



# SACI 2006

**3<sup>rd</sup> Romanian-Hungarian Joint Symposium on  
Applied Computational Intelligence**

Timișoara, Romania

May 25–26, 2006



# PROCEEDINGS

---

## TABLE OF CONTENTS

---

Committees .....	9
New Concepts and Methods in Information Aggregation .....	11
<i>János Fodor, Imre J. Rudas, Hungary</i>	
Fuzzy Logic Control Problems Simulation Based on Parametrized Operators .....	25
<i>Márta Takács, Sándor Szénási, Ágnes Szeghegyi, Hungary</i>	
Uninorms and Absorbing Norms in Image Processing .....	35
<i>Imre J. Rudas, János Fodor, Barnabás Bede, Hungary</i>	
On the Use of Iterative Feedback Tuning Algorithms in Fuzzy Control System Design .....	46
<i>Stefan Preitl, Radu-Emil Precup, Romania, János Fodor, Barnabás Bede, Hungary</i>	
Clustering Sequences with a Statistical Content Evaluation Method .....	59
<i>Alina Bogan-Marta, Nicolae Robu, Romania</i>	
Identification of Car Body Deformation Applying Tensor Product Models .....	70
<i>István Harmati, András Rövid, László Szeidl, Péter Várlaki, Hungary</i>	
Considerations Regarding the Flux Estimation in Induction Generator with Application at the Control of Unconventional Energetic Conversion Systems .....	77
<i>Iosif Szeidert, Octavian Proștean, Ioan Filip, Vasar Cristian, Romania</i>	
Opportunities of Emerging Technologies for Smart Houses – City-wide Energy, Gas and Water Measurement Networks .....	87
<i>Lehel Nagy-Kulcsar, Petru Dobra, Daniel Moga, Mihai Dumitrescu, Nicoleta Stroia, Romania</i>	
Experiments in Multi-parametric Quadratic Programming .....	98
<i>Zsuzsa Preitl, Radu-Emil Precup, Romania, József K. Tar, Márta Takács, Hungary</i>	
Model Transformer Plugin Generation .....	111
<i>Ákos Horváth, Endre Borbély, Hungary</i>	
An Algorithm for Stability of Takagi–Sugeno Fuzzy Logic Controller .....	125
<i>Marius L. Tomescu, Romania</i>	
Tracking Control of Mechatronic Systems based on Precise Friction Compensation ..	136
<i>Lőrinc Márton, Romania, Béla Lantos, Hungary</i>	
About the Behavior of Fixation Devices on the Fractured Mandible .....	148
<i>Doina Dragulescu, Lucian Rusu, Mirela Toth Tascu, Romania</i>	
Adaptive Fuzzy Controller for Synchronous Generator .....	154
<i>Ioan Filip, Octavian Proștean, Cristian Vasar, Iosif Szeidert, Romania</i>	
Comparison of Elementary Fuzzy Sequential Digital Units based on Various Popular T-norms and Co-norms .....	164
<i>Rita Lovassy, László T. Kóczy, Hungary</i>	
On Chained Cryptographic Puzzles .....	182
<i>Bogdan Groza, Dorina Petrica, Romania</i>	

Aspects of TGS 813 Gas Sensor's Use .....	192
<i>Ioan Silea, Dorina Petrica, Romania</i>	
Using Fuzzy Logic for the Specification and Retrieval of Software Components .....	204
<i>Ioana Şora, Doru Todinca, Romania</i>	
A Genetic Algorithm for the Two-dimensional Single Large Object Placement Problem .....	214
<i>László Pál, Romania</i>	
Integrated Modeling for Data Integrity in Product Change Management .....	225
<i>László Horváth, Imre J. Rudas, Hungary</i>	
On the Use of Robust Servo Control in Diabetes under Intensive Care .....	236
<i>Levente Kovács, Balázs Kulcsár, Zoltán Benyó, Hungary</i>	
Hardware-software Solutions to Surveillance an Objective .....	248
<i>Emil Voisan, Daniel Iercan, Florin Dragan, Onut Lungu, Romania</i>	
Robust $H_{\infty}$ Blood - Glucose Control with Mathematica .....	257
<i>Levente Kovács, Béla Paláncz, Zoltán Benyó, Hungary</i>	
Genericity, and Customisation in a Lotus-based Solution for Communication between Local Public Institutions .....	268
<i>Vasile Stoicu-Tivadar, Romania</i>	
Robust Potential Limited Control for Systems of Unmodeled Internal Degrees of Freedom .....	278
<i>József K. Tar, Imre J. Rudas, Hungary, Stefan Preitl, Radu-Emil Precup, Romania</i>	
A Particular Multi-Agent Framework for Execution of Application and Resource Management .....	286
<i>Alexandru Cicortas, Victoria Iordan, Romania</i>	
Improved Slope Identification Techniques in Extremum Control .....	306
<i>Eva Dulf, Rodica Festila, Clement Festila, Romania</i>	
SeaFM Facility Management Project. Integrated Management Methodology for the Property and Facility of Companies .....	314
<i>Márta Seebauer, Zsolt Viniczay, Hungary</i>	
Evaluation of Soil-Parameters with Diffusion-Neural-Network .....	322
<i>Zoltán Makó, Szilárd Máté, Romania</i>	
Performance Aspects of Fuzzy Logic Controlers with Improved Architecture .....	332
<i>Doru Todinca, Radu-Emil Precup, Romania</i>	
Energy on the Roof .....	343
<i>Péter Kádár, Hungary</i>	
Routing and Topology Extraction Protocol for a Wireless Sensor Network using Video Information .....	353
<i>Madalin Cosma, Dan Pescaru, Bogdan Ciubotaru, Doru Todinca, Romania</i>	
Towards a Reengineering Tool for Java based on Reverse Inheritance .....	364
<i>Ciprian-Bogdan Chirila, Monica Ruzsilla, Pierre Crescenzo, Philippe Lahire, Dan Pescaru, Emanuel Ţundrea, Romania</i>	
Contribution of the Computer Science at Debts Registering in Accountancy .....	376
<i>Mihaela Tulvinschi, Eugenia Iancu, Romania</i>	



Wireless Solutions for Telemetry in Civil Equipment and Infrastructure Monitoring .	386
<i>Bogdan Ciubotaru-Petrescu, Dan Chiciudean, Razvan Cioarga, Daniela Stanescu, Romania</i>	
Serial Bus Monitoring Software for Microcontrollers Embedded in Mechatronic Systems .....	396
<i>Mircea Popa, Marian Vasile, Sebastian Fuicu, Romania</i>	
Multimedia Streaming of MP3 Audio Content Based on FM Stereo Radio Transmitter .....	408
<i>Andrei Novak, Mircea Stratulat, Daniela Stanescu, Dan Chiciudean, Bogdan Ciubotaru, Razvan Cioarga, Romania</i>	
Database Management Systems Comparative Study: Performances of Microsoft SQL Server Versus Oracle .....	419
<i>Cătălin Tudose, Carmen Odubășteanu, Romania</i>	
The Comparative Study of the Cross Displacement Fields for a Kinematical Element Thin Plane Plate with Linear-Elastic Behavior, respectively, with Linear-Viscoelastic Behavior .....	425
<i>Dan Gheorghe Băgnaru, Adina Cătăneanu, Romania</i>	
Prognosis and Diagnosis in Hepatitis C using Expert Systems and Statistical Analyses	436
<i>Andreea Drăgulescu, Adriana Albu, Cătălin Gavriluță, Ștefan Filip, Karoly Menyhardt, Romania</i>	
The ACC Mobile Robot Control Program .....	445
<i>Claudiu Pozna, Romania, Fritz Troester, Germany</i>	
The Dynamic Study of the Palm-Middle Finger System .....	453
<i>Loredana Ungureanu, Doina Drăgulescu, Antonius Stanciu, Marcel Șodincă, Romania</i>	
Diversity Enhancing Mechanisms for Evolutionary Optimization in Static and Dynamic Environments .....	460
<i>Daniela Zaharie, Flavia Zamfirache, Romania</i>	
Extension of the Results of a Prevention Guides for Cardiovascular Diseases Using Interpolation .....	472
<i>Dorin Berian, Toma L. Dragomir, Romania</i>	
Method for Automatic Diagnosis Used in Real-Time Control Systems .....	485
<i>Gianina Gabor, Doina Zmaranda, Romania</i>	
<b>CORE-TX: Collective Robotic Environment – the Timisoara Experiment .....</b>	<b>495</b>
<i>Razvan-Dorel Cioarga, Mihai V. Micea, Bogdan Ciubotaru, Dan Chiuciudean, Daniela Stanescu, Romania</i>	
Hardware Neural Network with MC431 DSP Board .....	507
<i>Cosmin Cernăzanu, Ștefan Holban, Romania</i>	
Computer Controlled Automatic Calibration System for Dial Gauges .....	515
<i>Gyula Hermann, Hungary</i>	
Enhanced Mixed Campus and Distance Higher Education .....	524
<i>Stefan Preitl, Radu-Emil Precup, Romania, József Gáti, Gyula Kártyás, Sándor Szénási, Hungary</i>	

Fuzzy Differential Equations in Modeling Hydraulic Differential Servo Cylinders .....	536
<i>Attila L. Bencsik, Barnabás Bede, József K. Tar, János Fodor, Hungary</i>	
Algorithmic Design of a Fuzzy-Neural Method .....	548
<i>William Franklin, USA</i>	
Supervisor Control of a Flexible Manufacturing System Used in Spinning Mills .....	561
<i>Dan Ungureanu-Anghel, Dan Lucian Mihaescu, Romania</i>	
Acoustic Noise Elimination by FPAA .....	571
<i>György Györök, Margit Makó, Hungary</i>	
Cellular Automaton: ‘The Roulette Wheel’ and the Landscape Effect .....	578
<i>Ioan Hălălae, Romania</i>	
Function Monitoring of Human Body by 3D g-sensor .....	584
<i>György Györök, Hungary</i>	
Mobile Agents versus Multicasting for Military Applications .....	590
<i>William Franklin, USA</i>	
Modelling Control Systems by Autonomous Mini Robot .....	594
<i>József Tick, Hungary</i>	
Meaning as Differentiated-Cognition .....	602
<i>Marius Crisan, Romania</i>	
Comparative Study Regarding Control of Wind Energy Conversion Systems Based on the Usage of Classical and Adaptive Neuro Fuzzy Controllers .....	614
<i>Iosif Szeidert, Romania</i>	
A Web-based E-learning Application of Self Study Multimedia Programme in Military English .....	621
<i>Andrea Tick, Hungary</i>	
Virtual Reality Laboratory for Robotic Systems .....	634
<i>Daniel Cioi, Steliana Vatau, Inocentiu Maniu, Romania</i>	
Domestic Wind Turbine and Components.....	642
<i>Attila Sáfár, Hungary</i>	
Author’s Index .....	655

---

---

## COMMITTEES

---

### HONORARY CHAIRS

**Nicolae Robu**, Rector of “Politehnica” University of Timișoara, Romania  
**Imre J. Rudas**, Rector of Budapest Tech, Hungary

### HONORARY COMMITTEE

**Ioan Dumitrache**, Politehnica University of Bucharest, Romania  
**Florin G. Filip**, Romanian Academy of Sciences, Romania  
**László T. Kóczy**, Budapest University of Technology and Economics, Hungary  
**Nicolae Țăpus**, Politehnica University of Bucharest, chairman of IEEE Romania Section, Romania

### GENERAL CO-CHAIRS

**János Fodor**, Budapest Tech, Hungary  
**Octavian Prostean**, “Politehnica” University of Timișoara, Romania

### TECHNICAL PROGRAM COMMITTEE CO-CHAIRS

**Stefan Preitl**, “Politehnica” University of Timișoara, Romania  
**Annamária R. Várkonyi-Kóczy**, Budapest University of Technology and Economics, Hungary

### PROGRAM COMMITTEE

**Péter Baranyi**, Budapest University of Technology and Economics, Hungary  
**Barnabás Bede**, Budapest Tech, Hungary  
**Balázs Benyó**, Széchenyi István University, Hungary  
**Petru Berce**, Technical University of Cluj-Napoca, Romania  
**Theodor Borangiu**, Technical University of Bucharest, Romania  
**Emil Ceangă**, “Dunărea de Jos” University of Galați, Romania  
**Marius Crișan**, “Politehnica” University of Timișoara, Romania  
**László David**, “Gheorghe Major” University Tg. Mureș, Romania  
**Stefan Holban**, “Politehnica” University of Timișoara, Romania  
**László Horváth**, Budapest Tech, Hungary  
**Dorin Isoc**, Technical University Cluj-Napoca, Romania  
**Szilveszter Kovács**, University of Miskolc, Hungary  
**Dumitru Popescu**, Politehnica University of Bucharest, Romania  
**Radu-Emil Precup**, “Politehnica” University of Timișoara, Romania  
**Lăcrămioara Stoicu-Tivadar**, “Politehnica” University of Timișoara, Romania  
**József K. Tar**, Budapest Tech, Hungary  
**József Tick**, Budapest Tech, Hungary  
**Domonkos Tikk**, Budapest University of Technology and Economics, Hungary  
**Mihail Voicu** “Gh. Asachi” Technical University, Iași, Romania

### INTERNATIONAL ORGANIZING COMMITTEE CHAIR

**József Gáti**, Budapest Tech, Hungary

## **INTERNATIONAL ORGANIZING COMMITTEE**

**Gyula Kártyás**, Budapest Tech, Hungary

**Ilona Reha**, Budapest Tech, Hungary

## **LOCAL ORGANIZING COMMITTEE CHAIRS**

**Vladimir Crețu**, "Politehnica" University of Timișoara, Romania

**Ioan Silea**, "Politehnica" University of Timișoara, Romania

## **LOCAL ORGANIZING COMMITTEE**

**Dorina Popescu**

**Simona Gheju**

**Ovidiu Baniăș**

**Mircea Stratulat**

**Mircea Popa**

**Răzvan Cioargă**

## **SECRETARY GENERAL**

**Anikó Szakál**, Budapest Tech, Hungary

szakal@bmf.hu

## **LOCAL SECRETARY (ONLY FOR LOCAL INFORMATION)**

**Stefan Preitl** and **Lucica Anton**

"Politehnica" University of Timisoara,

Phone: +40-256-40-3224, +40-256-40-3234

e-mail: stefan.preitl@aut.upt.ro, lucica@aut.utt.ro

<http://www.ac.utt.ro/saci06>

## **PROCEEDINGS EDITOR**

**Anikó Szakál**, Budapest Tech, Hungary

szakal@bmf.hu

## **WEBMASTER**

**Anikó Szakál**, Budapest Tech, Hungary

szakal@bmf.hu

<http://www.bmf.hu/conferences/saci2006>

## **ORGANIZERS**

„Politehnica” University of Timișoara, Romania  
Budapest Tech, Hungary  
IEEE SMC Chapter, Hungary  
IEEE CI Chapter, Hungary

## **IN COOPERATION WITH**

ASTR – Technical Academy of Science, Romania  
SRAIT – Romanian Society of Control Engineering and Technical Informatics  
SASICR – Academic Society of Computer Science and Engineering Romania  
IEEE Romanian Section

## **SPONSOR**

LASTING Systems S.R.L. Timișoara, Romania