

# **EvoAPPLICATIONS 2016 programme**

## **PRESENTING AUTHORS PLEASE NOTE :**

Talks are scheduled for 20 minutes including setup & questions. Short talks in sessions 12 and 14 are scheduled for 6 minutes each with discussion following.

### **Wednesday 30 March**

#### **1110 - 1300 EvoAPP 1 : Real world applications**

**chair : Giovanni Squillero**

- Evolving classification models for prediction of patient recruitment in multicentre clinical trials using grammatical evolution
- Evolving Coverage Optimisation Functions for Heterogeneous Networks using Grammatical Genetic Programming
- A Variable Local Search based Memetic Algorithm for the Load Balancing Problem in Cloud Computing
- Challenging Anti-virus through Evolutionary Malware Obfuscation
- Simheuristics for the Multiobjective Nondeterministic Firefighter Problem in a Time-Constrained Setting

#### **1400 - 1550 EvoAPP2 : Image Analysis and Signal Processing**

**chairs : Stefano Cagnoni & Mengjie Zhang**

- Binary Tomography Reconstruction by Particle Aggregation
- Population Based Ant Colony Optimization for Reconstructing ECG Signals
- Speaker Verification on Unbalanced Data with Genetic Programming
- Bare-Bone Particle Swarm Optimisation for Simultaneously Discretising and Selecting Features For High-Dimensional Classification
- NSGA-II based Auto-Calibration of Automatic Number Plate Recognition Camera for Vehicle Speed Measurement

#### **1700 - 1850 EvoAPPS 3 : Evolutionary algorithms and meta-heuristics in stochastic and dynamic environments**

**chairs : Trung Thanh Nguyen & Michalis Mavrovouniotis**

- Direct Memory Schemes for Population-based Incremental Learning in Cyclically Changing Environments
- Benchmarking dynamic three-dimensional bin packing problems using discrete-event simulation
- Genetic Programming Algorithms for Dynamic Environments
- A Memory-Based NSGA-II Algorithm for Dynamic Multi-Objective Optimization Problems
- Hybrid Dynamic Resampling Algorithms for Evolutionary Multi-objective Optimization of Invariant-Noise Problems

### **Thursday 31 March**

#### **0930 - 1110 EvoAPP4 : Bio-inspired algorithms applied to networks**

**chairs: Ivanoe De Falco & Antonio Della Cioppa**

- Joint Topology Optimization, Power Control and Spectrum Allocation for Intra-Vehicular Multi-hop Sensor Networks using Dandelion-encoded Heuristics
- A Hybrid Discrete Artificial Bee Colony Algorithm for the Multicast Routing Problem
- An (MI)LP-based Primal Heuristic for 3-Architecture Connected Facility Location in Urban Access Network Design
- A Heuristic Crossover Enhanced Evolutionary Algorithm for Clustering Wireless Sensor Network
- Reducing Efficiency of Connectivity-Splitting Attack on Newscast via Limited Gossip

### **0930 - 1110 EvoAPP5 : Evolutionary algorithms in games**

**chair : Antonio Mora**

- Orthogonally Evolved AI to Improve Difficulty Adjustment in Video Games
- There can be only one: Evolving RTS Bots via joust selection
- Evolving Chess-like Games Using Relative Algorithm Performance Profiles
- Online Evolution for Multi-Action Adversarial Games
- The story of their lives: Massive procedural generation of heroes' journeys using evolved agent-based models and logical reasoning

### **0930 - 1110 EvoAPP6 : Parallel and multi-agents systems**

**chairs: Ignacio Hidalgo & Francisco Fernandez de Vega**

- Implementing Parallel Differential Evolution on Spark
- ECJ+HADOOP: An easy way to deploy massive runs of evolutionary algorithm
- Addressing high dimensional multi-objective optimization problems by coevolutionary islands with overlapping search spaces
- Leveraging Online Racing and Population Cloning in Evolutionary Multirobot Systems
- Multi-Agent Behavior-Based Policy Transfer

### **1130 - 1310 EvoAPP7 : Bioinspired algorithms and complex systems**

**chair : Carlos Cotta**

- Towards intelligent biological control: Controlling Boolean networks with Boolean networks
- The Emergence of Cooperation in Public Goods Games on Randomly Growing Dynamic Networks
- Influence Maximization in Social Networks with Genetic Algorithms
- Measuring Diversity of Socio-cognitively Inspired ACO Search
- Multiwinner Voting in Genetic Algorithms for Solving Ill-Posed Global Optimization Problems

### **1130 - 1310 EvoAPP8 : Bioinspired Algorithms in Energy Applications**

**chairs : Neil Urquhart & Kevin Sim**

- Stigmergy-Based Scheduling of Flexible Loads
- A hybrid genetic algorithm for the interaction of electricity retailers with demand response
- Comparison of Multi-objective Evolutionary Optimization in Smart Building Scenarios
- Electrical Load Pattern Shape Clustering using Ant Colony Optimization
- A Decentralized PSO with Decoder for Scheduling Distributed Electricity Generation

### **1415 - 1555 EvoAPP9 : Natural computing methods in finance**

**chairs : Anthony Brabazon & Michael Kampouridis**

- Genetic Programming with Memory for Financial Trading

- Improving Fitness Functions in Genetic Programming for Classification on Unbalanced Credit Card Data
- Enhanced Multiobjective Population-Based Incremental Learning with Applications in Risk Treaty Optimization
- Evolutionary Multiobjective Optimization for Portfolios in Emerging Markets: Contrasting Higher Moments and Median Models
- Portfolio Optimization, a Decision-Support Methodology for Small Budgets

## **1415 - 1555 EvoAPPS10 : Evolutionary algorithms in industrial and simulated environments**

**chairs : Kevin Sim & Neil Urquhart**

- Constrained Level Generation through Grammar-Based Evolutionary Algorithms
- Can Evolutionary Algorithms Beat Dynamic Programming for Hybrid Car Control?
- Environment-Model Based Testing with Differential Evolution in an Industrial Setting
- Workforce Scheduling in Inbound Customer Call Centres With a Case Study
- Optimization of Operation and Control Strategies for Battery Energy Storage Systems by Evolutionary Algorithms

## **1615 - 1745 EvoAPP11 : Biological applications**

**chair : Federico Divina**

- On Combinatorial Optimisation in Analysis of Protein-Protein Interaction and Protein Folding Networks
- Automating biomedical data science through tree-based pipeline optimization
- Bicliques in Graphs with Correlated Edges: From Artificial to Biological Networks
- A Multi-objective Genetic Programming Biomarker Detection Approach in Mass Spectrometry Data

## **1615 - 1745 EvoAPP12 : Interactive Presentations I**

**chair : Antonio Mora**

- Dangerousness Metric for Gene Regulated Car Driving
- Using Isovists to Evolve Terrains with Gameplay Elements
- A spatially-structured PCG method for content diversity in a Physics-based simulation game
- Design and Evaluation of an Extended Learning Classifier-based StarCraft Micro AI
- Benchmarking languages for evolutionary algorithms
- On the Closest Averaged Hausdorff Archive for a Circularly Convex Pareto Front
- Evolving Smoothing Kernels for Global Optimization
- On-line Evolution of Foraging Behaviour in a Population of Real Robots

## **Friday 1 April**

## **1130 - 1300 EvoAPP13 : Pattern Recognition & Numerical Optimisation**

**chair : Anna I Esparcia-Alcázar**

- Mutual Information Estimation for Filter Based Feature Selection Using Particle Swarm Optimization
- A Wrapper Feature Selection Approach to Classification with Missing Data
- Local Fitness Meta-Models with Nearest Neighbor Regression
- Validating the Grid Diversity Operator: an Infusion Technique for Diversity Maintenance in Population-based Optimisation Algorithms

## **1130 - 1300 EvoAPP14 : Interactive Presentations II**

**chair: Evert Haasdijk**

- Hybrid biclustering algorithms for data mining
- Discovering potential clinical profiles of Multiple Sclerosis from clinical and pathological free text data with Constraint Non-negative Matrix Factorization
- Application of Evolutionary Algorithms for the Optimization of Genetic Regulatory Networks
- A Distributed Intrusion Detection Framework based on Evolved Specialized Ensembles of Classifiers
- UAV Fleet Mobility Model with Multiple Pheromones for Tracking Moving Observation Targets
- Compilable phenotypes: Accelerating the evaluation of individuals in Grammatical Evolution
- GPU Accelerated Molecular Docking Simulation with Genetic Algorithms
- Hybrid Control for a Real Swarm Robotics System in an Intruder Detection Task