

**2007 IEEE Swarm Intelligence Symposium
Hilton Hawaiian Village Beach Resort & Spa**

Program Chairs: Yuhui Shi and Marco Dorigo

Technical Program

Monday, April 2, 2007

Session Title: Particle Swarm Optimization I

Session Chair: Ganesh Venayagamoorthy

M-PM1: 1:15pm-3:15pm

South Pacific Ballroom 1

1:15pm

“A particle swarm optimizer for finding minimum free energy RNA secondary structures” by Michael Geis and Martin Middendorf

1:45pm

“Combined training of recurrent neural networks with particle swarm optimization and back propagation algorithms for impedance identification” by Peng Xiao, Ganesh Venayagamoorthy and Keith Corzine

2:15pm

“Enhanced learning in fuzzy simulation models using memetic particle swarm optimization” by Yiannis Petalas, Konstantinos Parsopoulos, Elpiniki Papageorgiou, Petros Groumpos and Michael Vrahatis

2:45pm

“Allocating multiple base stations under general power consumption by the particle swarm optimization” by Tzung-Pei Hong and Guo-Neng Shiu

3:15pm-3:30pm BREAK

Session Title: Swarm Robotics I

Session Chair: Carlos Coello Coello

M-PM2:3:30pm-5:30pm

South Pacific Ballroom 1

3:30pm

“Control of a robotic swarm for the elimination of marine oil pollutions” by Dennis Fritsch, Kai Wegener and Rolf Dieter Schraft

4:00pm

“Alice in Pheromone Land: An experimental setup for the study of ant-like robots” by Simon Garnier, Fabien Tache, Maud Combe, Anne Grimal and Guy Theraulaz

4:30pm

“An analysis of emergent taxis in a wireless connected swarm of mobile robots” by Jan Dyre Bjercknes and Alan FT Winfield

5:00pm

“Using the particle swarm optimization algorithm for robotic Search applications” by James Hereford, Michael Siebold and Shannon Nichols

5:30pm-7:00pm BREAK

7:00pm-9:00pm

M-Poster Session

Coral Ballroom I/II

Poster Paper #1

“PSO-based multi-criteria optimum design of a grid-connected hybrid power system with multiple renewable sources of energy” by Lingfeng Wang and Chanan Singh

Poster Paper #2

“Adapting particle swarm optimisation for fitness landscapes with neutrality” by Alan Owen and Inman Harvey

Poster Paper #3

“Particle swarm optimization combined with local search and velocity re-initialization for shortest path computation in networks” by Ammar W. Mohemmed and Chandra Sahoo Nirod

Poster Paper #4

“A hybrid ACO/PSO control algorithm for distributed swarm robots” by Yan Meng, Olorundamilola Kazeem and Muller Juan

Poster Paper #5

“A framework for studying and designing self-assembling systems” by Navneet Bhalla and Christian Jacob

Poster Paper #6

“Clubs-based particle swarm optimization” by Wesam Elshamy, Hassan Emara and Ahmed Bahgat

Poster Paper #7

“Unit commitment using particle swarm-based-simulated annealing optimization approach” by Nasser Sadati, Mahdi Hajian and Majid Zamani

Poster Paper #8

“Co-ordination in intelligent ant-based application service mapping in grid environments” by Sharath Babu Musunoori and Geir Horn

Poster Paper #9

“Orientation in a trail network by exploiting its geometry for swarm robotics” by Heiko Hamann, Marc Szymanski and Heinz Woern

Poster Paper #10

“Solenopsis: A framework for the development of ant algorithms” by Amos Brocco, Beat Hirsbrunner and Michele Courant

Tuesday, April 3, 2007

Session Title: *Ant Colony Optimization 1*

Session Chair: Mohamed Kamel

T-AM1: 8:00am-10:00am

South Pacific Ballroom 1

8:00am

“Ant colony systems for large sequential ordering problems” by Roberto Montemanni, Derek H. Smith and Luca Maria Gambardella

8:30am

“A stochastic rank-based ant system for discrete structural optimization” by Leonardo Fonseca, Priscila Capriles, Helio Barbosa and Afonso Lemonge

9:00am

“Ant colony optimization approaches for the dynamic load-balanced clustering problem in ad hoc networks” by Chin Ho and Hong Ewe

9:30am

“A metaheuristic approach to the graceful labeling problem of graphs” by Houra Mahmoudzadeh and Kourosh Eshghi

10:00am-10:15am BREAK

Session Title: *Plenary Lecture*

Session Chair: TBD

T-AM2: 10:15am-12:15pm

South Pacific Ballroom 1

10:15am

“PLENARY TALK” TBD

12:15pm-1:15pm BREAK

Session Title: Particle Swarm Optimization 2

Session Chair: P.N. Suganthan

T-PM1: 1:15pm-3:15pm

South Pacific Ballroom 1

1:15pm

“Stagnation analysis in particle swarm optimization” by Ming Jiang, Yupin Luo and Shiyuan Yang

1:45pm

“High-speed interconnect simulation using particle swarm optimization” by Subas Bastola and Chen-yu Hsu

2:15pm

“Solving multi-agent control problems using particle swarm” by Maciej Mazurowski and Jacek Zurada

2:45pm

“Differential evolution based particle swarm optimization” by Mahamed Omran, Andries Engelbrecht and Ayed Salman

3:15pm-3:30pm BREAK

Session Title: Particle Swarm Optimization 3

Session Chair: Jim Kennedy

T-PM2: 3:30pm-5:30pm

South Pacific Ballroom 1

3:30pm

“Defining a standard for particle swarm optimization” by Daniel Bratton and James Kennedy

4:00pm

“A memetic PSO algorithm for scalar optimization problems” by Oliver Schuetze, El-ghazali Talbi, Carlos Coello Coello, Luis Santana-Quintero and Gregorio Toscano-Pulido

4:30pm

“Building nearest prototype classifiers using a Michigan approach PSO” by Alejandro Cervantes, Ines Galvan and Pedro Isasi

5:00pm

“Probabilistically driven particle swarms for optimization of multi valued discrete problems: Design and analysis” by Kalyan Veeramachaneni, Lisa Osadciw and Ganapathi Kamath

5:30pm-7:00pm BREAK

7:00pm-9:00pm

T-Poster Session

Coral Ballroom I/II

Wednesday, April 4, 2007

Session Title: Theory and Practice of Swarm Intelligence 1

Session Chair: Andries Engelbrecht

W-AM1: 8:00am-10:00am

South Pacific Ballroom 1

8:00am

“On trajectories of particles in PSO” by Stefan Janson and Martin Middendorf

8:30am

“Finding least cost proofs using a hierarchical PSO” by Shawn Chivers, Gene Tagliarini and Ashraf Abdelbar

9:00am

“Some issues and practices for particle swarms” by James Kennedy

9:30am

“Barebones particle swarm for integer programming problems” by Mahamed Omran, Andries Engelbrecht and Ayed Salman

10:00am-10:15am BREAK

Session Title: Theory and Practice of Swarm Intelligence 2

Session Chair: Xiaofeng Xie

W-AM2: 10:15am-12:15pm

South Pacific Ballroom 1

10:15am

“An investigation of grinding process optimization via evolutionary algorithms” by Tian Lee, Tiew Ting and Yueh Lin

10:45am

“Applying opposition-based ideas to the ant colony system” by Hamid R. Tizhoosh and Alice R. Malisia

11:15am

“A mini-swarm for the quadratic knapsack problem” by Xiao-Feng Xie and Jiming Liu

11:45am

“Particle swarm optimization in high-dimensional bounded search spaces” by Sabine Helwig and Rolf Wanka

12:15pm-1:15pm BREAK

Session Title: Applications of Swarm Intelligence 1

Session Chair: Martin Roth

W-PM1: 1:15pm-3:15pm

South Pacific Ballroom 1

1:15pm

“Multiple cooperating swarms for data clustering” by Abbas Ahmadi, Fakhri Karray and Mohamed Kamel

1:45pm

“The Markovian termite: A soft routing framework” by Martin Roth

2:15pm

“Automatic tuning of model predictive control using particle swarm optimization” by Yoshikazu Fukuyama, Fukiko Kawai, Hideyuki Ito, Chikashi Nakazawa and Ryohei Suzuki

2:45pm

“A fuzzy-PSO based controller for a grid independent photovoltaic system” by Richard Welch and Venayagamoorthy Ganesh

3:15pm-3:30pm BREAK

Session Title: Applications of Swarm Intelligence 2

Session Chair: Martin Middendorf

W-PM2: 3:30pm-4:30pm

South Pacific Ballroom 1

3:30pm

“Real-time hierarchical swarms for rapid adaptive multi-level pattern detection and tracking” by Matthias Scheutz

4:00pm

“Swarm controlled emergence - Designing an anti-clustering ant system” by Daniel Merkle, Martin Middendorf and Alexander Scheidler

5:30pm-7:00pm BREAK

7:00pm-9:00pm

BANQUET

Coral Ballrooms I/II/III

Thursday, April 5, 2007

Session Title: Robotics 2

Session Chair: Robert Reynolds

Th-AM1: 8:00am-10:00am

South Pacific Ballroom 1

8:00am

“JaMOS - A MDL2e based operating system for swarm micro robotics” by Marc Szymanski and Heinz Woern

8:30am

“Inspiring and modeling multi-robot search with particle swarm optimization” by Jim Pugh and Alchiero Martinoli

9:00am

“Adaptive flocking of a swarm of robots based on local interactions” by Yosuke Hanada, Geunho Lee and Nak Young Chong

9:30am

“Using formal methods and agent-oriented software engineering for modeling NASA swarm-based systems” by Christopher Rouff, Michael Hinchey, Joaquin Pena and Antonio Ruiz-Cortes

10:00am-10:15am BREAK

Session Title: Swarm Intelligence and Special Session on Swarm-based Optimization for Distributed Systems

Session Chair: Haibin Duan

Th-AM2: 10:15am-11:15pm

South Pacific Ballroom 1

10:15am

“A hybrid particle swarm algorithm with Cauchy mutation” by Hui Wang, Yong Liu, Changhe Li and Sanyou Zeng

10:45am

“The Urbarium: A socially based game platform” by Robert Reynolds and Farshad Fotouhi

Special Session Title: Swarm-Based Optimization for Distributed Systems

Session Chair: Haibin Duan

Th-AM2: 11:15am-12:15pm

South Pacific Ballroom 1

11:15am

“A trust model based DRM technology on distributed P2P and IPv6 networks” by Aina Sui, Yongbin Wang, Rui Lu and Cheng Yang

11:45am

“Novel hybrid approach for fault diagnosis in 3-DOF flight simulator based on BP neural network and ant colony algorithms” by Haibin Duan, Xiufen Yu and GuanJun Ma