Table of Contents

The Fifth International Conference on Soft Computing as Transdisciplinary Science and Technology

Technical Sponsors
Honorary Chair Foreword
Chairs Welcome Message
Workshop Editorial Messages
CSTST’08 Conference and Workshop Committees

Keynotes

Proximity-based ad hoc Federation among Smart Objects and its Applications
Yuzuru Tanaka

Evolutionary Multiobjective Optimization and Multiobjective Fuzzy System Design
Hisao Ishibuchi

Chance Discovery as Value Sensing by Data based Meta Cognition
Yukio Ohsawa

Conference Sessions

CLA: Classification

Document Classification System Based on HMM Word Map
Nikos Tsimboukakis, George Tambouratzis

Building Classification Rules for Case Based Classifier using Fuzzy Sets and Formal Concept Analysis
Jirapond Tadrat, Veera Boonjing, Puntip Pattaraintakorn

Intelligent Hybrid System for Pattern Recognition and Classification
Ivan Jordanov, Antoniya Georgieva

FUZ: Fuzzy Applications

Voice Quality Measurement System for Telephone Service
Ilgu Jung, Eunjin Ko, Hyunchul Kang, Gilhaeng Lee
Fuzzy Control of Undersea Robotic Vehicle in Plane Motion ................................................................. 31
Jerzy Garus

Recognizing Unexpected Recurrence Behaviors with Fuzzy Measures in Sequence Databases ............................................................... 37
Dong Haoyuan Li, Anne Laurent, Pascal Poncelet

Hybrid approach Using Ant Colony Optimization and Fuzzy Logic to Solve Multi-criteria Hybrid Flow Shop Scheduling Problem ........................................ 44
Safa Khalouli, Fatima Ghedjati, Abdelaziz Hamzaoui

SEC: Security

Improving Performance of Intrusion Detection System by Applying a New Machine Learning Strategy ............................................................... 51
Zou Tao, Yimin Cui, Minhuan Huang, Cui Zhang

Network Security Simulation and Evaluation ............................................................... 55
Yimin Cui, Tao Zou, Lufeng Zhang, Jinjing Zhao

A Novel approach in Securing DDoS Attack............................................................... 59
Yi-Tung Chan, Galyna A. Akmayeva, Charles Shoniregun

Extending Web Applications with a Lightweight Zero Knowledge Proof Authentication ............................................................... 65
Sławomir Grzonkowski, Wojciech Zaremba, Maciej Zaremba, Bill Mcdaniel

ROB & ANN: Robotics And Neural Networks

Implementation of a Neural-based Navigation Approach on Indoor and Outdoor Mobile Robots ............................................................... 71
Ouahiba Azouaoui, Mohamed Kadri, Naureddine Ouadah

A Human-Machine Interface Design for Direct Rehabilitation using A Rehabilitation Robot ............................................................... 78
Erhan Akdogan, Mehmet Arif Adli, Nureddin Bennett

Counter-Ant Algorithm for Evolving Multirobot Collaboration ............................................................... 84
Abdelhak Chatty, Ilhem Kallel, Adel M. Alimi

Persian On-line Handwritten Character Recognition by RCE Spatio-Temporal Neural Network ............................................................... 90
Mehdi Moghadam Fard, Maryam Moghadam Fard, Behrouz Minaei Bidgoli, Masroor Hussain
Distributed Real-Time Neural Networks In Interactive Complex Systems ........................................... 95
Lagarde Matthieu, Andry Pierre, Gaussier Philippe

MED: Medical Applications

Distant Learning Case-Study: Nurse Training in Diabetes Problems................................................. 101
Jozef Bohdan Lewoc, Antoni Izworski, Slawomir Skowronski

Wireless Device for People affected by Neurodegenerative Diseases.............................................. 106
Paul Bustamante, Gonzalo Solas, Karol Grandez

Covered Body Analysis in Application to Patient Monitoring .......................................................... 112
Ching-Wei Wang

Fundamental Research for Brain Machine Interface by use of
EEG from Right Frontal Gyrus .............................................................................................................. 118
Takahiro Yamanoi, Hisashi Toyoshima, Toshimasa Yamazaki, Shin-Ichi Ohnishi, Michio Sugeno, Ellie Sanchez

Swarm Intelligence of Gene Networks Forms Behavioral Rules for
Biological Cells Serving as Agents of the Next Level Organ-Forming SI ........................................ 125
Igor Tsigelny, Valentina Kouznetsova, Sanjay Nigam

Calculating Accurate Volume of Spontaneous Intracerebral Hematoma ........................................... 131
Radoslaw Cichocki, Martin Tabakow, Halina Kwasnicka

ANS 1: Architectures, Network Applications and Services

HMM-Embedded Bayesian Network for Heterogeneous Command
Integration: Applications to Biped Humanoid Operation over the Network ....................................... 138
Yasuo Matsuyama, Youichi Nishida

Design of a P2P Infrastructure to Support Plagiarism Detection Mechanisms................................... 146
Juan Mussini, Lau Lung, Fabio Favarim

Complex Federation Architectures: Stakes, Tricks & Issues .............................................................. 152
Mikaël Ates, Christophe Gravier, Jeremy Lardon, Jacques Fayolle

Optimizing Communications in Vehicular Ad hoc Networks
Using Evolutionary Computation and Simulation .............................................................................. 158
Wahabou Abdou, Adrien Henriet, Dominique Dhoutaut, Francois Spies, Christelle Bloch
Automatic Generator of XML Documents Editors based on Attributed Grammars

Kablan Barbar

ANS 2: Architectures, Network Applications and Services

Service Diffusion in the Market Considering Consumers' Subjective Value

Kousuke Fujita, Takeshi Takenaka, Kanji Ueda

A Multi-Swarm Approach to Neighbor Selection in Peer-to-Peer Networks

Ajith Abraham, Youakim Badr, Hongbo Liu, Crina Grosan

Global Consensus Emergence in an Unstructured Semantic Network

Gabriele Gianini, Antonia Azzini, Ernesto Damiani, Stefania Marrara

Novel Cache Management Strategy for Semantic Caching in Mobile Environment

Kami Makki, Xunhang Zhou

DM 1: Data Mining

Discovery of Underlying Morphological Bonds Using an Agglomerative Clustering Algorithm

Zacharias Detorakis, George Tambouratzis

Fast Extraction of Gradual Association Rules: A Heuristic Based Method

Lisa Di Jorio, Anne Laurent, Maguelonne Teisseire

Web Opinion Mining: How to Extract Opinions from Blogs?

Ali Harb, Michel Plantié, Mathieu Roche, Gérard Dray, Pascal Poncelet, François Trousset

Recursive Data Mining for Role Identification

Vineet Chaoji, Apirak Hoonlor, Boleslaw Szymanski

DM 2: Data Mining

Text Summarization with Harmony Search Algorithm-Based Sentence Extraction

Ehsan Shareghi, Leila Sharif
Mining Social Network for Extracting Topic of Textual Conversations .................................................. 232
Pooya Moradian Zadeh, Maryam Mohi, Mohsen Sadighi Moshkenani

Mining Competitive Technical Intelligence of High-tech Products
with Self-Organizing Map ......................................................................................................................... 238
Gang Li, Lu An

ALG: Algorithms

On Stability of the Chemotactic Dynamics in Bacterial Foraging
Optimization Algorithm ................................................................................................................................. 245
Swagatam Das, Sambarta Dasgupta, Arijit Biswas, Ajith Abraham, Amit Konar

Data Pre-processing: A new algorithm for Feature Selection
and Data Discretization ................................................................................................................................. 252
Marcela Ribeiro, Monica Ferreira, Caetano Traina Jr, Agma Traina

Memetic Programming with Adaptive Local Search
Using Tree Data Structures ......................................................................................................................... 258
Emad Mabrauk, Abdel-Rahman Hedar, Masao Fukushima

Tuning an Evolutionary Algorithm with Taguchi Methods and Application
to the Dimensioning of an Electrical Motor .............................................................................................. 265
Jean-Laurent Hippolyte, Christelle Bloch, Pascal Chatonnay, Christophe Espanet,
Didier Chamagne, Geneviève Wimmer

ISA: Intelligent Systems and Applications

Knowledge Revision in Systems Based on an Informed Tree Search
Strategy: Application to Cartographic Generalization .................................................................................. 273
Patrick Taillandier, Duchêne Cécile, Drogoul Alexis

A Multi-agent Approach for an UWB Location Embedded
Software Architecture ................................................................................................................................. 279
Michel Occello, Jean-Paul Jamont, Manuel Pezzin, Régis Guillermin

Verification of Communication Protocols in a Multi-agent System .................................................................. 286
Marina Bagic, Aleksandar Babac, Marijan Kunstic

Constraints Satisfaction Problems in Data Modeling ..................................................................................... 292
Djamel Berrabah, Faouzi Boufarès
FreeTagpaper: A Pen-and-Paper-Based Collaboration System
Using Visual Tags Printed on Paper ................................................................. 298
Satoshi Iwaki, Hiroaki Kawata, Tamotsu Machino, Manabu Motegi, Shin-Yo Muto, Yoshito Nanjo

Resources Annotation, Retrieval and Presentation ........................................... 303
M. Albert, Cedrick Allery, Nicolas Freiss, Gregory L’Azou, A. Moreau, Jonathan Piron,
Vincent Ribaud, Philippe Saliou

Policy Based Access for Home Contents and Services ...................................... 310
Mohammad Chowdhury, Sarfraz Alam, Josef Noll

A Novel Particle Swarm Optimization for Multiple Campaigns
Assignment Problem ......................................................................................... 317
Satchidananda Dehuri, Sung-Bae Cho

Fatigue Level Estimation of Bill Based on Feature-Selected Acoustic
Energy Pattern by Using Supervised SOM ....................................................... 325
Masaru Teranishi, Sigeru Omatu, Toshihisa Kosaka

Ant Colony Optimization for Steiner Tree Problems ...................................... 331
Markus Prossegger, Abdelhamid Bouchachia

Evolving Feasible Linear Ordering Problem Solutions .................................... 337
Pavel Kromer, Vaclav Snasel, Jan Platos

Strategic Decision Making on Group Collaboration under
Temporary Constraints .................................................................................... 343
Hideyasu Sasaki

An NLP-based Ontology Population for a Risk Management
Generic Structure ............................................................................................. 350
Jawad Makki, Anne-Marie Alquier, Violaine Prince

Estimation of Relevance and Fusion of Data Sources Using Belief
Function Theory: Application to Bioprocess ................................................ 356
Sébastien Regis, Andrei Doncescu, Jacky Desachy
Metadata Domain-knowledge Driven Search Engine in "HyperManyMedia" E-learning Resources ................................................................. 363
Leyla Zhuhadar, Olfa Nasraoui, Robert Wyatt

COS: Control and Security

Fed-Batch Fermentation Controller Design with Evolutionary Computation ......................................................... 371
Andri Riid, Ennu Rüstern

A Software Based Approach for Autonomous Projectile Attitude and Position Estimation ......................................................... 378
Bertrand Grandvallet, Ali Zemouche, Mohamed Boutayeb, Sébastien Chongey

Cluster-based MDS for Nodes Localization in Wireless Sensor Networks with Irregular Topologies ......................................................... 384
Biljana Stojkoska, Danco Davcev, Andrea Kulakov

Optimistic Path-Based Concurrency Control over XML Documents ......................................................... 390
Djamel Berrabah, Stéphane Gançarski, Sarah Kaddour Chikh, Cecile Le Pape

A Face-House Paradigm for Architectural Scene Analysis ......................................................... 397
Stephan Chalup, Kenny Hong, Michael J. Ostwald

Workshop Sessions

FiS: Workshop Fuzzy is Scalable: Managing Huge Databases Using Fuzzy Methods

Fuzzy Logic to Cope with Complex Problems: Some Examples of Real-World Applications ......................................................... 404
Bernadette Bouchon-Meunier

Identification of Association Rules between Clusters ......................................................... 406
Marco Pagani, Gloria Bordogna

High Scale Video Mining with Forests of Fuzzy Decision Trees ......................................................... 413
Christophe Marsala, Marcin Detyniecki

FFTM: Optimized Frequent Tree Mining with Soft Embedding Constraints on Siblings ......................................................... 419
Manel Sghaier, Sadok Ben Yahia, Anne Laurent, Maguelonne Teisseire
Modified Bacterial Memetic Algorithm used for Fuzzy Rule Base Extraction ............................................. 425
László Gál, János Botzheim, László T. Kóczy

CIMI-I: Workshop on Computational Intelligence in Medical Imaging

Region Analysis of Abdominal CT Scans using Image Partition Forests ....................................................... 432
Stuart Golodetz, Irina Voiculescu, Stephen Cameron

Anisotropic Mean Shift Based Fuzzy C-Means Segmentation of Skin Lesions ........................................... 438
Huiyu Zhou, Gerald Schaefer, Abdul Sadka, M. Emre Celebi

Automatic 3D Skull Reconstruction using Invariant Features ................................................................. 444
Lucia Ballerini, Marcello Calisti, Sergio Damas, Oscar Cordon, Jose Santamaría

CIMI-II: Workshop on Computational Intelligence in Medical Imaging

Identifying Histological Elements with Convolutional
Neural Networks ........................................................................................................................................... 450
Christopher Malon, Matthew Miller, Harold Christopher Burger, Eric Cosatto, Hans Peter Graf

Fuzzy Rule-Based Classification System for Computer-Aided Diagnosis
in Contact Endoscopy Imaging ................................................................................................................... 457
Wojciech Tarnawski, Marcin Fraczek, Tomasz Krecicki, Michal Jelen

WT-SOM network Implementation on FPGA for the Medical
Images Compression ........................................................................................................................................ 464
Fatiha Alim-Ferhat, Sofiane Seddiki, H. Bessolah, M. Issad, H. Salhi, O. Kerdjidj

ASBS-I: Workshop on Autonomous & Autonomic Software-based Systems

Operating System Support for Distributed Applications in
Real Space-Time ............................................................................................................................................. 469
Matthias Werner, Dirk Müller, Martin Däumler, Jan Richling, Gero Mühl

Automatic Configuration for the Component Selection Problem ............................................................... 479
Andreea Vescan, Horia Florin Pop

Implementing a Rule-Driven Approach for Architectural Self Configuration
in Collaborative Activities using a Graph Rewriting Formalism ............................................................... 484
Ismail Bouassida Rodriguez, Karim Guennoun, Khalil Drira, Christophe Chassot, Mohamed Jmaiel
GSpace: An Architectural Approach for Self-Managing Extra-Functional Concerns
Giovanni Russello, Naranker Dulay, Michel Chaudron, Maarten Van Steen

ASBS-II: Workshop on Autonomous & Autonomic Software-based Systems
Towards Modelling and Analysis of a Coordination Protocol for Dynamic Software Adaptation
Najla Hadj Kacem, Ahmed Hadj Kacem, Mohamed Jmaiel, Khalil Drira

Modeling of Correct Self-Adaptive Systems: A Graph Transformation System Based Approach
Basil Becker, Holger Giese

Dynamic Adaptive Software Components: the MOCAS Approach
Cyril Ballagny, Nabil Hameurlain, Franck Barbier

CAML-I: Workshop on Context-Aware Mobile Learning
Agent-based Ubiquitous m-Learning Portal for K-12 Teachers
Shuangbao Wang, Qing Chen, Michael Behrmann

ContAct-Us: a Context-Activity Adaptive Modeler for Ubiquitous Learning Systems
Jihen Malek, Monaco Laroussi, Alain Derycke

Context Modeling to Support the Design of Mobile Learning
Arianit Kurti

PerZoovasive: Contextual Pervasive QR Codes as Tool to Provide an Adaptive Learning Support
José Rouillard, Mona Laroussi

CAML-II: Workshop on Context-Aware Mobile Learning
Multi-Agent Architecture for Context-Aware mLearning Provision via InfoStations
Stanimir Stoyanov, Ivan Ganchev, Martin O'Droma, D. Mitev, I. Minov

Context Aware Mobile Muslim Companion
Mohamed Al Ali, Jawad Berri, Mohamed Jamal Zemerly

Location-Aware Classroom Services on the Semantic Web
Kris Scott, Rachid Benlamri
SW-I: Workshop of Doctoral Students

Dynamics of Reproduction in Artificial Bacterial Foraging System:
Modeling and Stability Analysis .......................................................... 564
Arijit Biswas, Swagatam Das, Sambarta Dasgupta, Ajith Abraham

The Macroscopic LWR Model of the Transport Equation
Viewed as a Distributed Parameter System ........................................... 572
Milka Uzunova, Daniel Jolly, Emil Nikolov, Kamel Boumediene

Green Function Analytical Method of Solution of Transport Equation.
Modeling and Simulation of the Macroscopic LWR Model as a Distributed
Parameter System ................................................................................ 577
Milka Uzunova, Daniel Jolly, Emil Nikolov, Kamel Boumediene

From Scheduling Theory to Practice: A Case Study .................................. 581
Ghislain Charrier

A Study and Implementation of Self-Adaptive Allocation Algorithm
for Parallel Program............................................................................... 583
Ergude Bao, Yang Yang, Hui Chen, Yuan-Yuan Lu, Xiao Liu, Wei-Sheng Li

SW-II: Workshop of Doctoral Students

Diagnosis in Systems Based on an Informed Tree Search Strategy:
Application to Cartographic Generalization ........................................... 589
Patrick Taillandier

From Prepared Speech to Spontaneous Speech Recognition System:
A Comparative Study Applied to French Language ................................. 595
Richard Dufour

Semi-Materialized Framework: a Hybrid Approach to Data Integration .......... 600
Shokoh Kermanshahani

More Expressive Extensions of TQL ...................................................... 607
Wissam Khalil

WAODS: Workshop on Applied Ontologies in Distributed Systems

Ontology Driven Road Network Analysis based on Analytical
Network Process Technique .................................................................. 613
Abolghasem Sadeghi-Niaraki, Kyehyun Kim, Cholyoun Lee
Design of an Event System adopting Ontology-based Event Model for Ubiquitous Environment

Heeman Park, Younglok Lee, Hyunghyo Lee, Bongnam Noh

How Can Ontologies Support Enterprise Digital And Paper Archives? A Case Study

Ugo Barchetti, Alberto Bucciero, Luciano Capone, Anna Lisa Guido, Luca Mainetti, Roberto Paiano, Enrico Pulimeno, Stefano Santo Sabato

Towards a First Ontology for Customer Relationship Management

Diego Magro, Anna Goy

A Peer-to-Peer System to Share Ontology in the Semantic Web

Antonio M. Rinaldi

A Semantic-driven Auto-adaptive Architecture for Collaborative Ubiquitous Systems

German Sancho, Said Tazi, Thierry Villemur

AASN: Workshop on Automated and Autonomous Sensor Networks


Takeshi Ikeda, Yutaka Inoue, Akio Sashima, Kiyoshi Yamamoto, Tomohisa Yamashita, Koichi Kurumatani

Dynamic Optimization of Bluetooth Networks for IndoorLocalization

Markus Jevring, Robert De Groote, Cristian Hesselman

Using Multi-Agent Geo-Simulation Techniques for Intelligent Sensor Web Management

Mehdi Mekni, Moulin Bernard


Sangbo Seo, Seungmi Song, Eunsook Kim, Sungun Kim

Adaptive Sensor/Actuator Networks for Tracking Environment Control Behaviors

Masayuki Nakamura, Atsushi Sakurai, Takumi Yamada, Jiro Nakamura

Self-Adapting Maxflow Routing Algorithm for WSNs: Practical Issues and Simulation-Based Assessment

Andrea Seraghiti, Emanuele Lattanzi, Saverio Delpriori, Alessandro Bogliolo

Author Index