

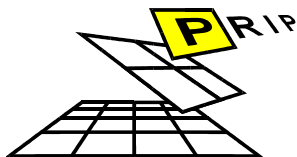
D A G M 2005

27th Annual Meeting of the
German Association for Pattern Recognition

P R O G R A M



August 30 – September 2, 2005
Vienna University of Technology, Austria



FAKULTÄT FÜR INFORMATIK

DAGM 2005

August 30 – September 2, 2005
Vienna, Austria

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DAGM 2005, Institute of Computer Aided Automation
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Sponsors

We thank the following companies and organizations for supporting the DAGM 2005

- Advanced Computer Vision GmbH
- IBM Austria
- Microsoft Austria
- Austrian Computer Society (OCG)
- Olympus
- Vienna Convention Bureau
- Vienna University of Technology

DAGM AT A GLANCE

Tuesday, August 30, 2005

19:00	Registration and Get Together
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Wednesday, August 31, 2005

09:00 - 09:15	Welcome and Opening
09:15 - 10:00	Olympus-Award-Presentation and Talk
10:00 - 10:50	Session 1: Color Analysis
10:50 - 11:05	Coffee Break
11:05 - 12:20	Session 2: Stereo Vision
12:20 - 14:00	Lunch Break
14:00 - 15:15	Invited Talk: Václav Hlaváč, TU Prague
15:15 - 16:05	Session 3: Segmentation and Grouping
16:05 - 16:20	Coffee Break
16:20 - 18:00	Special Session: Automatic Speech Understanding
18:15 - 19:15	DAGM General Assembly
20:00	Conference Dinner

Thursday, September 1, 2005

09:00 - 10:40	Session 5: 3D View Registration and Surface Modeling
10:40 - 10:55	Coffee Break
10:55 - 12:35	Session 6: Motion and Tracking
12:35 - 14:00	Lunch Break
14:00 - 15:15	Invited Talk: Jan Allebach, Purdue University
15:15 - 16:00	Session 7: Short Oral Presentation of all Posters
16:00 - 17:50	Poster Session
18:00 - 19:30	DAGM General Assembly

Friday, September 2, 2005

09:00 - 10:40	Session 8: Computational Learning
10:40 - 10:55	Coffee Break
10:55 - 12:10	Session 9: Applications
12:10 - 13:45	Lunch Break
13:45 - 15:00	Session 10: Uncertainty and Robustness
15:00 - 15:15	Coffee Break
15:15 - 16:30	Invited Talk: Sven Dickinson, Univ. Toronto
16:30 - 17:00	DAGM Prizes and Closing
19:30	Heurigen

Tuesday, August 30, 2005

19:00 **Registration and Get-Together** TU Mensa

Wednesday, August 31, 2005

08:30 **Registration**

09:00 - 09:15 **Welcome and Opening**
Walter Kropatsch, Co-Chair

09:15 - 10:00 **Olympus-Award-Presentation and Talk**
Chair: *Hans Burkhardt*

Session 1: Color Analysis

Chairs: *Aleš Leonardis & Hans Burkhardt*

10:00 - 10:25 On Determining the Color of the Illuminant using the Dichromatic
Reflection Model
Marc Ebner, Christian Herrmann

10:25 - 10:50 Probabilistic Color Optical Flow
Volker Willert, Julian Eggert, Sebastian Clever, Edgar Körner

10:50 - 11:05 **Coffee Break**

Session 2: Stereo Vision

Chairs: *Rudolf Mester & Robert Sablatnig*

11:05 - 11:30 Optic Flow Goes Stereo: A Variational Method for Estimating
Discontinuity-Preserving Dense Disparity Maps
Natalia Slesareva, Andrés Bruhn, Joachim Weickert

11:30 - 11:55 Lens Model Selection for Visual Tracking
Binger Streckel, Reinhard Koch

11:55 - 12:20 Omnidirectional Vision with Frontal Stereo
Wolfgang Stürzl, Mandyam V. Srinivasan

12:20 - 14:00 **Lunch Break**

14:00 - 15:15

Invited Talk

Chair: *Robert Sablatnig*

Simple Solvers for Large Quadratic Programming Tasks

Václav Hlaváč, TU Prague

Session 3: Segmentation and Grouping

Chairs: *Gerhard Sagerer & Heinrich Niemann*

15:15 - 15:40

Voxel-Wise Gray Scale Invariants for Simultaneous Segmentation and Classification

Olaf Ronneberger, Janis Fehr, Hans Burkhardt

15:40 - 16:05

Automatic Foreground Propagation in Image Sequences for 3D Reconstruction

Mario Sormann, Christopher Zach, Joachim Bauer, Konrad Karner, Horst Bischof

16:05 - 16:20

Coffee Break

Special Session: Automatic Speech Understanding

Chair: *Elmar Nöth*

16:20 - 16:45

Telephone-based Speech Dialog Systems

Jürgen Haas, Florian Gallwitz, Axel Horndasch, Richard Huber, Volker Warnke

16:45 - 17:10

Robust Parallel Speech Recognition in Multiple Energy Bands

Andreas Maier, Christian Hacker, Stefan Steidl, Elmar Nöth, Heinrich Niemann

17:10 - 17:35

Pronunciation Feature Extraction

Christian Hacker, Tobias Cincarek, Rainer Gruhn, Stefan Steidl, Elmar Nöth, Heinrich Niemann

17:35 - 18:00

Multi-Lingual and Multi-Modal Speech Processing and Applications

Jozef Ivanecky, Julia Fischer, Marion Mast, Siegfried Kunzmann, Thomas Ross, Volker Fischer

18:15 - 19:15

ÖAGM General Assembly

FH Hörsaal 3 (level 2, yellow tower)

20:00

Conference Dinner

Palais Strudlhof, Pasteurgasse 1, 9th district

Thursday, September 1, 2005

08:30 - 18:00 **Registration**

Session 5: 3D View Registration and Surface Modeling

Chairs: *Joachim Weickert & Bernd Michaelis*

09:00 - 09:25 Cluster-Based Point Cloud Analysis for Rapid Scene Interpretation
Eric Wahl, Gerd Hirzinger

09:25 - 09:50 A Novel Parameter Decomposition Approach to Faithful Fitting of
Quadric Surfaces
Xiaoyi Jiang, Da-Chuan Cheng

09:50 - 10:15 3D Surface Reconstruction by Combination of Photopolarimetry and
Depth from Defocus
Pablo d'Angelo, Christian Wöhler

10:15 - 10:40 Vision-Based 3D Object Localization Using Probabilistic Models of
Appearance
Christian Plagemann, Thomas Müller, Wolfram Burgard

10:40 - 10:55 **Coffee Break**

Session 6: Motion and Tracking

Chairs: *Václav Hlaváč & Martin Kampel*

10:55 - 11:20 A System for Marker-less Human Motion Estimation
*Bodo Rosenhahn, Uwe G. Kersting, Andrew W. Smith, Jason K. Gurney,
Thomas Brox, Reinhard Klette*

11:20 - 11:45 A Fast Algorithm for Statistically Optimized Orientation Estimation
Matthias Mühlich, Rudolf Mester

11:45 - 12:10 A Direct Method for Real-Time Tracking in 3-D under Variable Illumination
Wolfgang Sepp

12:10 - 12:35 Efficient Combination of Histograms for Real-Time Tracking Using Mean-
Shift and Trust-Region Optimization
Ferid Bajramovic, Christoph Gräbl, Joachim Denzler

12:35 - 14:00 **Lunch Break**

14:00 - 15:15 **Invited Talk**
Chair: *Walter Kropatsch*

Digital Printing – A Rich Domain for Image Analysis and Pattern
Recognition
Jan Allebach, Purdue University

Session 7: Posters

Chairs: *Wolfgang Förstner & Siegfried Fuchs*

15:15 - 16:00

Short Oral Presentation of all Posters

Colour Analysis

- 1 Illumination Invariant Color Texture Analysis based on Sumand Difference-Histograms
Christian Münzenmayer, Sylvia Wilharm, Joachim Hornegger, Thomas Wittenberg
- 2 Color Image Compression: Early Vision and the Multiresolution Representations
Ahmed Nabil Belbachir, Peter Michael Goebel

Stereo Vision

- 3 Stereo Vision Based Reconstruction of Huge Urban Areas from an Airborne Pushbroom Camera (HRSC)
Heiko Hirschmüller, Frank Scholten, Gerd Hirzinger
- 4 Calibration-Free Hand-Eye Calibration: A Structure-from-Motion Approach
Jochen Schmidt, Florian Vogt, Heinrich Niemann

Segmentation and Grouping

- 5 Agglomerative Grouping of Observations by Bounding Entropy Variation
Christian Beder
- 6 Three-Dimensional Shape Knowledge for Joint Image Segmentation and Pose Estimation
Thomas Brox, Bodo Rosenhahn, Joachim Weickert
- 7 Goal-directed Search with a Top-down Modulated Computational Attention System
Simone Frintrap, Gerriet Backer, Erich Rome

3D View Registration and Surface Modeling

- 8 Projective Model for Central Catadioptric Cameras using Clifford Algebra
Antti Tolvanen, Christian Perwass, Gerald Sommer
- 9 A new Methodology for Determination and Correction of Lens Distortion in 3D Measuring Systems Using Fringe Projection
Christian Bräuer-Burchardt
- 10 A Method for Fast Search of Variable Regions on Dynamic 3D Point Clouds
Eric Wahl, Gerd Hirzinger

- 11 6D-Vision: Fusion of Stereo and Motion for Robust Environment Perception
Uwe Franke, Clemens Rabe, Hernán Badino, Stefan Gehrig
- 12 A Method for Determining Geometrical Distortion of Off-The-Shelf Wide-Angle Cameras
Helmut Zollner, Robert Sablatnig

Motion and Tracking

- 13 Spiders as Robust Point Descriptors
Adam Stanski, Olaf Hellwich
- 14 A Comparative Evaluation of Template and Histogram Based 2D Tracking Algorithms
Benjamin Deutsch, Christoph Gräßl, Ferid Bajramovic, Joachim Denzler
- 15 Bayesian Method for Motion Segmentation and Tracking in Compressed Videos
Siripong Treetasanatavorn, Uwe Rauschenbach, Jörg Heuer, André Kaup
- 16 Nonlinear Body Pose Estimation from Depth Images
Daniel Grest, Jan Woetzel, Reinhard Koch

Computational Learning

- 17 Improving a Discriminative Approach to Object Recognition using Image Patches
Thomas Deselaers, Daniel Keysers, Hermann Ney
- 18 Comparison of Multiclass SVM Decomposition Schemes for Visual Object Recognition
Laine Kahsay, Friedhelm Schwenker, Günther Palm
- 19 Shape Priors and Online Appearance Learning for Variational Segmentation and Object Recognition in Static Scenes
Martin Bergtholdt, Christoph Schnörr
- 20 Over-complete Wavelet Approximation of a Support Vector Machine for Efficient Classification
Matthias Ratsch, Sami Romdhani, Gerd Teschke, Thomas Vetter
- 21 Regularization on Discrete Spaces
Dengyong Zhou, Bernhard Schölkopf
- 22 Recognition of 3D Objects by Learning from Correspondences in a Sequence of Unlabeled Training Images
Raimund Leitner, Horst Bischof
- 23 Self-Learning Segmentation and Classification of Cell-Nuclei in 3D Volumetric Data using Voxel-Wise Gray Scale Invariants
Janis Fehr, Olaf Ronneberger, Haymo Kurz, Hans Burkhardt

Applications

- 24 Volumetric Analysis of a Sinter Process in Time
Oliver Wirjadi, Andreas Jablonski, Katja Schladitz, Michael Nöthe
- 25 Network Snakes-Supported Extraction of Field Boundaries from Imagery
Matthias Butenuth, Christian Heipke
- 26 Structure Features for Content-Based Image Retrieval
Gerd Brunner, Hans Burkhardt
- 27 Blind Background Subtraction in Dental Panoramic X-ray Images:
An Application Approach.
Peter Michael Goebel, Ahmed Nabil Belbachir, Michael Truppe
- 28 Robust Head Detection and Tracking in Cluttered Workshop
Environments Using GMM
Alexander Barth, Rainer Herpers

Uncertainty and Robustness

- 29 Signal and Noise adapted Filters for Differential Motion Estimation
Kai Krajssek, Rudolf Mester
- 30 Variational Deblurring of Images with Uncertain and Spatially
Variant Blurs
Martin Welk, David Theis, Joachim Weickert
- 31 Energy Tensors: Quadratic, Phase Invariant Image Operators
Michael Felsberg, Erik Jonsson

16:00 - 17:50 **Poster Session**

18:00 - 19:30 **DAGM General Assembly**
FH Hörsaal 3 (level 2, yellow tower)

Friday, September 2, 2005

08:30 - 12:00 **Registration**

Session 8: Computational Learning

Chairs: *Joachim Buhmann & Christoph Schnörr*

- 09:00 - 09:25 Conservative Visual Learning for Object Detection with Minimal Hand Labeling Effort
Peter Roth, Helmut Grabner, Danijel Skočaj, Horst Bischof, Aleš Leonardis
- 09:25 - 09:50 Rapid Online Learning of Objects in a Biologically Motivated Recognition Architecture
Stephan KIRSTEIN, Heiko WERSING, Edgar KÖRNER
- 09:50 - 10:15 Semidefinite Clustering for Image Segmentation with A-priori Knowledge
Matthias Heiler, Jens Keuchel, Christoph Schnörr
- 10:15 - 10:40 Separable Linear Discriminant Classification
Christian Bauckhage, John K. Tsotsos
- 10:40 - 10:55 **Coffee Break**

Session 9: Applications

Chairs: *Friedrich Wahl & Gerald Sommer*

- 10:55 - 11:20 License Plate Character Segmentation using Hidden Markov Chains
Vojtěch Franc, Václav Hlaváč
- 11:20 - 11:45 Digital Subtraction CT Lung Perfusion Image based on 3D Affine Registration
Helen Hong, Jeongjin Lee
- 11:45 - 12:10 Combination of Tangent Distance and an Image Distortion Model for Appearance-Based Sign Language Recognition
Morteza Zahedi, Daniel Keysers, Thomas Deselaers, Hermann Ney
- 12:10 - 13:45 **Lunch Break**

Session 10: Uncertainty and Robustness

Chairs: *Horst Bischof & Hermann Ney*

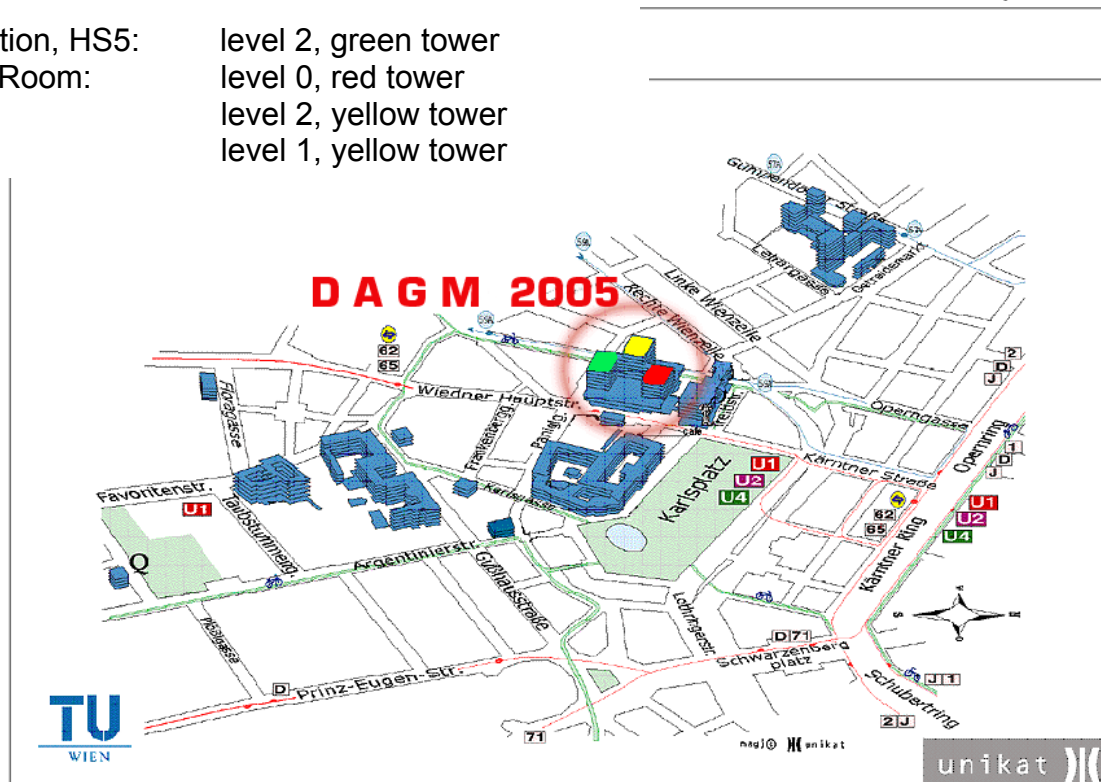
- 13:45 - 14:10 Stability and Local Feature Enhancement of Higher Order Nonlinear Diffusion Filtering
Stephan Didas, Joachim Weickert, Bernhard Burgeth
- 14:10 - 14:35 Estimation of Geometric Entities and Operators from Uncertain Data
Christian Perwass, Christian Gebken, Gerald Sommer
- 14:35 - 15:00 Wiener Channel Smoothing: Robust Wiener Filtering of Images
Michael Felsberg
- 15:00 - 15:15 **Coffee Break**
- 15:15 - 16:30 **Invited Talk**
Chair: *Xiaoyi Jiang*
- Object Categorization and the Need for Many-to-Many Matching
Sven Dickinson, Univ. Toronto
- 16:30 - 17:00 **DAGM Prizes and Closing**
Hans Burkhardt & Robert Sablatnig
- 19:30 **Heurigen (optional)**

Conference Venue

Freihaus, Technical University of Vienna, Wiedner Hauptstraße 8 -10

www.wegweiser.ac.at

Registration, HS5: level 2, green tower
Internet Room: level 0, red tower
HS 3: level 2, yellow tower
Mensa: level 1, yellow tower



Conference Dinner

Palais Strudlhof, 9th district, Pasteurgasse 1
Tram D (from Karlsplatz to Bauernfeldplatz)

