, Atsushi Ishigame and Keiichiro Yasuda*
- [1048] Dispersion and Velocity Indices for Observing Dynamic Behavior of Particle Swarm Optimization  
*The Jin Ai and Voratas Kachitvichyanukul*
- [1131] A Novel Intelligent Particle Optimizer for Global Optimization of Multimodal Functions  
*Zhen Ji, Huilian Liao, Yiwei Wang and Q. H. Wu*
- [1257] Adaptive Control of Acceleration Coefficients for Particle Swarm Optimization Based on Clustering Analysis  
*Zhi-hui Zhan, Jing Xiao, Jun Zhang and Wei-Neng Chen*
- [1262] A Novel Discrete Particle Swarm Optimization to Solve Traveling Salesman Problem  
*Wen-Liang Zhong, Jun Zhang and Wei-Neng Chen*
- [1380] Performance Improvement of Particle Swarm Optimization for High-Dimensional Function Optimization  
*Takeshi Korenaga, Toshiharu Hatanaka and Katsuji Uosaki*
- [1889] A Simple Diversity Guided Particle Swarm Optimization  
*M. Pant, T. Radha and V. P. Singh*
- [1438] Task Allocation Using Inherited Area Density Multiobjective Particle Swarm Optimization  
*Bassem S. Rabil, Mona A. Fahmy and Gamal M. Aly*
- [1263] Workflow Scheduling in Grids: An Ant Colony Optimization Approach  
*Wei-Neng Chen, Jun Zhang and Yang Yu*
- [1797] Particle Swarm Optimization for Optimal Deployment of Relay Nodes in Hybrid Sensor Networks  
*Chunhua Zhao and Peng Chen*
- [1713] Crowd Control with Swarm Intelligence  
*Ying-Yin Lin and Ying-Ping Chen*
- [1208] Pareto Archived PSO Optimization for Time-Cost Tradeoff Analysis  
*I-Tung Yang*
- [1333] A Particle Swarm Optimization-Based Approach for Hyperspectral Band Selection  
*Sildomar Takahashi Monteiro and Yukio Kosugi*
- [1033] An Improved Particle Swarm Optimizer with Momentum  
*Tao Xiang, Jun Wang and Xiaofeng Liao*
- [1613] Reliability Evaluation of Power-Generating Systems Including Time-Dependent Sources Based on Binary Particle Swarm Optimization  
*Lingfeng Wang, Chanan Singh and Kay Chen Tan*

Technical Program

[1322] Efficient Particle Swarm Optimization: A Termination Condition Based on the Decision-Making Approach

*N. M. Kwok, Q. P. Ha, D. K. Liu, G. Fang and K. C. Tan*

[1500] Job Shop Optimization Through Multiple Independent Particle Swarms

*Brian Ivers and Gary G. Yen*

Conference Banquet<sup>a</sup> 19:00 hrs

## Friday, 28 September 2007

Time 08:30–09:30 hrs  
Keynote 3 Games, and The Design of New Hybrid Evolutionary and Temporal Difference Learning Algorithms  
*Simon M. Lucas*  
Venue Stamford Ballroom

Tea Break @ Stamford Foyer & Bencoolen Room 09:30–10:30 hrs

Time 10:30–11:30 hrs  
Invited Talk 5 Cultural Algorithms: Harnessing the Power of Social Intelligence  
*Robert G. Reynolds*  
Venue Stamford Ballroom

Time 11:30–12:30 hrs  
Invited Talk 6 Artificial Brains: An Evolved Neural Net Module Approach  
*Hugo de Garis*  
Venue Stamford Ballroom

**Session** Artificial Immune Systems  
**Date/Time** Friday, 28 September 2007 / 10:30 – 12:30 hrs  
**Venue** Indiana  
**Chair(s)** Maoguo Gong and France Cheong

10:30 [1530] Extended Thymus Action for Improving Response of AIS Based NID System Against Malicious Traffic  
*M. Zubair Shafiq, Mehrin Kiani, Bisma Hashmi and Muddassar Farooq*

10:50 [1627] Consumer Credit Scoring Using an Artificial Immune System Algorithm  
*Kevin Leung, France Cheong and Christopher Cheong*

11:10 [1652] Solving Multidimensional Knapsack Problems by an Immune-Inspired Algorithm  
*Maoguo Gong, Licheng Jiao, Wenping Ma and Shuiping Gou*

11:30 [1550] An Artificial Immunity-Based Spam Detection System  
*B. Sirisanyalak and O. Sornil*

<sup>a</sup>Stamford Ballroom, Swissôtel The Stamford (Conference Hotel) *Pre-dinner Cocktail (soft drinks and nuts) will start at 18:30 hrs*

## Technical Program

11:50 [1866] Pipeline Defect Detection and Sizing Based on MFL Data Using Immune RBF Neural Networks  
*Zhongli Ma and Hongda Liu*

12:10 [1138] Immunity Diversity Based Multi-Agent Intrusion Detection  
*Yu Gu, Jiashu Zhao, Dong Liang and Zongben Xu*

**Session** Evolving Neural Networks & Fuzzy Systems  
**Date/Time** Friday, 28 September 2007 / 10:30 – 12:30 hrs  
**Venue** Orchard  
**Chair(s)** Chai Quek and Tetsuyuki Takahama

10:30 [1673] Emergent Specialization in the Extended Multi-Rover Problem  
*G. S. Nitschke, M. C. Schut and A. E. Eiben*

10:50 [1098] Evolutionary Synthesis of Grasping Through Self-Exploratory Movements of a Robotic Hand  
*Gabriel Gómez and Peter Eggenberger Hotz*

11:10 [1911] HiCEFS - A Hierarchical Coevolutionary Approach for the Dynamic Generation of Fuzzy System  
*Haoming Huang, Michel Pasquier and Chai Quek*

11:30 [1378] Structural Learning of Neural Networks by Differential Evolution with Degeneration Using Mappings  
*Tetsuyuki Takahama, Setsuko Sakai, Akira Hara and Noriyuki Iwane*

11:50 [1712] Training Type-2 Fuzzy System by Particle Swarm Optimization  
*Moha'med O. Al-Jaafreh and Adel A. Al-Jumaily*

12:10 [2042] Improving Generalization Capability of Neural Networks Based on Simulated Annealing  
*Yeejin Lee, Jong-Seok Lee, Sun-Young Lee and Cheol Hoon Park*

**Session** sp08: Evolutionary Computation for Electronic Design Automation  
**Date/Time** Friday, 28 September 2007 / 10:30 – 12:30 hrs  
**Venue** Enterprise  
**Chair(s)** Giovanni Squillero and Giovanni Squillero

10:30 [1182] Hybrid Quantum Probabilistic Coding Genetic Algorithm for Large Scale Hardware-Software Co-Synthesis of Embedded Systems  
*Ronghua Guo, Bin Li, Yi Zou and Zhenquan Zhuang*

10:50 [1893] Fitness Inheritance in Evolutionary and Multi-Objective High-Level Synthesis  
*Christian Pilato, Gianluca Palermo, Antonino Tumeo, Fabrizio Ferrandi, Donatella Sciuto and Pier Luca Lanzi*

11:10 [1767] A Local Analysis of an Incremental Evolutionary Tool for Processor Diagnosis  
*D. Ravotto, E. Sanchez, M. Schillaci and G. Squillero*

11:30 [1766] Co-Evolution of Test Programs and Stimuli Vectors for Testing of Embedded Peripheral Cores  
*L. Bolzani, E. Sanchez, M. Schillaci and G. Squillero*

11:50 [1622] Design of Analog All-Pass Filters with Equal-Ripple Group Delay Frequency Response  
*Premysl Žiška and Miloš Laipert*

12:10 [1527] Automated Design of a MEMS Resonator  
*Jason D. Lohn, William F. Kraus and Gregory S. Hornby*

Technical Program



**Session** Combinatorial & Numerical Optimization  
**Date/Time** Friday, 28 September 2007 / 10:30 – 12:30 hrs  
**Venue** Moor  
**Chair(s)** Kengo Katayama and Taejin Park

- 10:30 [1239] Problem Decomposition for Minimum Interference Frequency Assignment  
*G. Colombo and S. M. Allen*
- 10:50 [1597] A Histogram-Matching Approach to the Evolution of Bin-Packing Strategies  
*Riccardo Poli, John Woodward and Edmund K. Burke*
- 11:10 [1207] Variable Depth Search and Iterated Local Search for the Node Placement Problem in Multihop WDM Lightwave Networks  
*Kengo Katayama, Hiroshi Yamashita and Hiroyuki Narihisa*
- 11:30 [1395] A Dual Population Genetic Algorithm with Evolving Diversity  
*Taejin Park and Kwang Ryel Ryu*
- 11:50 [1351] Differential Evolution for High-Dimensional Function Optimization  
*Zhenyu Yang, Ke Tang and Xin Yao*
- 12:10 [1852] An Effective Genetic Algorithm to Improve Wireless Sensor Network Lifetime for Large-Scale Surveillance Applications  
*Chih-Chung Lai, Chuan-Kang Ting and Ren-Song Ko*



**Session** sp12: Evolutionary Computation in Cryptology and Computer Security  
**Date/Time** Friday, 28 September 2007 / 10:30 – 12:30 hrs  
**Venue** Mercury  
**Chair(s)** Juan M. Estevez-Tapiador, Luiza Mourelle, Julio Cesar Hernandez and John A Clark

- 10:30 [1623] SoC-Based Implementation for Modular Exponentiation Using Evolutionary Addition Chains  
*Nadia Nedjah and Luiza de Macedo Mourelle*
- 10:50 [1165] Intrusion Detection Using a Hybridization of Evolutionary Fuzzy Systems and Artificial Immune Systems  
*M. Saniee Abadeh, J. Habibi, M. Daneshi, M. Jalali and M. Khezzadeh*
- 11:10 [1813] Preventing Selfish Behavior in Ad Hoc Networks  
*M. Sereczynski, P. Bouvry and M. A. Klopotek*
- 11:30 [1577] Heuristic Search for Non-Linear Cryptanalytic Approximations  
*Juan M. E. Tapiador, Julio C. Hernandez-Castro and John A. Clark*
- 11:50 [1459] A Genetic Algorithm for Computing the  $k$ -Error Linear Complexity of Cryptographic Sequences  
*A. Alecu and A. M. Sălăgean*
- 12:10 [1890] An Approach to Feature Selection for Keystroke Dynamics Systems Based on PSO and Feature Weighting  
*Gabriel L. F. B. G. Azevedo, George D. C. Cavalcanti and E. C. B. Carvalho Filho*



**Session** sp29: Performance Assessment of Multi-Objective Optimization Algorithms  
**Date/Time** Friday, 28 September 2007 / 10:30 – 12:30 hrs  
**Venue** Morrison  
**Chair(s)** Kalyanmoy Deb, P. N. Suganthan and Eckart Zitzler

- 10:30 [1638] Differential Evolution with Adaptive Parameter Setting for Multi-Objective Optimization  
*Karin Zielinski and Rainer Laur*

## Technical Program

- 10:50 [2104] Performance Assessment of Generalized Differential Evolution 3 (GDE3) with a Given Set of Problems  
*Saku Kukkonen and Jouni Lampinen*
- 11:10 [2101] Multi-Objective Optimization Based on Self-Adaptive Differential Evolution Algorithm  
*V. L. Huang, A. K. Qin, P. N. Suganthan and M. F. Tasgetiren*
- 11:30 [2074] Multiple Trajectory Search for Multiobjective Optimization  
*Lin-Yu Tseng and Chun Chen*
- 11:50 [2092] Differential Evolution for Multiobjective Optimization with Self Adaptation  
*Aleš Zamuda, Janez Brest, Borko Bošković and Viljem Žumer*
- 12:10 [1137] A New Performance Metric for Multiobjective Optimization: The Integrated Sphere Counting  
*Vinícius L. S. Silva, Elizabeth F. Wanner, Sérgio A. A. G. Cerqueira and Ricardo H. C. Takahashi*

**Session** Evolutionary Robotic & Control Systems  
**Date/Time** Friday, 28 September 2007 / 10:30 – 12:30 hrs  
**Venue** Minto  
**Chair(s)** Ivan Tanev and Declan Bates

- 10:30 [1444] Evolving Quadruped Gaits with a Heterogeneous Modular Robotic System  
*Matthew D. Hancher and Gregory S. Hornby*
- 10:50 [1051] On the Robustness Analysis of Nonlinear Systems Subject to Time-Invariant and/or Time-Varying Uncertainty  
*Declan G. Bates, Sajjad Fekri, Prathyush P. Menon and Ian Postlethwaite*
- 11:10 [1800] On Human Competitiveness of the Evolved Agent Operating a Scale Model of a Car  
*Ivan T. Tanev and Katsunori Shimoharap*
- 11:30 [1993] An Evolutionary Approach for Autonomous Robotic Tracking of Dynamic Targets in Healthcare Environments  
*Renato R. Cazangi, Craig Feied, Michael Gillam, Jonathan Handler, Mark Smith and Fernando J. Von Zuben*
- 11:50 [1454] Interactive Learning of Consensus Sequences in Genetic Programming for Evolution of Snake-like Robot  
*Ivan T. Tanev and Katsunori Shimohara*
- 12:10 [1385] Evolutionary Motion Inverse Kinematics  
*John Millard*

**Session** Evolutionary Games  
**Date/Time** Friday, 28 September 2007 / 10:30 – 12:30 hrs  
**Venue** Hullet  
**Chair(s)** David Newth and Hussein Abbass

- 10:30 [1295] On the Evolution of Altruistic Behavior in Asynchronous Environments  
*D. Newth*
- 10:50 [1453] State Evaluation Strategy for Exemplar-Based Policy Optimization of Dynamic Decision Problems  
*Kokolo Ikeda and Hajime Kita*
- 11:10 [1552] Irreducible Complexity in a Genetic Algorithm  
*Lee Graham, Franz Oppacher and Steffen Christensen*
- 11:30 [2085] Attraction and Cooperation in Space  
*Elpida S. Tzafestas*

Technical Program

- 11:50 [1756] Emergence of Small-World Networks via Local Interaction Using Prisoner's Dilemma Game  
*Sihai Zhang, Zhiwei Song, Xufa Wang and Wuyang Zhou*
- 12:10 [1702] The Critical Point When Prisoners Meet the Minority: Local and Global Dynamics in Mixed Evolutionary Games  
*Ayman Ghoneim, Hussein Abbass and Michael Barlow*

Lunch Break @ Canning Room

12:30–13:30 hrs

**Session** sp30: Recent Developments in Artificial Immune Systems  
**Date/Time** Friday, 28 September 2007 / 13:30 – 15:30 hrs  
**Venue** Indiana  
**Chair(s)** Jonathan Timmis, Martin Drozda and Emma Hart

- 13:30 [1096] AIS for Misbehavior Detection in Wireless Sensor Networks: Performance and Design Principles  
*Martin Drozda, Sven Schaust and Helena Szczerbicka*
- 13:50 [1154] Comments on Real-Valued Negative Selection vs. Real-Valued Positive Selection and One-Class SVM  
*Thomas Stibor and Jonathan Timmis*
- 14:10 [1076] Comparison of a Multi-Layered Artificial Immune System with a Kohonen Network  
*T. Knight and J. Timmis*
- 14:30 [1869] Applying Artificial Immune Systems to Real-Time Embedded Systems  
*Nicholas Lay and Iain Bate*
- 14:50 [1032] Immune Genetic Programming Based on Register-Stack Structure  
*Zeming Zhang, Wenjian Luo and Xufa Wang*
- 15:10 [1410] WAIRS: Improving Classification Accuracy by Weighting Attributes in the AIRS Classifier  
*Andrew Secker and Alex A. Freitas*

**Session** sp21: Evolutionary Planning and Scheduling  
**Date/Time** Friday, 28 September 2007 / 13:30 – 15:30 hrs  
**Venue** Orchard  
**Chair(s)** Keshav Dahal, Ruhul Sarker and Peter Cowling

- 13:30 [1300] Integrating Planning and Scheduling Based on Genetic Algorithms to an Workflow System  
*Fabiano S. R. Alves, Kairon F. Guimarães and Márcia A. Fernandes*
- 13:50 [1505] An Investigation of Hyper-Heuristic Search Spaces  
*José Antonio Vázquez Rodríguez, Sanja Petrovic and Abdellah Salhi*
- 14:10 [1422] A Hybrid Evolutionary Algorithm for the Vehicle and Crew Scheduling Problem in Public Transit  
*Ingmar Steinzen, Matthias Becker and Leena Suhl*
- 14:30 [1780] A Genetic Algorithm for Lot Sizing Optimization with a Capacity Loading Criterion  
*Jerzy Duda and Andrzej Osyczka*
- 14:50 [1148] An Empirical Performance Evaluation of a Parameter-Free Genetic Algorithm for Job-Shop Scheduling Problem  
*Shouichi Matsui and Seiji Yamada*

Technical Program

15:10 [1617] Modified Genetic Algorithm for Job-Shop Scheduling: A Gap-Utilization Technique  
*S. M. Kamrul Hasan, Ruhul Sarker and David Cornforth*

**Session** sp09: Evolutionary Computation for Expensive Optimization Problems – Part I  
**Date/Time** Friday, 28 September 2007 / 13:30 – 15:30 hrs  
**Venue** Enterprise  
**Chair(s)** Chi Keong Goh, Kay Chen Tan, Yew Soon Ong and Joshua Knowles

13:30 [1198] Direct Search for Wave Operator by a Genetic Algorithm (GA): Route to Few Eigenvalues of a Hamiltonian  
*Rahul Sharma and S. P. Bhattacharyya*

13:50 [1379] A Simulated Evolution-Tabu Search Hybrid Metaheuristic for Routing in Computer Networks  
*Salman A. Khan and Zubair A. Baig*

14:10 [1548] DE-AEC: A Differential Evolution Algorithm Based on Adaptive Evolution Control  
*Jingqiao Zhang and Arthur C. Sanderson*

14:30 [2052] A Distributed Co-Evolutionary Particle Swarm Optimization Algorithm  
*D. S. Liu, K. C. Tan and W. K. Ho*

14:50 [1169] Parallel Learning in Heterogeneous Multi-Robot Swarms  
*Jim Pugh and Alcherio Martinoli*

15:10 [1403] Surrogate Based EA for Expensive Optimization Problems  
*Maumita Bhattacharya*

**Session** sp11: EC in Bioinformatics and Computational Biology – Part I  
**Date/Time** Friday, 28 September 2007 / 13:30 – 15:30 hrs  
**Venue** Moor  
**Chair(s)** Madhu Chetty, Clare Bates Congdon and Scott F. Smith

13:30 [2100] Initial Results with EpiSwarm, A Swarm-Based System for Investigating Genetic Epistasis  
*Thomas Goth, Chia-Ti Tsai, Fu-Tien Chiang and Clare Bates Congdon*

13:50 [1828] A Guided Genetic Algorithm for Learning Gene Regulatory Networks  
*Ramesh Ram and Madhu Chetty*

14:10 [1973] The Genetic Algorithm Scheme for Consensus Sequences  
*Joshua W. Gilkerson and Jerzy W. Jaromczyk*

14:30 [1605] The Significance of Thermodynamic Models in the Accuracy Improvement of RNA Secondary Structure Prediction Using Permutation-Based Simulated Annealing  
*Herbert H. Tsang and Kay C. Wiese*

*Technical Program*

- 14:50 [1306] An Evolutionary Progressive Multiple Sequence Alignment  
*Farhana Naznin, Morikazu Nakamura, Takeo Okazaki and Yumiko Nakajima*
- 15:10 [1436] A Co-Evolutionary Framework for Regulatory Motif Discovery  
*Michael A. Lones and Andy M. Tyrrell*

**Session** sp17: EC in Structural and Multidisciplinary Optimization – Part I  
**Date/Time** Friday, 28 September 2007 / 13:30 – 15:30 hrs  
**Venue** Mercury  
**Chair(s)** Kang Tai and Tapabrata Ray

- 13:30 [1309] Novel Evolutionary Algorithm with Set Representation Scheme for Truss Design  
*A. Isaacs, T. Ray and W. Smith*
- 13:50 [1085] Influence of the Finite Element Discretization Error Over the Convergence of Structural Shape Optimization Algorithms  
*Gabriel Bugea, Juan J. Ródenas, José Albelda and Eugenio Oñate*
- 14:10 [1855] Multiobjective Optimization of Sensor Network Deployment by a Genetic Algorithm  
*Shao Chong Oh, Chung Huat Tan, Fook Wai Kong, Yuan Sin Tan, Khin Hua Ng, Gee Wah Ng and K. Tai*
- 14:30 [1697] Handling Objectives as Adaptive Constraints for Multiobjective Structural Optimization  
*N. Wang and K. Tai*
- 14:50 [1107] Final Design Interpretation of the Complex-Shaped Beam Optimizations for Compliant Mechanisms  
*M. Sauter, T. Kern and P. Ermanni*
- 15:10 [1272] A Novel Genetic Algorithm for the Layout Optimization Problem  
*Yi-Chun Xu, Ren-Bin Xiao and Martyn Amos*

**Session** sp20: Evolutionary Multiobjective Optimization – Part I  
**Date/Time** Friday, 28 September 2007 / 13:30 – 15:30 hrs  
**Venue** Morrison  
**Chair(s)** Carlos A. Coello Coello and Evan Hughes

- 13:30 [1835] MSOPS-II: A General-Purpose Many-Objective Optimiser  
*Evan J. Hughes*
- 13:50 [1428] Comparison of Evolutionary Algorithms in the Task of Chaos Control Optimization  
*Roman Senkerik, Ivan Zelinka and Donald Davendra*
- 14:10 [1238] How Well Do Multi-Objective Evolutionary Algorithms Scale to Large Problems  
*Kata Praditwong and Xin Yao*
- 14:30 [1655] Iterative Approach to Indicator-Based Multiobjective Optimization  
*Hisao Ishibuchi, Noritaka Tsukamoto and Yusuke Nojima*
- 14:50 [2017] Dynamic Resizing for Grid-Based Archiving in Evolutionary Multi-Objective Optimization  
*L. Rachmawati and D. Srinivasan*
- 15:10 [1785] Ranking-Dominance and Many-Objective Optimization  
*Saku Kukkonen and Jouni Lampinen*

Technical Program



**Session** sp32: Evolutionary Computation in Manufacturing Systems and Robotics  
**Date/Time** Friday, 28 September 2007 / 13:30 – 15:30 hrs  
**Venue** Minto  
**Chair(s)** S. G. Ponnambalam, Arya Bhattacharya and S. M. N. Arosha Senanayake

- 13:30 [1647] An Evolutionary Algorithm for Machine Layout and Job Assignment Problems  
*Ruhul Sarker, Tapabrata Ray and José Barahona da Fonseca*
- 13:50 [1421] Optimization of Continuous Casting Mould Oscillation Parameters in Steel Manufacturing Process Using Genetic Algorithms  
*Arya K. Bhattacharya, S. Debjani, Abhik Roychowdhury and Jadav Das*
- 14:10 [1594] An Evolutionary Search Heuristic for Solving QAP Formulation in Facility Layout Design  
*A. S. Ramkumar, S. G. Ponnambalam and N. Jawahar*
- 14:30 [1883] Multi-Objective Particle Swarm Optimization Algorithm for Scheduling in Flowshops to Minimize Makespan, Total Flowtime and Completion Time Variance  
*S. Chandrasekaran, S. G. Ponnambalam, R. K. Suresh and N. Vijayakumar*
- 14:50 [1352] Biped Fast Walking Gait Shaping via Evolutionary Multi-Objective Optimization  
*P. Kulvanit, N. Chaiyaratana and D. Laowattana*
- 15:10 [1231] Genetic Programming and Neural Networks as Interpreters for a Distributive Tactile Sensing System  
*U. Pattananupong, P. Tongpadungrod and N. Chaiyaratana*



**Session** sp16: Evolutionary Computation in Games  
**Date/Time** Friday, 28 September 2007 / 13:30 – 15:30 hrs  
**Venue** Hullet  
**Chair(s)** Luigi Barone and Philip Hingston

- 13:30 [1347] Static Experts and Dynamic Enemies in Coevolutionary Games  
*Phillipa M. Avery and Zbigniew Michalewicz*
- 13:50 [1549] Multi-Population Competitive Co-Evolution of Car Racing Controllers  
*Julian Togelius, Peter Burrow and Simon M. Lucas*
- 14:10 [2079] Effects of Spatial Structures on Evolution of Iterated Prisoner's Dilemma Game Strategies with Probabilistic Decision Making  
*Ken Ohara, Yusuke Nojima, Yumeka Kitano and Hisao Ishibuchi*
- 14:30 [2076] Experiments with Monte Carlo Othello  
*P. Hingston and M. Masek*
- 14:50 [1916] Investigating Alliance Dynamics Using a Co-Evolutionary Iterated Prisoner's Dilemma with an Exit Option  
*Ayman Ghoneim, Hussein Abbass and Michael Barlow*
- 15:10 [1202] Fingerprint Analysis of the Noisy Prisoner's Dilemma  
*Daniel Ashlock, Eun-Youn Kim and Wendy Ashlock*

Tea Break

15:30–16:00 hrs

Technical Program



**Session** Molecular & Quantum Computing  
**Date/Time** Friday, 28 September 2007 / 16:00 – 17:20 hrs  
**Venue** Orchard  
**Chair(s)** Garry Greenwood and Dia Abu Al-Nadi

- 16:00 [1110] Applying Evolutionary Techniques to Quantum Computing Problems  
*Steven R. Hutsell and Garrison W. Greenwood*
- 16:20 [1865] A Practical Framework to Utilize Quantum Search  
*Shigeru Yamashita and Masaki Nakanishi*
- 16:40 [1432] Viterbi Decoder Algorithm using Quantum Computing  
*Jamal S. Rahhal, Dia I. Abu-Al-Nadi and Mohammed Hawa*
- 17:00 [1759] A Proposal of Multi-Agent Simulation System for Membrane Computing Devices  
*Giovanni Acampora and Vincenzo Loia*



**Session** sp09: Evolutionary Computation for Expensive Optimization Problems – Part II  
**Date/Time** Friday, 28 September 2007 / 16:00 – 17:20 hrs  
**Venue** Enterprise  
**Chair(s)** Chi Keong Goh, Kay Chen Tan, Yew Soon Ong and Joshua Knowles

- 16:00 [1480] The Application of Evolutionary Multi-Criteria Optimization to Dynamic Molecular Alignment  
*Ofer M. Shir, Michael Emmerich, Thomas Bäck and Marc J. J. Vrakking*
- 16:20 [2105] Multilevel Optimization Strategies Based on Metamodel-Assisted Evolutionary Algorithms, for Computationally Expensive Problems  
*I. C. Kampolis, A. S. Zymaris, V. G. Asouti and K. C. Giannakoglou*
- 16:40 [1556] Use of Interactive Evolutionary Computation with Simplified Modeling for Computationally Expensive Layout Design Optimization  
*Raffi R. Kamalian, Alice M. Agogino and Hideyuki Takagi*
- 17:00 [1982] Handling Uncertainty in Evolutionary Multiobjective Optimization: SPGA  
*Hamidreza Eskandari, Christopher D. Geiger and Robert Bird*



**Session** sp11: EC in Bioinformatics and Computational Biology – Part II  
**Date/Time** Friday, 28 September 2007 / 16:00 – 17:20 hrs  
**Venue** Moor  
**Chair(s)** Madhu Chetty, Leon Poladian and Scott F. Smith

- 16:00 [1536] Protein Folding Prediction in 3D FCC HP Lattice Model Using Genetic Algorithm  
*Md Tamjidul Hoque, Madhu Chetty and Abdul Sattar*
- 16:20 [1304] Single- and Multi-Objective Phylogenetic Analysis of Primate Evolution Using a Genetic Algorithm  
*V. Jayaswal, L. Poladian and L. S. Jermin*
- 16:40 [1827] Genetic Programming Models for Classification of Data from Biological Systems  
*K. Rao Raghuraj, S. Lakshminarayanan and Kyaw Tun*

Technical Program

**Session** sp17: EC in Structural and Multidisciplinary Optimization – Part II  
**Date/Time** Friday, 28 September 2007 / 16:00 – 17:20 hrs  
**Venue** Mercury  
**Chair(s)** Kang Tai and Tapabrata Ray

- 16:00 [1876] Passive Vibration Suppression of a Walking Tractor Handlebar Structure Using Multiobjective PBIL  
*Siwadol Kanyakam and Sujin Bureerat*
- 16:20 [1575] Identification of Structural Parameters Based on PZT Impedance Using Genetic Algorithms  
*Y. H. Hu, Y. W. Yang, L. Zhang and Y. Lu*
- 16:40 [1694] An Enhanced Chromosome Encoding and Morphological Representation of Geometry for Structural Topology Optimization Using GA  
*K. Tai and N. Wang*
- 17:00 [1015] A New Adaptive Inertia Weight Strategy in Particle Swarm Optimization  
*C. S. Feng, S. Cong and X. Y. Feng*

**Session** sp20: Evolutionary Multiobjective Optimization – Part II  
**Date/Time** Friday, 28 September 2007 / 16:00 – 17:20 hrs  
**Venue** Morrison  
**Chair(s)** Carlos A. Coello Coello and Julio Valdes

- 16:00 [1796] Virtual Reality High Dimensional Objective Spaces for Multi-Objective Optimization: An Improved Representation  
*Julio J. Valdés, Alan J. Barton and Robert Orchard*
- 16:20 [1535] Visualizing High Dimensional Objective Spaces for Multi-objective Optimization: A Virtual Reality Approach  
*J. J. Valdés and A. J. Barton*
- 16:40 [1318] Multi-Objective Strip Packing Using an Evolutionary Algorithm  
*Simon Ilich, Lyndon and Luigi Barone*

**Session** sp28: Organic Computing—An Approach to Controlled Emergence  
**Date/Time** Friday, 28 September 2007 / 16:00 – 17:20 hrs  
**Venue** Minto  
**Chair(s)** Hartmut Schmeck, George Brancovici and Christian Müller-Schloer

- 16:00 [1443] Design and Construction of Organic Computing Systems  
*Hella Seebach, Frank Ortmeier and Wolfgang Reif*
- 16:20 [1925] Towards a Quantitative Notion of Self-Organisation  
*Emre Cakar, Moez Mnif, Christian Müller-Schloer, Urban Richter and Hartmut Schmeck*
- 16:40 [1508] Towards Trustworthy Intelligence on the Road: A Flexible Architecture for Safe, Adaptive, Autonomous Applications  
*George Brancovici*
- 17:00 [1854] Memetic Algorithms for Inexact Graph Matching  
*Thomas Bärecke and Marcin Detyniecki*

Technical Program



**Session** Games Competition & Panel  
**Date/Time** 16:00 – 17:20 hrs  
**Venue** Hullet  
**Chair(s)** Simon Lucas

16:00 Games Competition I  
*Simon Lucas, University of Essex, United Kingdom*

16:20 Games Competition II  
*Simon Lucas, University of Essex, United Kingdom*

16:40 Games Competition III  
*Simon Lucas, University of Essex, United Kingdom*



**Session** sp38: Evolved Art and Music  
**Date/Time** Friday, 28 September 2007 / 16:00 – 17:20 hrs  
**Venue** Indiana  
**Chair(s)** Kevin Seppi, Daniel Ashlock and Clare Bates Congdon

16:00 [1753] N-gram Fitness Function with a Constraint in a Musical Evolutionary System  
*Man Yat Lo and Simon M. Lucas*

16:20 [2102] Preliminary Results with GAUGUIN, an Evolutionary Computation Approach to Creating Art in the Suprematist Style  
*Thomas Cook and Clare Bates Congdon*

16:40 [1814] Interactive Composition Aid System by Means of Tree Representation of Musical Phrase  
*Daichi Ando and Hitoshi Iba*

17:00 [1305] Fitness Estimation and the Particle Swarm Optimisation Algorithm  
*Tim Hendtlass*



**Session** Plenary Poster Session III  
**Date/Time** Friday, 28 September 2007 / 09:30 – 10:30 hrs  
**Venue** Stamford Foyer & Bencoolen Room  
**Chair(s)**

[1971] Coevolutionary Genetic Algorithms for Ad Hoc Injection Networks Design Optimization  
*Grégoire Danoy, Pascal Bouvry and Luc Hogie*

[1143] Fuzzy Logic Guided Genetic Algorithms for the Location Assignment of Items  
*H. C. W. Lau, T. M. Chan and W. T. Tsui*

[1879] Identification of the Isotherm Function in Chromatography Using CMA-ES  
*M. Jebalia, A. Auger, M. Schoenauer, F. James and M. Postel*

[2001] A Recommender System Based on Invasive Weed Optimization Algorithm  
*Hoda Sepehri Rad and Caro Lucas*

[2036] Application of Differential Evolution in 2-Dimensional Electromagnetic Inverse Problems  
*Krishna Agarwal and Xudong Chen*

[1469] Model Calibration of a Real Petroleum Reservoir using a Parallel Real-Coded Genetic Algorithm  
*Pedro J. Ballester and Jonathan N. Carter*

## Technical Program

- [1461] An Evolutionary Morphological-Rank-Linear Approach for Time Series Prediction  
*Ricardo de A. Araújo, Germano C. Vasconcelos and Tiago A. E. Ferreira*
- [1637] Hybrid Differential Evolutionary System for Financial Time Series Forecasting  
*Ricardo de A. Araújo, Germano C. Vasconcelos and Tiago A. E. Ferreira*
- [1821] A Soft Computing Method to Estimate the Effect of Production Factors on Economic Growth  
*Yong He and Kejun Zhu*
- [1839] Genetic Algorithm Approach to Design Covariates of Binomial Logit Model for Estimation of Default Probability  
*Tezuka Masaru, Ito Yoichi and Munakata Satoshi*
- [1145] A GA-Based Data Mining Approach to Process Improvement of Fluid Dispensing for Electronic Packaging  
*K. Y. Chan, S. H. Ling, H. H. C. Iu and C. K. Kwong*
- [1921] Improving ANN Classification Accuracy for the Identification of Students with LDs Through Evolutionary Computation  
*Tung-Kuang Wu, Shian-Chang Huang and Ying-Ru Meng*
- [1161] Using Two-Stage Genetic Algorithms to Solve the Nonlinear Time Series Models for Ten-Day Streamflow Forecasting  
*Chin-Hui Liu and Chang-Shian Chen*
- [1246] Multiagent Evolutionary Algorithm for Floorplanning Using Moving Block Sequence  
*Heyong Wang, Kang Hu, Jing Liu and Licheng Jiao*
- [2018] Research and Application of a New Predictive Control Based on State Feedback Theory in Power Plant Control System  
*Hua Zhi-gang, Hua Hua, Lu Jian-hong and Zhang Tie-jun*
- [1313] Analysis of Weight Changes of Prematurely Born Babies with Neuromolecular Evolvable Hardware  
*Tzu-Lan Lin, Yo-Hsien Lin and Jong-Chen Chen*
- [1666] Analyzing Fault Tolerance on Parallel Genetic Programming by Means of Dynamic-Size Populations  
*Daniel Lombraña González and Francisco Fernández de Vega*
- [1972] A Multi-Objective Algorithm for the Design of High Performance Reconfigurable Architectures with Embedded Decoding  
*Wing On Fung and Tughrul Arslan*
- [1319] Research on the Applications of the Genetic Algorithm to Sensor Registration  
*Ling Wu, FaXing Lu and PeiFa Jia*
- [1127] Optimal Offline Path Planning of a Fixed Wing Unmanned Aerial Vehicle (UAV) Using an Evolutionary Algorithm  
*Glenn Sanders and Tapabrata Ray*
- [1397] MRI Brain Image Segmentation by Fuzzy Symmetry Based Genetic Clustering Technique  
*Sriparna Saha and Sanghamitra Bandyopadhyay*
- [1825] Multi-Resource-Constrained Discrete Time-Cost Tradeoff with MOGA Based Hybrid Method  
*Bhupendra Kumar Pathak, Harish Kumar Singh and Sanjay SrivastavaA*

*Technical Program*

- [1942] Solving the Minimum-Cost Constrained Multipath Routing with Load Balancing in MPLS Networks Using an Evolutionary Method  
*El-Sayed M. El-Alfy, Shokri Z. Selim and Syed N. Mujahid*
- [2084] An Optimization Based Genetic Algorithm Heuristic for the Berth Allocation Problem  
*Sotirios Theofanis, Maria Boile and Mihalís Golias*
- [1125] A Compatible Energy-Saving Control Algorithm for a Class of Conflicted Multi-Objective Control Problem  
*Lihong Xu, Qingsong Hu and Erik D. Goodman*
- [1460] An Algorithm for Intelligent Audio Watermarking Using Genetic Algorithm  
*Mahasak Ketcham and Sartid Vongprahip*
- [1391] Flexibility of Design Variables to Pareto-Optimal Solutions in Multi Objective Optimization Problems  
*Tomoyuki Hiroyasu, Shinpei Chino and Mitsunori Miki*
- [1592] Genetic Algorithm Based Route Planner for Large Urban Street Networks  
*Suranga Chandima Nanayakkara, Dipti Srinivasan, Lai Wei Lup, Xavier German, Elizabeth Taylor and S. H. Ong*
- [1737] A New Two-Stage Approach to Solve the Linear Shelf Space Allocation Problem  
*L. Lluch-Revert, A. I. Esparcia-Alcázar, J. M. Albarracín-Guillem and M. E. Palmer-Gato*
- [1853] Solving Exclusionary Side Constrained Logistics Network by Using Priority-Based GA  
*Shinichiro Ataka and Mitsuo Gen*
- [1511] Chemical Reaction Rate Parameter Estimation by MAP Particle Filter Algorithm  
*Shigeru Kashiwaya*
- [1186] A Genetic Algorithm for Solving Multi-Constrained Function Optimization Problems Based on KS Function  
*Jianhua Xiao, Jin Xu, Zehui Shao, Congfeng Jiang and Linqiang Pan*
- [1058] Harnessing Mutational Diversity at Multiple Levels for Improving Optimization Accuracy in G3-PCX  
*Jason Teo, Hanafi A. Hijazi, Zaturrawiah A. Omar, Rafidah Mohamad and Yunus Hamid*
- [1166] Linear Genetic Programming of Parsimonious Metaheuristics  
*R. E. Keller and R. Poli*
- [1764] Evolving Dynamic Change and Exchange of Genotype Encoding in Genetic Algorithms for Difficult Optimization Problems  
*Maroun Bercachi, Philippe Collard, Manuel Clergue and Sebastien Verel*
- [1895] The Effects of Supermajority on Multi-Parent Crossover  
*Chuan-Kang Ting and Chun-Cheng Chen*
- [1976] Theoretical Analysis on an Inversion Phenomenon of Convergence Velocity in a Real-Coded GA  
*Hiroshi Someya*
- [1411] Symbiotic Evolutionary Algorithm, A General Purpose Optimization Approach  
*Ramin Halavati, Saeed Bagheri Shouraki, Mojdeh Jalali Heravi and Bahareh Jafari Jashmi*

## Technical Program

- [1140] Towards a Generic Control Strategy for Evolutionary Algorithms: An Adaptive Fuzzy-Learning Approach  
*Jorge Maturana and Frédéric Saubion*
- [1676] A Statistically Aligned Recombination Operator for Finite State Machines  
*Simon M. Lucas*
- [1696] An Analysis of Depth of Crossover Points in Tree-Based Genetic Programming  
*Huayang Xie, Mengjie Zhang and Peter Andreae*
- [1664] Using Restricted Loops in Genetic Programming for Image Classification  
*Gayan Wijesinghe and Vic Ciesielski*
- [1799] A Bicriteria Shortest Path Routing Problems by Hybrid Genetic Algorithm in Communication Networks  
*Lin Lin and Mitsuo Gen*
- [1205] A Non-Revisiting Genetic Algorithm  
*Shiu Yin Yuen and Chi Kin Chow*
- [1492] A Multiple-Function Toy Model of Exaptation in a Genetic Algorithm  
*Lee Graham and Franz Oppacher*
- [1251] Evolution of Evolution: Self-Constructing Evolutionary Turing Machine Case Study  
*Eugene Eberbach and Mark Burgin*
- [1216] A Novel Niche Genetic Algorithm with Local Search Ability  
*Jun-Hua Gu, Na-Na Li, Qing Tan and Wei Wei*
- [1498] New Selection Operators based on Genetic Relatedness for Evolutionary Algorithms  
*Anca Gog, D. Dumitrescu and Béat Hirsbrunner*
- [1045] Class Association Rule Mining for Large and Dense Databases with Parallel Processing of Genetic Network Programming  
*Eloy Gonzales, Karla Taboada, Kaoru Shimada, Shingo Mabui, Kotaro Hirasawa and Jinglu Hu*
- [1546] The Importance of a Two-level Perspective for Island Model Design  
*Z. Skolicki and K. De Jong*
- [1658] Success Effort and Other Statistics for Performance Comparisons in Genetic Programming  
*Matthew Walker, Howard Edwards and Chris Messom*
- [1439] Diversity-Based Model Reference for Genetic Algorithms in Dynamic Environment  
*Maury M. Gouvêa Jr and Aluizio F. R. Araújo*
- [1034] A Self-Adaptive Genetic Algorithm Based on Fuzzy Mechanism  
*X. B. Hu and S. F. Wus*
- [1543] Anticipation: Breaking the Evolutionary Time Barrier  
*Ron Cottam, Willy Ranson and Roger Vounckx*
- [1880] Imperialist Competitive Algorithm: An Algorithm for Optimization Inspired by Imperialistic Competition  
*Esmail Atashpaz-Gargari and Caro Lucas*
- [1910] Optimal Stopping Time of Compact Genetic Algorithm on Deceptive Problem Using Real Options Analysis  
*Sunisa Rimcharoen, Daricha Sutivong and Prabhas Chongstitvatana*
- [2054] Theoretical Analysis of Selection Operator in Genetic Algorithms  
*Tatsuya Okabe*
- [1230] On the Influence of the Instance Structure on Metaheuristic Performances – Application to a Graph Drawing Problem  
*Bruno Pinaud and Pascale Kuntz*

*Technical Program*

- [1237] A New Generationless Parallel Evolutionary Algorithm for Combinatorial Optimization  
*S. Benkhider, A. R. Baba-Ali and H. Drias*
- [1794] A Novel Distributed Genetic Algorithm Implementation with Variable Number of Islands  
*Takuma Jumonji, Goutam Chakraborty, Hiroshi Mabuchi and Masafumi Matsuhara*
- [1888] On the Influence of Selection Operators on Performances in Cellular Genetic Algorithms  
*D. Simoncini, P. Collard, S. Verel and M. Clergue*
- [1962] The Effect of Selection on the Development of Mutational Robustness  
*Justin Schonfeld and Sushil J. Louis*
- [1090] Lot Splitting Under Different Job Shop Conditions  
*Felix T. S. Chan, T. C. Wong and L. Y. Chan*
- [1329] Total Sliding-Mode-Based Particle Swarm Optimization Control Design for Linear Induction Motor  
*Rong-Jong Wai, Kun-Lun Chuang and Jeng-Dao Lee*
- [1868] An Evolutionary, Game Theoretic Approach to the Modeling, Simulation and Analysis of Public Goods Provisioning under Asymmetric Information  
*H. Y. Quek and A. Tay*
- [2016] A Hybrid Evolutionary Algorithm for Dynamic Route Planning  
*Lai Wei Lup and Dipti Srinivasan*
- [1196] Opposition-based Particle Swarm Algorithm with Cauchy Mutation  
*Hui Wang, Yong Liu, Sanyou Zeng, Hui Li and Changhe Li*
- [1287] Particle Swarm Optimization with Varying Bounds  
*Mohammed El-Abd and Mohamed S. Kamel*
- [1576] Adaptive Particle Swarm Optimization with PD Controller  
*Jing Jie, Jianchao Zeng, Chongzhao Han and Youzhi Ren*
- [1740] An Optimization Model for Container Transportation Network with ACO Approach  
*Boxin Fu, Xiangqun Song, Zijian Guo and Peng Zhang*
- [1200] A Solution to Protein Folding Problem Using a Genetic Algorithm with Modified Keep Best Reproduction Strategy  
*M. V. Judy and K. S. Ravichandran*

Night Safari Tour and Dinner<sup>a</sup>

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<sup>a</sup>Buses to depart from Swissôtel to Night Safari at 6 pm