Advances in Computer Science

- Proceedings of the 15th International Conference on Evolutionary Computing (EC '15)

- Proceedings of the 6th European Conference of Computer Science (ECCS '15)

Rome, Italy, November 7-9, 2015
ADVANCES in COMPUTER SCIENCE

Proceedings of the 15th International Conference on Evolutionary Computing (EC '15)

Proceedings of the 6th European Conference of Computer Science (ECCS '15)

Rome, Italy
November 7-9, 2015
# Table of Contents

**Plenary Lecture 1: Combining Genetic Algorithms with Software Agents as a Methodology to Simulate Financial Time Series**  
Filippo Neri  

**A Search Method of Particle Swarm Optimization Including Pheromone Information for Function Optimization**  
Mengchun Xie, Mitsutoshi Murata, Yuto Murakami, Kazuki Yamagiwa  

**Model-Based Diagnosis of Discrete-Event Systems in Partially Ordered Hypothesis Spaces**  
Luca Ceriani, Marina Zanella  

**A Secure and Efficient Smart-Metering Protocol for Dynamic Pricing**  
Kwantae Cho, Byung-Gil Lee  

**Alternative Framework Designs for Zirconia-Ceramic Crowns**  
Liliana Porojan, Sorin Porojan, Cristina Savencu  

**Simulated Annealing Algorithm Applied as a Fault Identification Method for Electromechanical Actuators Affected by Multiple Failures**  
M. D. L. Dalla Vedova, D. Lauria, P. Maggiore, L. Pace  

**Estimating the Number of People Using Existing WiFi Access Point in Indoor Environment**  
Takuya Yoshida, Yoshiaki Taniguchi  

**E-Government within Cyberspace**  
Jan Capek, Iva Ritschelova  

**On Constructing Volume Based Approximation Algorithms of Spatial Subsets**  
Gábor Fábián, Lajos Gergó  

**Model Based Fault Detection Neural Technique for Electromechanical Servomechanisms**  
Matteo Dalla Vedova, Paolo Maggiore, Lorenzo Pace, Simone Romeo  

**A Modified Spectral Clustering Algorithm Based on Density**  
Yue Li, Xiyu Liu  

**Maintenance of an ATM Network: Modeling of Cash Flows, Analysis of Cash Demand and Customer Habits**  
Edvinas Greicius, Saulius Minkevicius, Leonidas Sakalauskas  

**Image and Data Processing Using Reconfigurable Computer Systems**  
Alexey Dordopulo, Andrej Gulenok, Viacheslav Gudkov, Igor Kalyaev, Ilya Levin  

**Discrete Simulation of Response Process and Knowledge Exchange During Flood Events in Lower Sava Valley, Slovenia**  
Jernej Agrež, Nadja Damij
Objective Quality Assessment in Color Image Denoising: New Tools and Validation Procedures
Fabrizio Russo

On Fractal Characteristics in Images Segmentation Problem
N. Ampilova, I. Soloviev

Simulation of Emission and Absorption Spectra of Full LH2 Complex (B850 Ring and B800 Ring) - Full Hamiltonian Model
Milan Horák, Pavel Herman, David Zapletal

Model and Algorithm of an Artificial Immune System for the Recognition of Single Symbols
I. F. Astakhova, S. A. Ushakov, Ju. V. Hitskova

Efficient Binary Signed Digit Multiplier for Modular Multiplication
Se-Hyu Choi, Keon-Jik Lee

An Innovative Pulse-Coupled Neural Network Approach to Image Segmentation
Serban-Vasile Carata, Victor-Emil Neagoe

Brain Modeling, Spacetime Splitting and Computer Science
Rodolfo A. Fiorini

Computer Software Technologies for Intelligent Robot
Vladimir Pavlovsky, Anton Aliseychik, Igor Orlov

Distance Estimation Based Filter RSSI for Indoor Wireless Sensor Networks
Celal Ozturk, Sallama Resen

The Simple System for Objects Classification and Counting
Boris Jovanovic, Zoran Mijanovic, Radovan Stojanovic, Nedjelko Lekic

Capacity of Communication Channel as a Quality Guarantee of Digital Remote Control of Continuous Technical Plant
Elena S. Liholetova, Olga S. Nuyya, Ruslan O. Peshcherov, Anatoly V. Ushakov

Hardware-Software Complex in Educational Process on the Course “Electricity and Magnetism”
Yerasyl Yerlanuly, Nurzat Kenzhebaev, Talgat Daniyarov, Merlan Dosbolaev, Tlekkabul Ramazanov, Maratbek Gabdullin

Make the Intrusion Detection System by IDS-AM-Clust, Honeyd, Honeycomb and Honeynet
Chaimae Saadi, Habiba Chaout

Bridging the Gap for Retrieving DBpedia Data
Ahmed Salama Ismail, Haytham Al-Feel, Hoda M. O. Mokhtar

An Expert System Application for Diesel Engines Diagnosis
Ileana Concho, Mary Vergara, Francklin Rivas, Fernando Chica, Nestor Rivera

Multilayer Data Embedding Using Reduced Difference Expansion
Dinesh Satre, Devyani Bonde, Subhash Rathod
Integrable Framework for Securing Multidimensional Data with MDX
Ahmad Mousa Altamimi, Mahmood Ghaleb Albashayreh

Data Integration System for RDF Data Sources
Yassine Laadidi, Mohamed Bahaj

Complexity Based Maintenance Assessment for Autonomic Agent
Pooja Dehraj, Arun Sharma

Security Evaluation and Implementation of Achterbahn-128 for Images Encryption
Aissa Belmeguenai, Oulaya Berrak, Khaled Mansouri

Applying Proposed Method to Prevent SQL Injection Attacks
Mai Elbaabaa, Elbahlul Fgee, Adel Smeda

Data Modeling and Interpolation Based on Probability Distribution of the Nodes
Dariusz Jacek Jakóbczak

An Efficient Cloud Model with Integrated Services by Addressing Major Security Challenges
Shahbaz Pervez, Gasim Alandjani, Faheem Babar

Dumb and Deaf People in Call Centers
Visvam Devadoss Ambeth Kumar, S. Gokul Amutham

Efficient Energy Conservation in MANET Using Energy Conserving Advanced Optimized Link State Routing Model
N. Dhanalakshmi, P. Alli

Authors Index
Plenary Lecture 1

Combining Genetic Algorithms with Software Agents as a Methodology to Simulate Financial Time Series

Professor Filippo Neri
Dept. of Electrical Engineering and Computer Science
University of Naples Federico II
E-mail: filippo.neri@unina.it

Abstract: In the talk we will describe how GAs can be combined with software agents in order to produce a powerful and versatile simulation method to model and study complex systems, like financial markets. Examples of challenging real financial time series will be given and we will show how to use the simulation methodology offered by a variety of software agents optimized by a GA in order to model their characteristics. Experiments will also be described and discussed.

Brief Biography of the Speaker: Prof. Filippo Neri is currently with the Dept. of Electrical Engineering and Computer Science at University of Naples Federico II, Italy. Prof. Filippo Neri is currently Editor in Chief of WSEAS Transactions on Systems. Prof. Filippo Neri has wide experience in the area of artificial intelligence, machine learning, and software agent simulation. He had the opportunity to work both in academic and industrial environments including Ericsson's and Unilever's R&D centers and across three countries in the European Union (Italy, Ireland and UK). He has studied and visited at several important academic institutions including Carnegie Mellon University, Imperial College London, University of Milano, University of Torino, University of Malta. He is a Marie Curie Fellow and a ADI associate, the Italian PhD association. Finally he has served in the program committees and as reviewer at several international conferences and international journals.