



Research Centre Data – Algorithms – Decision Making

**6<sup>th</sup> International Workshop on Data – Algorithms – Decision Making 2010**

December 2, 2010 – December 4, 2010

Jindřichův Hradec, Czech Republic

Programme chair: Martin Janžura

Organization chair: Jiří Ivánek

**PROGRAMME, 2-12-2010**

**SESSION 1** Soft Computing and Fuzzy Modelling

**SESSION 2** Knowledge Processing

**PROGRAMME, 3-12-2010**

**SESSION 3** Image Fusion

**SESSION 4** Multiple-participant Decision-making

**POSTER SESSION**

**SESSION 5** Control under Uncertainty

**SESSION 6** Decision-making and Classification

**PROGRAMME, 4-12-2010**

**SESSION 7** Multidimensional Signal Processing and Pattern Recognition

## PROGRAMME, 2-12-2010

12,30 – 13,30

Lunch

2-12-2010, Afternoon

Session 1, chairman: Vilém Novák

13,30 – 14,00

**Morphological and Hybrid Morphological/Linear Neural Networks: Lattice-Theoretical Foundations and Applications in Time-Series Prediction**

Peter Sussner (University of Campinas, Department of Applied Mathematics, Brazil)  
Marcos E. Valle (University of Londrina, Department of Mathematics, Brazil)  
Ricardo de A. Araújo (Intelligent Systems, Information Technology Department, Brazil)

14,00 – 14,30

**F-Transform for Image Fusion Algorithms**

Irina Perfilieva (Institute for Research and Applications of Fuzzy Modeling, Ostrava)  
Martina Daňková (Institute for Research and Applications of Fuzzy Modeling, Ostrava)  
Petra Hoďáková (Institute for Research and Applications of Fuzzy Modeling, Ostrava)  
Marek Vajgl (Institute for Research and Applications of Fuzzy Modeling, Ostrava)

14,30 – 15,00

**LFL Forecaster – Time Series Forecasting Software**

Viktor Pavliska (Institute for Research and Applications of Fuzzy Modeling, Ostrava)  
Lenka Vavříčková (Institute for Research and Applications of Fuzzy Modeling, Ostrava)

15,00 – 15,30

**Using Fuzzy Approach to Improve Software Support and Maintenance Process**

Jaroslav Procházka (OASA COMPUTERS, s.r.o.)  
Cyril Klimeš (OASA COMPUTERS, s.r.o.)

15,30 – 16,00

Coffee Break

Session 2, chairman: Radim Jiroušek

16,00 – 16,30

**A Characteristic Imset – an Alternative Representative of a BN Structure**

Milan Studený (Institute of Information Theory and Automation)  
Raymond Hemmecke (TU Munich, Germany)  
Silvia Lindner (TU Munich, Germany)

16,30 – 17,00

**Probabilistic Troubleshooting: Open Problems and Performance of Heuristics**

Václav Lín (Institute of Information Theory and Automation)

17,00 – 17,30

**Independence and Factorization**

Radim Jiroušek (Institute of Information Theory and Automation)

17,30 – 18,00

**Global Classification of Aggregation Functions**

Radko Mesiar (SVF STU Bratislava, Department of Mathematics)  
Magda Komorníková (SVF STU Bratislava, Department of Mathematics)

18,00 – 18,30

**Shapley Value: Variations and Applications**

Milan Vlach (Kyoto College of Graduate Studies for Informatics)

19,00 – 23,00

Dinner and Conference Opening, Zámecká krčma (1. nádvoří Zámku)

## PROGRAMME, 3-12-2010

3-12-2010, Morning

Session 3, chairman: Jan Flusser

- 9,00 – 9,20**      **Disparity Based Hybrid Registration as Background for Substantial Improvement in 3D Subtractive Angiology**  
Jiří Jan (Brno University of Technology)  
Miloš Malínský (Brno University of Technology)  
Roman Petr (Brno University of Technology)  
Petr Ouředníček (Philips Medical Systems Nederland B.V.)
- 9,20 – 9,40**      **Regularized Image Reconstruction in Multimodal 3D Ultrasound Transmission Tomography**  
Radovan Jiřík (Brno University of Technology)  
Igor Peterlík (Brno University of Technology)  
Jan Fousek (Brno University of Technology)  
Jiří Jan (Brno University of Technology)  
Michael Zapf (Karlsruhe Institute of Technology, Institute for Data Processing and Electronics, Germany)  
Nicole Ruiter (Karlsruhe Institute of Technology, Institute for Data Processing and Electronics, Germany)
- 9,40 – 10,00**      **Monte Carlo Simulation of PET Images for Injection Dose Optimization**  
Jiří Boldyš (Institute of Information Theory and Automation)  
Jiří Dvořák (Institute of Information Theory and Automation)
- 10,00 – 10,20**      **Recent Advances in Forensic Imaging**  
Babak Mahdian (Institute of Information Theory and Automation)  
Stanislav Saic (Institute of Information Theory and Automation)
- 10,20 – 10,50**      **Coffee Break**

Session 4, chairman: Miroslav Šimandl

- 10,50 – 11,10**      **Forgetting-based Estimation of Stationary Parameters in Marginalized Particle Framework**  
Václav Šmidl (Institute of Information Theory and Automation)
- 11,10 – 11,30**      **Constrained State Estimation**  
Ondřej Straka (Fac. of Applied Sciences, University of West Bohemia)  
Miroslav Šimandl (Fac. of Applied Sciences, University of West Bohemia)
- 11,30 – 11,50**      **Improving Fault Detection Quality by Delaying Decision Making**  
Ivo Punčochář (Fac. of Applied Sciences, University of West Bohemia)  
Miroslav Šimandl (Fac. of Applied Sciences, University of West Bohemia)

Poster Session, chairman: Jan Flusser

- 11,50 – 12,30**      **Poster Session – Short Presentations, Poster Session**

- 12,30 – 14,30**      **Lunch**

3-12-2010, Afternoon

Session 5, chairman: Miroslav Šimandl

- 14,30 – 14,55**      **Towards Bounded Estimates of Model Parameters**  
Pavel Ettler (COMPUREG Plzeň, s.r.o.)
- 14,55 – 15,20**      **Nonlinear State Estimation with Missing Observations Based on Mathematical Programming**  
Lenka Pavelková (Institute of Information Theory and Automation)
- 15,20 – 16,00**      **Urban Traffic Control - Field Test and Evaluation**  
Jan Příklad (Institute of Information Theory and Automation)
- 16,00 – 16,30**      **Coffee Break**

- 16,30 – 17,00**      **Asymptotic Properties and Numerical Comparison of Spacings-Based Power Divergence Statistics**  
Pavel Boček (Institute of Information Theory and Automation)
- 17,00 – 17,30**      **Application of a Random Regression Coefficient Model to Small Area Estimation**  
Tomáš Hobza (Institute of Information Theory and Automation)  
Domingo Morales (University of Miguel Hernández, Operational Research Center)
- 17,30 – 18,00**      **Canonical Tensor Decomposition and its Use in Feature Extraction and Signal Classification, and in Blind Separation of Underdetermined Mixtures**  
Petr Tichavský (Institute of Information Theory and Automation)
- 18,15 – 19,15**      **Dinner, Zámecká krčma (1. nádvoří Zámku)**
- 18,30 – 20,00**      **Zasedání Rady Centra, Hotel Bílá Paní**
- 19,30 – 20,30**      **Sight-seeing Castle I**
- 20,00 – 21,00**      **Sight-seeing Castle II (Rada Centra a hosté)**

# PROGRAMME, 4-12-2010

[4-12-2010, Morning](#)

[Session 7, chairman: Michal Haindl](#)

- 9,00 – 9,30**      **Advances in Image Modelling and Recognition**  
Michal Haindl (Institute of Information Theory and Automation)
- 9,30 – 10,00**      **Feature Selection in Statistical Pattern Recognition**  
Pavel Pudil (Faculty of Management, Prague University of Economics)  
Petr Somol (Institute of Information Theory and Automation)
- 10,00 – 10,30**      **Introducing Feature Selection Toolbox 3 – The C++ Library for Subset Search, Data Modeling and Classification**  
Petr Somol (Institute of Information Theory and Automation)  
Pavel Vácha (Institute of Information Theory and Automation)  
Stanislav Mikeš (Institute of Information Theory and Automation)  
Jan Hora (Institute of Information Theory and Automation)  
Pavel Pudil (Faculty of Management, Prague University of Economics)  
Pavel Žid (Institute of Information Theory and Automation)
- 10,30 – 11,00**      **Coffee Break**
- 11,00 – 11,40**      **Material Classification with Minimal Feature Sets**  
Jan-Mark Geusebroek (Univ. of Amsterdam, Faculty of Science)
- 12,00 – 13,00**      **Lunch**
- 13,00**      **Departure**

## LIST OF POSTERS

### **Colour Texture Representation Based on Multivariate Bernoulli Mixtures**

Michal Haindl (Institute of Information Theory and Automation)  
Vojtěch Havlíček (Institute of Information Theory and Automation)  
Jiří Grim (Institute of Information Theory and Automation)

### **Compound MRF Texture Model**

Michal Haindl (Institute of Information Theory and Automation)  
Vojtěch Havlíček (Institute of Information Theory and Automation)

### **Content-Based Tile Retrieval System**

Pavel Vácha (Institute of Information Theory and Automation)  
Michal Haindl (Institute of Information Theory and Automation)

### **A Psychophysical Evaluation of Texture Degradation Descriptors**

Jiří Filip (Institute of Information Theory and Automation)  
Pavel Vácha (Institute of Information Theory and Automation)  
Michal Haindl (Institute of Information Theory and Automation)  
Patrick R. Green (School of life sciences, Heriot-Watt University, Scotland)

### **The Problem of Fragile Feature Subset Preference in Feature Selection Methods and a Proposal of Algorithmic Workaround**

Petr Somol (Institute of Information Theory and Automation)  
Jiří Grim (Institute of Information Theory and Automation)  
Pavel Pudil (Faculty of Management, Prague University of Economics)

### **Near-Regular BTF Texture Model**

Michal Haindl (Institute of Information Theory and Automation)  
Martin Hatka (Institute of Information Theory and Automation)

### **Range Video Segmentation**

Michal Haindl (Institute of Information Theory and Automation)  
Pavel Žid (Institute of Information Theory and Automation)  
Radek Holub (Institute of Information Theory and Automation)

### **Fast Moment Computation Based on Block Decomposition**

Tomáš Suk (Institute of Information Theory and Automation)  
Jan Flusser (Institute of Information Theory and Automation)

### **Recursive Hybrid Filter for Systems with Mixed Observations**

Evgenia Suzdaleva (Institute of Information Theory and Automation)  
Ivan Nagy (Institute of Information Theory and Automation)

### **Multi-market Trading Problem**

Jan Zeman (Institute of Information Theory and Automation)

### **Robust Bayesian Auto-regression Model**

Jan Šindelář (Institute of Information Theory and Automation)

### **Bicriterial Dual Control for Time Variant Stochastic System Using Neural network**

Ladislav Král (Fac. of Applied Sciences, University of West Bohemia)  
Miroslav Šimandl (Fac. of Applied Sciences, University of West Bohemia)

### **Bayesian Soft Sensing in Cold Sheet Rolling**

Kamil Dedecius (Institute of Information Theory and Automation)  
Ladislav Jirsa (Institute of Information Theory and Automation)

### **A Hybrid Filtering Methodology for Nonlinear Estimation**

Radek Hofman (Institute of Information Theory and Automation)  
Kamil Dedecius (Institute of Information Theory and Automation)

### **Variational Bayes Approximation for Distributed Fully Probabilistic Design**

Václav Šmidl (Institute of Information Theory and Automation)  
Ondřej Tichý (Institute of Information Theory and Automation)

### **Multimodal Comparison of the Retinal Nerve Fibre Layer**

Radim Kolář (Brno University of Technology)  
Jiří Lazárek (Brno University of Technology)  
Jan Odstrčilík (Brno University of Technology)  
Jiří Jan (Brno University of Technology)

## LIST OF POSTERS

### **Retinal Nerve Fiber Layer Texture Analysis via Markov Random Fields**

Jan Odstrčilík (Brno University of Technology)  
Radim Kolář (Brno University of Technology)  
Jiří Jan (Brno University of Technology)

### **Bimodal Comparison of Retinal Nerve Fibre Layer Thickness: Fundus Camera versus Optical Coherence Tomography**

Jan Gazárek (Brno University of Technology)  
Radim Kolář (Brno University of Technology)  
Jiří Jan (Brno University of Technology)

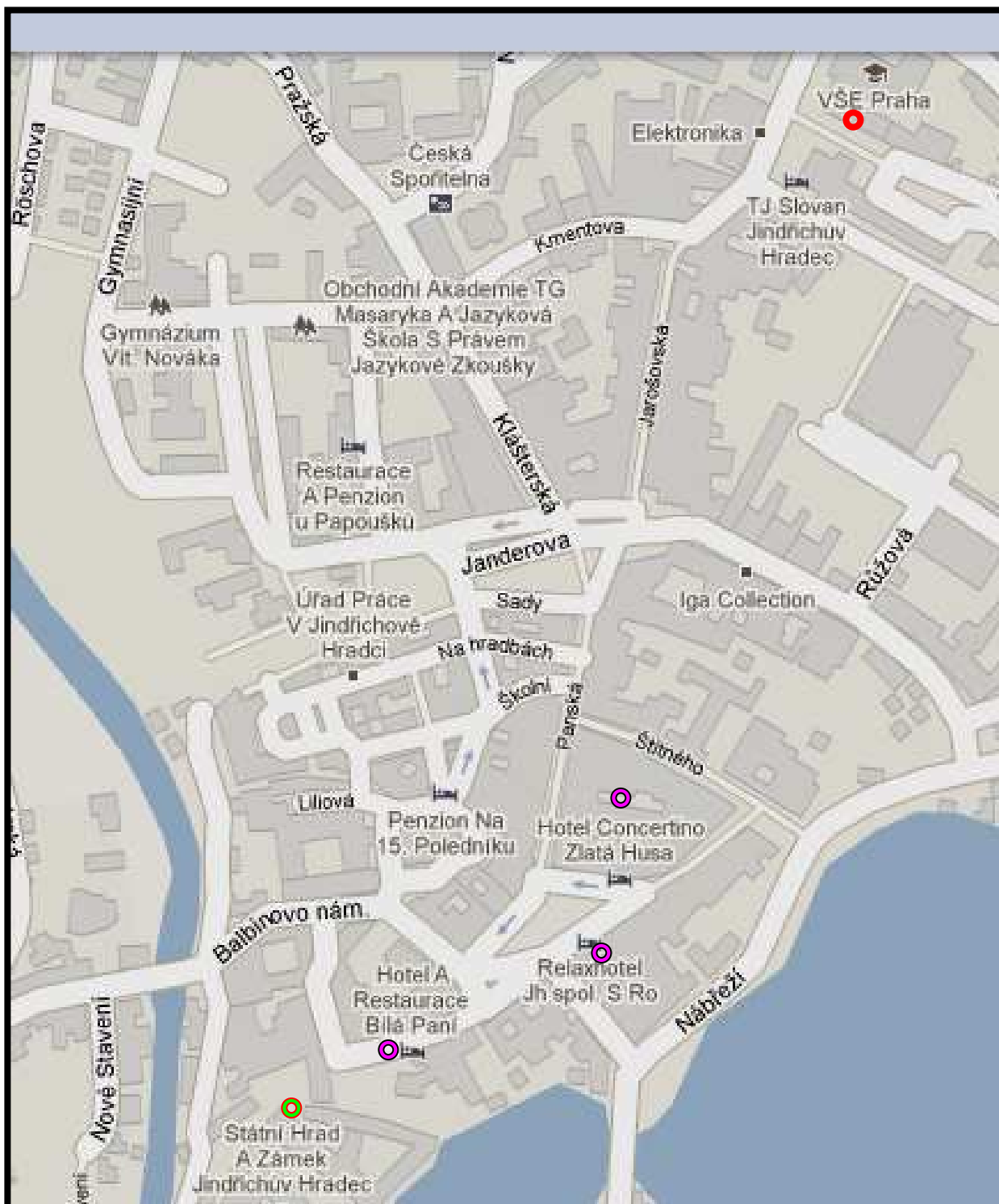
### **Forward Simulation in Ultrasonic Tomography**

Dušan Hemzal (Brno University of Technology)  
Radovan Jiřík (Brno University of Technology)  
Jan Fousek (Brno University of Technology)  
Jiří Jan (Brno University of Technology)  
Nicole Rüter (Karlsruhe Institute of Technology, Institute for Data Processing and Electronics, Germany)

### **Parallelization Efforts and Results in USCT Reconstruction and Simulation**

Jan Fousek (Masaryk University, Faculty of Informatics)  
Igor Peterlík (INRIA Lille – Nord Europe)  
Thomas Jejkal (Karlsruhe Institute of Technology, Institute for Data Processing and Electronics)

## How to get to the Faculty of Management VŠE ....



### Resturace a Hotel Bílá Paní, Dobrovského 5/I

<http://www.hotelbilapani.cz/>

### Hotel Concertino \*\*\*\* Zlatá Husa, Náměstí Míru 141/II

<http://www.concertino.cz/>

### Grand Hotel Černý Orel, nám. Míru 165/I (na mapě Relaxhotel)

<http://www.hotel-grand-jindrichuv-hradec.az-ubytovani.net/>

### Fakulta managementu VŠE, Jarošovská 1117/II

<http://www.fm.vse.cz/>