

# ISDA'10

10th International Conference on Intelligent  
Systems Design and Applications



November 29 - December 1, 2010  
Cairo, Egypt



## Special Session on Genetics Based Machine Learning – Theory & Applications

Under the framework of the 10<sup>th</sup> IEEE International Conference on Intelligent Systems  
Design and Applications, ISDA'10  
November 29 – December 1, 2010, Cairo, Egypt  
Conference web page: <http://cig.iet.unipi.it/isda2010/>

### Session Chair

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The Genetics Based Machine Learning (GBML) techniques incorporate Evolutionary Algorithms (EA) as their learning mechanism. EA are meta-heuristic search techniques that simulate the phenomenon of natural evolution to find optimal solutions to hard computational problems. They use inherent parallelism and a decentralized approach to provide learning and adaptation. Similar to natural systems, which evolve over many generations to adapt to their environments using natural selection, reproduction and diversification, EA evolve the set of candidate solutions to adapt to the requirements of a problem. Various types of EA exist including Genetic Algorithms (GA), Genetic Programming (GP), Evolutionary Programming (EP), Evolutionary Strategies (ES) and their variations.

GBML are a rising field and many traditional ML techniques are increasingly incorporating EA into their framework. More popularly, however, GBML refer to the Learning Classifier System (LCS) framework introduced by John Holland. LCS has seen renaissance in recent years and has emerged as a competent data mining and classification tool. Other GBML techniques include evolutionary neural networks, evolutionary neuro-ensemble, and evolutionary decision trees.

The purpose of this special session is to gather people working in GBML to discuss new directions and ideas. We invite researchers to submit their original and unpublished work including but not limited to the following topics:

- Theory Analysis of GBML based Systems
- Evolutionary Rule Learning Systems
  - Pittsburgh style Learning Classifier Systems (LCS)

- Michigan style Learning Classifier Systems
- Evolutionary Decision Trees
- Evolutionary Neural Networks
- Evolutionary Ensembles
- Knowledge Representations in GBML
- Different Learning Paradigms in GBML
  - Supervised/Unsupervised/Semi-supervised learning
  - Offline/Online Learning
  - Motivational/Reinforcement Learning
- Novel Genetic Operators in GBML
- Memetic/Hybrid Learning Methods
- Stream Data Mining
- GBML for real world applications

### **Instructions for Authors:**

Papers must correspond to the requirements detailed in the (Paper Submission) on the conference flyer <http://cig.iet.unipi.it/isda2010/flyer.pdf> The ISDA 2010 Proceedings will be included in the [IEEE Xplore digital library](#). Before publishing your final work at IEL, we need your kind help to ensure the availability and the compatibility of your camera-ready paper.

### **Registration Fees:**

All papers must be presented by one of the authors, who must pay the registration fees.

<http://cig.iet.unipi.it/isda2010/>

### **Paper Reviewing and Publication**

Submitted papers will be reviewed. Accepted papers, which should not exceed 6 pages (PDF) following the double column IEEE format. All accepted papers will be published in the proceedings of the IEEE-ISDA'10. Selected papers will be published in special issues of a selection of International Journals (to be announced).

### **Tentative Dates of Submission and Acceptance**

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|--------------------------------------|--------------------|
| ➤ Deadline for paper submission      | June 26, 2010      |
| ➤ Notification of acceptance         | August 14, 2010    |
| ➤ Camera-ready manuscript submission | September 15, 2010 |