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Theory and Practice of Natural Computing

First International Conference, TPNC 2012
Tarragona, Spain, October 2-4, 2012
Proceedings

Springer

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Preface

These proceedings contain the papers that were presented at the First International Conference on the Theory and Practice of Natural Computing (TPNC 2012), held in Tarragona, Spain, during October 2–4, 2012.

The scope of TPNC is rather broad, containing topics of either theoretical, experimental, or applied interest. The topics include but are not limited to:

Nature-inspired models of computation
- amorphous computing
- cellular automata
- chaos and dynamical systems based computing
- evolutionary computing
- membrane computing
- neural computing
- optical computing
- swarm intelligence

Synthesizing nature by means of computation
- artificial chemistry
- artificial immune systems
- artificial life

Nature-inspired materials
- computing with DNA
- nanocomputing
- physarum computing
- quantum computing and quantum information
- reaction-diffusion computing

Information processing in nature
- developmental systems
- fractal geometry
- gene assembly in unicellular organisms
- rough/fuzzy computing in nature
- synthetic biology
- systems biology

Applications of natural computing to algorithms, bioinformatics, control, cryptography, design, economics, graphics, hardware, learning, logistics, optimization, pattern recognition, programming, robotics, telecommunications, etc.

TPNC 2012 received 34 submissions. Each one was reviewed by three Program Committee members and there were also several external referees. After a thorough and vivid discussion phase, the committee decided to accept 12 papers

(which represents an acceptance rate of 35.29%). The conference program also included six invited talks and one invited tutorial.

Part of the success in the management of the submissions and reviews is due to the excellent facilities provided by the EasyChair conference management system.

We would like to thank all invited speakers and authors for their contributions, the Program Committee and the reviewers for their cooperation, and Springer for its very professional publishing work.

July 2012

Adrian-Horia Dediu
Carlos Martín-Vide
Bianca Truthe

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TPNC 2012 was organized by the Research Group on Mathematical Linguistics, GRLMC, from the University Rovira i Virgili, Tarragona, Spain.

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