

INES 2007

11th International Conference
on
Intelligent Engineering Systems

PROGRAM

29 June – 1 July, 2007
Budapest, Hungary

Sponsors

IEEE Joint Chapter of IES and RAS, Hungary
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IEEE SMC Chapter, Hungary
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IEEE



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Welcome Message from the General Chair

The growing international competition in the industrial area has created a demand for the introduction of intelligent techniques to various industrial problems to improve product quality and production process efficiency, as well as reduce production costs. The aim of the INES conference series is to provide researchers and practitioners from industry and academia with a platform to report on recent developments in the area of computational intelligence.

The series of INES conferences started in 1997 and they are considered one of the most important scientific events in the intelligent engineering systems field.

This conference is a special one, since the founders and organizers celebrate the 10th Anniversary of launching INES conferences.

I would like to acknowledge the efforts of the Program Co-Chairs, the Organizing Committee the Technical Program Committee members and all those persons responsible for the background activities. My pleasant duty is to gratefully acknowledge the support provided by the sponsors and technical co-sponsors as well.

I hope that all in attendance at INES 2007 will find this event intellectually stimulating and professionally rewarding.

IMRE J. RUDAS
General Chair

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GENERAL INFORMATION

Venue:

Hotel Griff, Budapest, Hungary
(1119 Budapest, Bartók Béla út 152.)
Phone: +36 1 204-0044
Fax: +36 1 204-0062

Language:

The official language of the conference is English. No translation will be provided.

Presentations:

Presentations can be made by using OHP or data projector. All authors are kindly asked to take their presentation on CD or USB and upload it during the break before their session. To present the paper it is not allowed to use own computer. All conference rooms are supplied with OHP and data projector with PC.

Opening Hours of the Registration Desk

June 29, Friday	7:30-18:00
June 30, Saturday	8:00-16:00
July 1, Sunday	8:30-12:00

IEEE Membership desk:

Organizers will set up and manage an IEEE membership desk in order to promote IEEE membership among the attendance and in order to get new memberships.

Insurance

The Organizers of the Conference do not provide insurance and do not take responsibility for any loss, accident or illness that might occur during the Conference or in the course of travel to or from the meeting site. It is, therefore, the responsibility of the participants to check their coverage with their insurance provider.

Cancellation and Refund

No refund is possible for any cancellation received later than 3 weeks before the conference.

PROGRAM

Friday, June 29

9:00 – 9:20 Opening –**IMRE J. RUDAS**

ROOM **A**

Plenary Session

CHAIR: **IMRE J. RUDAS**

9:20 – 10:00 **WILLIAM A. GRUVER:** Distributed Intelligence Systems: A New Paradigm for Systems Integration

10:00 – 10:20 *Coffee Break*

ROOM **A**

Parallel Sessions: Transportation Systems

CHAIR: **JÓZSEF K. TAR**

10:20 – 10:40 Adaptive Control of an Automatic Convoy of Vehicles
József K. Tar, Katalin Lőrincz, Roland Kovács

10:40 – 11:00 A Soft Vector Control for Transportation Systems by a Neuro-Fuzzy Solution
D. Mihai, Gh. Manolea, C. Constantinescu

11:00 – 11:20 Traffic State Classification in Condition-Responsive Traffic Control
Géza Pesti, Montasir M. Abbas, Nadeem Chaudhary

11:20 – 11:40 Do We Have to Take into Account the Human Mistakes during Traffic Simulation?
Zsuzsanna Tóth-Szabó, Katalin Kovács

11:40 – 12:00 Crosstalk Reduction in Balise and Infill Loops in Automatic Train Control
Rohan Sharma, R. Mary Lourde

12:00 – 13:10 *Lunch Break*

Parallel Sessions: Internet Technology

CHAIR: **SANDRA LOVRENČIĆ**

- 10:20 – 10:40** EWMA Statistic in Adaptive Threshold Algorithm
P. Cisar, S. Maravic Cisar
- 10:40 – 11:00** University Studies Ontology – Domain Modeling
Sandra Lovrenčić, Mirko Čubrilo
- 11:00 – 11:20** WEB_Matrix – A Secured Framework for Developing Business-to-Client Web Applications
Cosmin Striletschi
- 11:20 – 11:40** Application of Mojette Transform in Internet Distributed Databases
P. Serfőző, J. Vásárhelyi, J. Turán
- 11:40 – 12:00** Analyzing Customer Behavior Model Graph (CBMG) using Markov Chains
Márk Kaszó, Csaba Legány
- 12:00 – 13:10** *Lunch Break*

Plenary Session

CHAIR: **ANTAL K. BEJCY**

- 13:10 – 13:50** **OUSSAMA KHATIB:** Human-Centered Robotics
- 13:50 – 14:00** *Break*

Parallel Sessions

ROOM A

Human Related Methods

CHAIR: **CSABA SZÁSZ**

- 14:00 – 14:20** Artificial Life and Communication Strategy in Bioinspired Hardware Systems with FPGA-based Cell Networks
Cs. Szász, V. Chindriș
- 14:20 – 14:40** Controlling the Visual Attention with Layered Dual Pyramid Architecture
András Barta, István Vajk
- 14:40 – 15:00** A Last Design with Uniform Foot Pressure Free Form Deformation
Sikyung Kim, Mohammad Mynuddin Gani Mazumde
- 15:00 – 15:20** Off-Line Signature Verification Based on Feature Matching
Bence Kővári, Zsolt Kertész, Attila Major
- 15:20 – 15:40** *Coffee Break*

ROOM A

Applied Intelligent Methods and Modeling of Enterprises

CHAIR: **LÁSZLÓ HORVÁTH**

- 15:50 – 16:10** Hierarchical Reinforcement Learning for Robot Navigation using the Intelligent Space Concept
L. A. Jeni, Z. Istenes, P. Korondi, H. Hashimoto
- 16:10 – 16:30** License Plate Location Based on Multi Agent Systems
M. Ebrahimi, R. Monsefi, S. Ildarabadi, M. R. Akbarzadeh, M. Habini
- 16:30 – 16:50** Conflict Modelling and Knowledge Extraction using Computational Intelligence Methods
Thando Tettey, Tshilidzi Marwala
- 16:50 – 17:10** Content Orientation in Integrated Product Modeling
László Horváth, Imre J. Rudas, Gerhard P. Hancke
- 17:10 – 17:30** Collaboration in Industrial Network Enterprises
Ivana Budinská, Baltazar Frankovič, Viktor Oravec
- 17:30 – 17:50** Brute Force Method for Lot Streaming in FMS Scheduling Problems
Ezedeem Kodeekha
- 19:00 – 21:00** *Welcome Party – Hotel Griff, Restaurant*

Intelligent Methods I

CHAIR: **ZSOLT CSABA JOHANYÁK**

- 14:00 – 14:20** Sparse Fuzzy System Generation by Rule Base Extension
Zsolt Csaba Johanyák, Szilveszter Kovács
- 14:20 – 14:40** HIV Data Analysis via Rule Extraction using Rough Sets
Thando Tettey, Fulu fhelo V. Nelwamondo, Tshilidzi Marwala
- 14:40 – 15:00** Information Fusion Methods for Outdoor Alarm Systems
Cornel Barna
- 15:00 – 15:20** Comparison of PCA-based Neural Network Models using the Screening of X-ray Diffraction Data for MOMBE-grown HfO₂ Thin Film Characteristics
Young-Don Ko, Jung Hwan Lee, Moon-Ho Ham, Jaejin Jang, Jae-Min Myoung, Ilgu Yun
- 15:20 – 15:40** *Coffee Break*

Control Applications I

CHAIR: **SÁNDOR MARKON**

- 15:50 – 16:10** Intelligent Approaches in Modeling and Control of a Small Turbojet Engines
Rudolf Andoga, Ladislav Madarász, Ladislav Főző
- 16:10 – 16:30** Direct Control of Multi-Car Elevators with Real-Time GA
Sándor Markon, Hiromichi Suzuki, Kokolo Ikeda, Hajime Kita
- 16:30 – 16:50** Implementation of Fuzzy Logic in Daylighting Control
A. Cziker, M. Chindris, A. Miron
- 16:50 – 17:10** Passing from a Gas to an Electric Water Heater System: Adaptive PID Versus Smith Predictive Control
José Vieira, Alexandre Mota
- 17:10 – 17:30** Uncertainty Modeling and Robust Control of LTI Systems Based on Integral Quadratic Constraints
G. Rödönyi, B. Lantos, J. Bokor
- 17:30 – 17:50** Simulation of Wind Turbine Driven Autonomous Squirrel Cage Induction Generators
Loránd Szabó, Károly Ágoston Biró, Cosmina Nicula, Florin Jurca
- 19:00 – 21:00** *Welcome Party – Hotel Griff, Restaurant*

Saturday, June 30

ROOM **A**

Plenary Session

CHAIR: **IMRE J. RUDAS**

- 8:30 – 9:10** **BOGDAN M. WILAMOWSKI:** Neural Networks and Fuzzy Systems for Nonlinear Applications

Session: Intelligent Methods II

CHAIR: **ANNAMÁRIA R. VÁRKONYI-KÓCZY**

- 9:10 – 9:30** Gradient Based Synthesized Maximum Dense High Dynamic Range Image
András Rövid, Annamária R. Várkonyi-Kóczy, Takeshi Hashimoto, Yoshifumi Shimodaira
- 9:30 – 9:50** Neural Network Trainer with Second Order Learning Algorithms
Bodgan M. Wilamowski, Nicholas Cotton, Joel Hewlett, Okyay Kaynak
- 9:50 – 10:10** On Classification Confidence and Ranking using Decision Trees
Norbert Tóth, Béla Pataki
- 10:10 – 10:30** Adaptive and Predictive Diagnosis Based on Pattern Recognition
Mohamed Saïd Bouguelid, Moamar Sayed Mouchaweh, Patrice Billaudel
- 10:30 – 10:50** Lower Bounds on the Vapnik-Chervonenkis Dimension of Convex Polytope Classifiers
Gábor Takács, Béla Pataki
- 10:50 – 11:20** *Coffee Break*

Special session: Control

CHAIR: **ZOLTÁN PETRES**

11:20 – 11:40 Sector Sliding Mode Design Based on Tensor Product Model Transformation

Péter Korondi

11:40 – 12:00 Tensor Product Transformation Based Friction Model

Y. Kunii, B. Solvang, G. Sziebig, P. Korondi

12:00 – 12:20 Different Polytopic Decomposition of the Model of Heavy Vehicles by TP model transformation

Zoltán Petres, Péter Baranyi, Péter Gáspár

12:20 – 12:40 Polytopic Decomposition of the Linear Parameter-varying Model of the Parallel-type Double Inverted Pendulum

Szabolcs Nagy, Zoltán Petres, Péter Baranyi, Hideki Hashimoto

12:40 – 14:00 *Lunch Break*

ROOM **A**

Session: Control Applications II

CHAIR: **RADU EMIL PRECUP**

14:00 – 14:20 Wide Band Tunable Filter Design Implemented in CMOS

W. Matthew Anderson, Bogdan M. Wilamowski, Günhan Dündar

14:20 – 14:40 World Knowledge for Control Applications

Marius M. Balas, Valentina E. Balas

14:40 – 15:00 The NEPSAC Nonlinear Predictive Controller in a Real Life Experiment

Levente Tamás, Ioan Nascu, Robin De Keyser

15:00 – 15:30 *Coffee Break*

15:30 – 15:50 Optimization Aspects in a Class of Fuzzy Controlled Servosystems

Radu. E. Precup, Stefan Preitl, József. K. Tar, Márta Takács

15:50 – 16:10 Neuro-Fuzzy Versus Hysteresis Current Controller for a Vector Control Based Electrical Drive System

Dan Mihai, R. Mihai

16:10 – 16:30 Voltage-Hertz Strategy for Synchronous Motor with Controlled Exciting Field

Ioan Iov Incze, Csaba Szabó, Mária Imecs

19:00 *Departure for Conference Dinner*

Sunday, July 1

ROOM **A**

Plenary Session

CHAIR: **OUSSAMA KHATIB**

9:00 – 9:40 **ANTAL K. BEJCZY:** Space Telescopes: Excellent Examples of Intelligent Engineering Systems

Session: Operating and Programming Systems

CHAIR: **BALÁZS BENYÓ**

9:40 – 10:00 The Design of NFC Based Applications
B. Benyó, A. Vilmos, K. Kovács, L. Kutor

10:00 – 10:20 SAPIR: Supervised and Adaptive Programming of Industrial Robots
B. Solvang, P. Korondi, G. Sziebig, N. Ando

10:20 – 10:40 Measurement of Timing Characteristics of Operating Systems
Goran Martinovic, Zlatko Buljan

10:40 – 11:00 Reasoning about Knowledge using Lattices and F-logic
Ana Meštrović, Mirko Čubrilo

11:00 – 11:20 *Coffee Break*

11:20 – 11:40 Reasonable Python or How to Integrate F-Logic into an Object-Oriented Scripting Language
Markus Schatten

11:40 – 12:00 Improved Evaluation Algorithm for Performance Prediction with Error Analysis
Ágnes Bogárdi-Mészöly, Tihamér Levendovszky, Hassan Charaf

12:00 – 12:20 Modelling Functional Dependencies in Databases using Mathematical Logic
Alen Lovrenčić, Mirko Čubrilo, Tonimir Kisasondi

12:20 – 12:40 Extending Trigger-By-Example Approach to Support Time Events
Kornelije Rabuzin, Mirko Maleković, Alen Lovrenčić

12:40 – 13:00 *Closing, awarding*

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