DAR

Research Centre Data – Algorithms – Decision Making

5th International Workshop on Data – Algorithms – Decision Making 2009

November 29, 2009 – December 1, 2009   **Plzeň, Czech Republic**

Programme chair: Martin Janžura   Organization chair: Jiří Ivánek

PROGRAMME, 29-11-2009

SESSION 1 Knowledge Processing

SESSION 2 Soft Computing and Fuzzy Modelling

PROGRAMME, 30-11-2009

SESSION 3 Image Fusion

SESSION 4 Decision-making and Classification

SESSION 5 Multiple-participant Decision-making

SESSION 6 Control under Uncertainty

POSTER SESSION

PROGRAMME, 1-12-2009

SESSION 7 Multidimensional Signal Processing and Pattern Recognition

PROGRAMME, 29-11-2009

12,00 – 13,30	**Lunch**

13,30 – 13,50   **Factorization and Multidimensional Models**
Radim Jiroušek (Institute of Information Theory and Automation)

13,50 – 14,10   **Remarks on the Geometric Approach to Learning Bayesian Network Structure**
Milan Studený (Institute of Information Theory and Automation)

14,10 – 14, 50   **Soft Inference: Reasoning with Second Order Probability Distributions**
Gernot D. Kleiter (University of Salzburg, Dep. of Psychology)

14,50 – 15,10   **Coffee Break**

15,10 – 15,40   **Linguistic Approach to Time Series Analysis**
Martin Štěpnička (Institute for Research and Applications of Fuzzy Modeling, Ostrava)
Antonín Dvořák (Institute for Research and Applications of Fuzzy Modeling, Ostrava)
Viktor Pavliska (Institute for Research and Applications of Fuzzy Modeling, Ostrava)
Lenka Vavříčková (Institute for Research and Applications of Fuzzy Modeling, Ostrava)

15,40 – 16,10   **Linguistic Approach to Associations Mining**
Antonín Dvořák (Institute for Research and Applications of Fuzzy Modeling, Ostrava)
Jiří Kupka (Institute for Research and Applications of Fuzzy Modeling, Ostrava)
Iva Tomanová (Institute for Research and Applications of Fuzzy Modeling, Ostrava)

16,10 – 16,30   **Reasoning in Software Support and Maintenance**
Jaroslav Procházka (OASA COMPUTERS, s.r.o.)
Cyril Klimeš (OASA COMPUTERS, s.r.o.)

16,30 – 17,30   **Zasedání Rady Centra**

17,30 – 18,30   **Dinner**

18,45 – 20,30   **Sight–seeing Plzeňský Prazdroj Brewery**

20,30 – 23,00   **Conference Opening, Plzeňský Prazdroj Brewery**

PROGRAMME, 30-11-2009

08,30 – 08,50 **Deblurring by Fusion of Images with Different Exposure Times**
Michal Šorel (Institute of Information Theory and Automation)
Filip Šroubek (Institute of Information Theory and Automation)

08,50 – 09,10 **Time Analysis of 3D Data in Nuclear Medicine**
Jiří Boldyš (Institute of Information Theory and Automation)
Jan Kratochvíla (Czech Technical University, Faculty of Nuclear Sciences and Physical Engineering)

09,10 – 09,40 **Assessing the Retinal Nerve Fiber Layer Thickness with Scanning Laser Polarimetry and Optical Coherence Tomography**
Ralf-Peter Tornow (Universittsklinikum Erlangen, Department of Ophthalmology)

09,40 – 10,00 **Unimodal and Multimodal Registration of Retinal Images**
Radim Kolář (Brno University of Technology)
Jiří Jan (Brno University of Technology)

10,00 – 10,20 **High Through-put Forward Simulation in Ultrasound Tomography for Iterative 3D Image Reconstruction**
Dušan Hemzal (Brno University of Technology)
Radovan Jiřík (Brno University of Technology)
Igor Peterlík (Brno University of Technology)
Jiří Roleček (Brno University of Technology)
Jiří Jan (Brno University of Technology)
Nicole Ruiter (Karlsruhe Institute of Technology, Institute for Data Processing and Electronics)

10,20 – 10,40 **Coffee Break**

                                                      Session 4, chairman: Igor Vajda

10,40 – 11,10 **Automatic Artifact Removal from Long-term EEG Recordings**
Petr Tichavský (Institute of Information Theory and Automation)
Miroslav Zima (Czech Technical University, Faculty of Nuclear Sciences and Physical Engineering)
Vladimír Krajča (Faculty Hospital Na Bulovce, Dept. of Neurology)

11,10 – 11,40 **Application of a Modified Fay-Herriot Model to Small Area Estimation**
Tomáš Hobza (Institute of Information Theory and Automation)
Domingo Morales (University of Miguel Hernández, Operational Research Centre)

11,40 – 12,10 **Bergman Distances in Exponential Families**
Wolfgang Stummer (University of Erlangen-Nurnberg, Germany)
Igor Vajda (Institute of Information Theory and Automation)

12,10 – 14,00 Lunch

14, 00 – 14, 55 **Optimal Control as a Graphical Model Inference Problem**
Gilbert J. Kappen (Donders Inst. for Brain Cognition and Behaviour Radboud Univ. Nijmegen, The Netherlands)

14,55 – 15,25 **Survey of Research Activities at FAV UWB in Identification and Decision Making between 2005-2009**
Miroslav Šimandl (Fac. of Applied Sciences, University of West Bohemia)

15,25 – 15,55 **Completion and Sharing of Probabilistic Information**
Miroslav Kárný (Institute of Information Theory and Automation)
Tatiana V. Guy (Institute of Information Theory and Automation)
Antonella Bodini (Instituto di Matematica Applicata e Tecnologie Informatiche, Italia)
Fabrizio Rugerri (Instituto di Matematica Applicata e Tecnologie Informatiche, Italia)

15,55 – 16,20 **Coffee Break**

PROGRAMME, 30-11-2009

16,20 – 16,45	**DAR and Achievements in the Metal Processing Domain** Pavel Ettler (COMPUREG Plzeň, s.r.o.) Ivan Puchr (COMPUREG Plzeň, s.r.o.) Jiří Štika (COMPUREG Plzeň, s.r.o.) Jaroslav Křen (COMPUREG Plzeň, s.r.o.)
16,45 – 17,10	**Vehicle Attitude Estimation with the Aid of GPS/INS Data** Lenka Pavelková (Institute of Information Theory and Automation) Ivan Nagy (Institute of Information Theory and Automation)
17,10 – 17,35	**Experience with Implementation of Transportation Control** Jan Přikryl (Institute of Information Theory and Automation)
17,35 – 18,30	**Dinner**

18,45 – 19,30	**Poster Session – Short Presentations**
19,30 – 20,30	**Poster Session**

PROGRAMME, 1-12-2009

09,00 – 09,20	**Advances in Pattern Recognition and Modelling** Michal Haindl (Institute of Information Theory and Automation)
09,20 – 09,40	**Unsupervised Image Segmentation** Stanislav Mikeš (Institute of Information Theory and Automation) Michal Haindl (Institute of Information Theory and Automation)
09,40 – 10,00	**Visual Perception of Material Appearance – Analysis and Applications** Jiří Filip (Institute of Information Theory and Automation) Michal Haindl (Institute of Information Theory and Automation)
10,00 – 10,30	**Coffee Break**
10,30 – 11,05	**Markov Point Process for Multiple Objects Detection** Xavier Descombes (EPI Ariana, INRIA SAM, France)
11,05 – 11,45	**Recent Results on Cake and Pie Cutting** Milan Vlach (Charles University, Dep. of Theoretical Informatics and Mathematical Logic)
1200 – 13,30	**Lunch**
13,30	**Departure**

LIST OF POSTERS

Application of Digital Image Processing Methods during Fresco Conservation
Jan Blazek (Institute of Information Theory and Automation)
Miroslav Beneš (Institute of Information Theory and Automation)
Barbora Zitová (Institute of Information Theory and Automation)
Jana Hradilová (Academic Laboratory of Materials Research of Paintings, Academy of Fine Arts)

PET Image Reconstruction Using Prior Information from CT or MRI
Filip Šroubek (Institute of Information Theory and Automation)
Michal Šorel (Institute of Information Theory and Automation)
Jiří Boldyš (Institute of Information Theory and Automation)
Jan Šroubek (Na Homolce Hospitál, Dept. of Neurosurgery)

Transmission Tomography Approaches for 3D USCT
Robin Dapp (Karlsruhe Institute of Technology, Institute for Data Processing and Electronics)
Michael Zapf (Karlsruhe Institute of Technology, Institute for Data Processing and Electronics)
Nicole Ruiter (Karlsruhe Institute of Technology, Institute for Data Processing and Electronics)

GridMate – The Grid Matlab Extension
Tomas Jejkal (Karlsruhe Institute of Technology, Institute for Data Processing and Electronics)
Rainer Stotzka (Karlsruhe Institute of Technology, Institute for Data Processing and Electronics)
Michael Sutter (Karlsruhe Institute of Technology, Institute for Data Processing and Electronics)
Volker Hartmann (Karlsruhe Institute of Technology, Institute for Data Processing and Electronics)

Recent Developments in Exploitation of Data Assimilation in Early and Late Phase of Radiation Accident
Radek Hofman (Institute of Information Theory and Automation)
Petr Pecha (Institute of Information Theory and Automation)
Václav Šmídl (Institute of Information Theory and Automation)

Model Predictions Using More Precise Meteorological Data, Basic Comparison for Available Data Formats in CR
Kateřina Zemánková (Institute of Information Theory and Automation)
Petr Pecha (Institute of Information Theory and Automation)

Iterative Formulation of Control Goal in Fully Probabilistic Design
Ladislav Jirsa (Institute of Information Theory and Automation)
Miroslav Kárný (Institute of Information Theory and Automation)
Ludvík Tesař (Institute of Information Theory and Automation)

Joint Estimation of Gaussian and Multinomial States
Evgenia Suzdaleva (Institute of Information Theory and Automation)
Ivan Nagy (Institute of Information Theory and Automation)

State Estimation with Nonlinear Constraints
Ondřej Straka (Fac. of Applied Sciences, University of West Bohemia)
Jindřich Duník (Fac. of Applied Sciences, University of West Bohemia)
Miroslav Šimandl (Fac. of Applied Sciences, University of West Bohemia)

Estimation of Noise Covariances for Periodic Systems
Jindřich Duník (Fac. of Applied Sciences, University of West Bohemia)
Miroslav Šimandl (Fac. of Applied Sciences, University of West Bohemia)

Recent Advances in Software for Nonlinear Estimation
Miroslav Flídr (Fac. of Applied Sciences, University of West Bohemia)
Ondřej Straka (Fac. of Applied Sciences, University of West Bohemia)
Jindřich Duník (Fac. of Applied Sciences, University of West Bohemia)
Miroslav Šimandl (Fac. of Applied Sciences, University of West Bohemia)

Prediction and Optimal Trading in U.S. Commodity Markets
Jan Šindelář (Institute of Information Theory and Automation)

Presentation of Bayesian Decision Making Toolbox (BDM)
Václav Šmídl (Institute of Information Theory and Automation)
Miroslav Pištěk (Institute of Information Theory and Automation)

Futures Trading: Task Analysis
Jan Zeman (Institute of Information Theory and Automation)

LIST OF POSTERS

Texture Editing Using Frequency Swap Strategy
Vojtěch Havlíček (Institute of Information Theory and Automation)
Michal Haindl (Institute of Information Theory and Automation)

Influence of Sender Focusing in USCT
Kumar Pawan Pathak (Brno University of Technology)
Jiří Jan (Brno University of Technology)
Radovan Jiřík (Brno University of Technology)

Improvement of Textural Analysis Method Aimed to Detection of Neural Fiber Layer Loss in Retinal Images
Jiří Gazárek (Brno University of Technology)
Jiří Jan (Brno University of Technology)
Radim Kolář (Brno University of Technology)

Near-regular Texture Synthesis
Martin Hatka (Institute of Information Theory and Automation)
Michal Haindl (Institute of Information Theory and Automation)

Illumination Invariant Unsupervised Segmenter
Michal Haindl (Institute of Information Theory and Automation)
Stanislav Mikeš (Institute of Information Theory and Automation)
Pavel Vácha (Institute of Information Theory and Automation)

Illumination Invariant and Rotational Insensitive Textural Representation
Pavel Vácha (Institute of Information Theory and Automation)
Michal Haindl (Institute of Information Theory and Automation)

Dynamic Oscillating Search as a Tool for Feature Selection and Feature Subset Size Optimization
Petr Somol (Institute of Information Theory and Automation)
Jana Novovičová (Institute of Information Theory and Automation)
Jiří Grim (Institute of Information Theory and Automation)
Pavel Pudil (Institute of Information Theory and Automation)

Combining Multiple Feature Subset Evaluation Criteria in Feature Selection
Petr Somol (Institute of Information Theory and Automation)
Jiří Grim (Institute of Information Theory and Automation)
Pavel Pudil (Institute of Information Theory and Automation)

Conservative Particle Systems as Models for Traffic Flow
Lucie Fajfrová (Institute of Information Theory and Automation)

Vessel Segmentation by Matched Filtering in Color Retinal Images
Jan Odstrčilík (Brno University of Technology)
Jiří Jan (Brno University of Technology)
Radim Kolář (Brno University of Technology)

Time of Flight Detection in 3D Ultrasound Computed Tomography
Jiří Roleček (Brno University of Technology)
Jiří Jan (Brno University of Technology)
Dušan Hemzal (Brno University of Technology)

Automated 3D Registration in CT Subtraction-angiography
Miloš Malínský (Brno University of Technology)
Jiří Jan (Brno University of Technology)
Petr Ouředníček (Philips Medical Systems Nederland B.V.)

Regularization of Sound-Speed Image Reconstruction in Ultrasound Transission 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)
Nicole Ruiter (Karlsruhe Institute of Technology, Institute for Data Processing and Electronics)