

Second International Workshop on
Nature Inspired Cooperative
Strategies for Optimization
NICSO 2007



Workshop Program

*November 8 – 10, 2007
Acireale, Sicily, Italy*

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Venue

The works of the workshop, regular sessions and plenary lectures, take place in the **city hall of Acireale**.

Registration Times

Thursday – Saturday, November 8–10, 8:15 – 9:00

The registration will take place at the city hall of Acireale. The staff at the registration desk will happily answer any questions you may have about the workshop. Please, contact one of the conference organizers if you need assistance.

Instructions for Speakers

Talks in the regular sessions are scheduled for **20 minutes**. This consists of 18 minutes of presentation time and 2 minutes of questions. Set-up of necessary presentation equipment should be calculated into the allotted presentation time. Please, keep strictly to the time that is allotted.

Instructions for Session Chairs

The duties of session chairs are: keep the session on schedule, introduce speakers and moderate the question. Session chairs should arrive a few minutes early to check room and equipment set-up. Please let conference organizers know immediately if problems arise or adjustments are needed. Please adhere to the scheduled order of talks as well as presentation times. If a speaker is absent, we ask you to announce a short break until the next presentation is due to start.

Workshop Room

The workshop room is equipped with an overhead projector, and a computer. It is possible to use a personal laptop computer for own presentation. In this case, it will be the responsibility of each presenter to bring a laptop to plug into the projector at the time of his/her presentation.

Proceedings

All accepted papers will be published in the book series on *Studies in Computational Intelligence*, Springer. Due to time problems, it will be published as post-proceedings. Once it will be published, the organizers will send to each participant one copy.

Best Papers

The best papers from NICSO 2007 will be invited to adapt and extend their contribution for the publication in *Natural Computing Journal*, Springer.

Wireless Internet Access

Wireless WiFi internet is available free for all NICSO 2007 attendees, but **you need to have own laptop**.

Social Dinner

The social dinner will take place **Thursday, November 8 at 20:00**, and it will take place at the *Vico Proiette restaurant* (via Dafnica 88). The tickets are included in the registration. Additional social dinner tickets can be purchased at the registration desk.

The meeting point will be at 19.30 in the hall of the workshop room.

Thursday, November 8

8.15 – 9.00 Registration

9.00 – 9.30 Welcome Message

9.30 – 10.30 Plenary Lecture: **Marco Dorigo - Université Libre de Bruxelles, Belgium**
“Swarm-bots: An Experiment in Swarm Robotics”

10.30 – 11.00 Coffee Break

11.00 – 13.10

- **Probabilistically guided Prefix Gene Expression Programming**
Brian M. Cerny, Chi Zhou, Weimin Xiao and Peter C. Nelson
- **Flocking-Based Document Clustering on the Graphics Processing Unit**
Jesse St. Charles, Thomas E. Potok, Robert M. Patton and Xiaohui Cui
- **Artificial Immune System For Collaborative Spam Filtering**
Slavisa Sarafijanovic and Jean-Yves Le Boudec
- **MP Systems and Hybrid Petri Nets**
Alberto Castellini, Vincenzo Manca and Luca Marchetti
- **Spatial Sorting of Binary-Indexed Grid Resources via Nature-Inspired Agents**
Agostino Forestiero, Carlo Mastroianni and Giandomenico Spezzano
- **hCHAC-4, an ACO Algorithm for Solving the Four-Criteria Military Path-finding Problem**
A.M. Mora, J.J. Merelo, J.L.J. Laredo, P.A. Castillo, P.G. Sánchez, J.P. Sevilla, C. Millán and J. Torrecillas

13.10 – 15.00 Lunch

15.00 – 16.00 Plenary Lecture: **Paolo Arena – University of Catania, Italy**
“From Emergence to Cooperation: the role of Nonlinear Dynamics in Cognitive Robotics”

16.00 – 16.30 Coffee Break

16.30 – 18.35

- **A Hybrid System of Nature Inspired Metaheuristics**
J.M. Cadenas, M.C. Garrido and E. Muñoz
- **ESCA: A new Evolutionary-Swarm Cooperative Algorithm**
Rodica Iona Lung and D. Dumitrescu
- **Stabilizing Swarm Intelligence Search via Positive Feedback Resource Allocation**
Slawomir Nasuto and Mark Bishop
- **An Adaptive Metaheuristic for the Simultaneous Resolution of a Set of Instances**
Antonio Masegosa, Alejandro Sancho Royo and David Pelta
- **Honey Bees Mating Optimization Algorithm for the Vehicle Routing Problem**
Yannis Marinakis, Magdalene Marinaki and Georgios Dounias

- ***Self-organization on Silicon: System Integration of a Fixed-Point Swarm Coprocessor***

Giovanni Busonera, Stefano Carucci, Danilo Paci and Luigi Raffo

19.45 Meeting Point for Social Dinner

Friday, November 9

8.15 – 9.00 Registration

9.00 – 10.00 Plenary Lecture: ***Roberto Battiti – University of Trento, Italy***
“Reactive Search: Adaptive on-line Self-Tuning for Optimization”

10.00 – 10.30 Coffee Break

10.30 – 11.50

- ***Dynamic Adaptation of Genetic Operator’s Probabilities***

Fatemeh Vafaei, Peter C. Nelson, Chi Zhou and Weimin Xiao

- ***Cooperative Co-Evolution Inspired Operators for Classical GP Schemes***

Malek Aichour and Evelyne Lutton

- ***Biologically Inspired Clustering: Comparing the Neural and Immune Paradigms***

Matti Pöllä, Timo Honkela and Xiao-Zhi Gao

- ***CODEA: An Architecture for Designing Nature-Inspired Cooperative Decentralized Heuristics***

Juan Pedro Castro Gutiérrez, Belén Melián Batista, José A. Moreno Pérez, J. Marcos Moreno Vega and Jonatan Ramos Bonilla

11.50 – 12.10 Coffee Break

12.10 – 13.30

- ***Memetic Algorithm for the Generalized Asymmetric Traveling Salesman Problem***

Gregory Gutin, Daniel Karapetyan and Natalio Krasnogor

- ***Particle Swarm Based Collective Searching Model for Adaptive Environment***

Xiaohui Cui, Robert M. Patton, Jim Treadwell and Thomas E. Potok

- ***Social Impact based Approach to Feature Subset Selection***

Martin Macas and Lenka Lhotská

- ***Influence of Different Deviations Allowed for Equality Constraints on Particle Swarm Optimization and Differential Evolution***

Karin Zielinski, Shyam Praveen Vudathu and Rainer Laur

13.30 – 15.00 Lunch

15.00 – 16.00

- ***Efficiency of Various Stochastic Optimization Algorithms in High Frequency Electromagnetic Applications***
Jasmin Smajic, Matthew Mishrikey, Arya Fallahi, Christian Hafner and Ruediger Vahldieck
- ***Learning Classifier System with Self-Adaptive Discovery Mechanism***
Maciej Troc and Olgierd Unold
- ***An Approach to Genome Statistics Inspired by Stochastic or Quantum Models of Computing: a Survey***
Dimitri Petritis

16.00 Social Tour

Saturday, November 10

8.30 – 9.00 Registration

9.00 – 11.00

- ***Discrete Particle Swarm Optimization for the Minimum Labelling Steiner Tree Problem***
S. Consoli, J.A. Moreno Pérez, K. Darby-Dowman and N. Mladenovic
- ***Ant Colony Cooperative Strategy in Electrocardiogram and Electroencephalogram Data Clustering***
Miroslav Bursa and Lenka Lhotska
- ***A Surface Tension and Coalescence Model for Dynamic Distributed Resources Allocation in Massively Parallel Processors on-Chip***
Francesca Palumbo, Danilo Pani, Luigi Raffo and Simone Secchi
- ***Cooperative Learning Sensitive Agent System for Combinatorial Optimization***
Camelia Chira, Camelia-M. Pinteá and Dumitru Dumitrescu
- ***A Genetic Algorithm based on Complex Networks Theory for the Management of Airline Route Networks***
Xiao-Bing Hu and Ezequiel Di Paolo
- ***A BioInspired Model for Parsing of Natural Languages***
Gemma Bel-Enguix and M. Dolores Jiménez-López

11.00 – 11.30 Coffee Break

11.30 – 13.30

- ***An Evolutionary Approach For Performing Structural Unit-Testing On Third-Party Object-Oriented Java Software***
José Carlos Ribeiro, Mário Zenha-Rela and Francisco Fernández de Vega
- ***Adaptive Spatial Allocation of Resource for Parallel Genetic Algorithm***
K.Y. Szeto and S.Y. Zhao
- ***Implementation of Massive Parallel Networks of Evolutionary Processors (MPNEP): 3-Colorability Problem***
M. Angel Díaz, L.F. de Mingo, N. Gómez Blas and J. Castellanos
- ***Multi-Constraints Routing Algorithm based on Swarm Intelligence over High Altitude Platforms***
Floriano De Rango, Mauro Tropea, Apollonia Provato, Amilcare F. Santamaria, Salvatore Marano
- ***A Genetic Algorithm Framework Applied to Quantum Circuit Synthesis***
Cristian Ruican, Mihai Udrescu, Lucian Prodan and Mircea Vladutiu
- ***Semantic Distillation: a Method for Clustering Objects by their Contextual Specificity***
Thomas Sierocinski, Antony Le Béhec, Nathalie Théret, and Dimitri Petritis

13.30 – 15.00 Lunch

15.00 – 16.20

- ***UPlanIT: An Evolutionary Based Production Planning and Scheduling System***
Saeedeh Maleki-Dizaji, Henry Nyongesa, and Babak Khazaei
- ***Performance Analysis of Turning Process via Particle Swarm Optimization***
Kusum Deep and Jagdish Chand Bansal
- ***Automatic Basis Selection for the Beta Basis Function Neural Networks***
Habib Dhahri and Adel Alimi
- ***Elvovable Hardware: A Problem of Generalization Which Works Best Large Population Size and Small Number of Generations or visa versa***
Elhadj Benkhelifa, Anthony Pipe, Mokhtar Nibouche, Gabriel Dragffy

16.20 – 16.50 Coffee Break

16.50 – 17.50

- ***Detecting Hierarchical Organization in Complex Networks by Nearest Neighbor Correlation***
Chao Long Wang, Ka Wai Au, Ching King Chan, Hon Wai Lau and K.Y. Szeto
- ***A Hybrid Genetic Algorithm for the Travelling Salesman Problem***
Xiao-Bing Hu and Ezequiel Di Paolo
- ***GAHC: Improved Genetic Algorithm***
Radomil Matousek

17.50 – 18.10 Concluding Remarks