DAGM 2008

30th Annual Symposium of the German Association for Pattern Recognition

OLYMPUS   MVTec   Continental   SMI   STEMMER IMAGING   SIEMENS   pco. imaging

Munich, Germany
June 10–13, 2008

Program

TUM
TECHNISCHE
UNIVERSITÄT
MÜNCHEN

AUTOMATICA
INNOVATION AND SOLUTIONS
3rd International Trade Fair for Automation
10–13 June 2008 | New Munich Trade Fair Centre
www.automatica-munich.com

INTERNATIONALES
CONGRESS CENTER
MÜNCHEN
ICM

www.dagm2008.org

DAGM 2008

30th Annual Symposium of the German Association for Pattern Recognition

Welcoming Address

Dear Participants,

we are pleased to welcome you in Munich for the 30th anniversary of the Annual Symposium of the Deutsche Arbeitsgemeinschaft für Mustererkennung (DAGM). As you might know, also the very first DAGM symposium was held in Munich in 1978, and here in Munich this event has been organized also in 1991 and 2001.
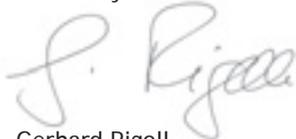
This year, the organization in conjunction with the Automatica fair is certainly a very special highlight. We sincerely hope that you will find this special arrangement exciting and useful and that you will yourself benefit from the synergy effects of this joint event. We encourage you to contribute personally to this synergy by exploiting the options resulting from this occasion, such as visiting Automatica and joining the social event provided by VDMA+EMVA on June 10 in Hall 1 at the New Munich Trade Fair Centre.

With only 39% acceptance rate, the conference this year is probably one of the most selective ever, and we are therefore very pleased to offer you an exciting technical program, following the single-track tradition of previous DAGM meetings. We are sure that this restrictive selection of scientific contributions will be an ideal stimulation for fruitful and lively discussions. This low acceptance rate has been also largely a consequence of the high number of submitted papers and we believe that this is at least partially due to the attractive location, especially the very modern and convenient facilities at the New Munich Trade Fair Centre, and of course the city of Munich and its beautiful vicinity, which is a popular location for conferences and private sightseeing trips throughout the year.

Our acknowledgements go to all the members of the Program Committee and especially the members of the Local Organizing Committee who are all listed on the following page, as well as to our sponsors listed on the cover page and to our invited speakers:

Alejandro Jaimes, Telefonica Madrid
Maja Pantic, Imperial College London
Shmuel Peleg, The Hebrew University of Jerusalem

We wish you a successful meeting and a great time in Munich

Gerhard Rigoll

Committee

Program Committee

T. Aach, RWTH Aachen
H. Bischof, TU Graz
J. Buhmann, ETH Zürich
H. Bunke, Universität Bern
H. Burkhardt, Universität Freiburg
D. Cremers, Universität Bonn
J. Denzler, Universität Jena
G. Fink, Universität Dortmund
W. Förstner, Universität Bonn
U. Franke, Daimler
D. Gavrila, Daimler
H.-M. Gross, TU Ilmenau
F. A. Hamprecht, Univ. Heidelberg
J. Hornegger, Universität Erlangen
B. Jähne, Universität Heidelberg
X. Jiang, Universität Münster
R. Koch, Universität Kiel
U. Koethe, Universität Heidelberg
W.-G. Kropatsch, TU Wien
T. Martinetz, Universität Lübeck
H. Mayer, Univ. der BW, München
B. Mertsching, Univ. Paderborn
R. Mester, Universität Frankfurt
B. Michaelis, Universität Magdeburg
K.-R. Müller, Fraunhofer First
H. Ney, RWTH Aachen
K. Obermayer, TU Berlin
H. Ritter, Universität Bielefeld
G. Ruske, TU München
G. Sagerer, Universität Bielefeld
B. Schiele, Universität Darmstadt
C. Schnörr, Universität Mannheim
B. Schölkopf, MPI Tübingen
G. Sommer, Universität Kiel
C. Stiller, Universität Karlsruhe
T. Vetter, Universität Basel
F. M. Wahl, Universität Braunschweig
J. Weickert, Univ. des Saarlandes

Local Organizing Committee

General Chair
Gerhard Rigoll, TU München

General Co-chairs
Hugo Fastl, TU München
Bernd Radig, TU München
Gudrun Klinker, TU München
Gerhard Hirzinger, DLR, Oberpfaffenhofen

Technical Program
Frank Wallhoff, TU München

Sponsoring, Awards and Proceedings
Björn Schuller, TU München

Registration
Jürgen Gast, TU München
Tobias Rehrl, TU München
Florian Eyben, TU München
Martin Wöllmer, TU München

Tutorials
Benedikt Hörnler, TU München

Poster Session
Joachim Schenk, TU München

Web and Print Design, IT Services
Claus von Rücker, TU München
Peter Brand, TU München
Stefan Schwärzler, TU München

Local Organization
Dejan Arsic, TU München
Alexander Bannat, TU München
Andre Störmer, TU München
Sascha Schreiber, TU München
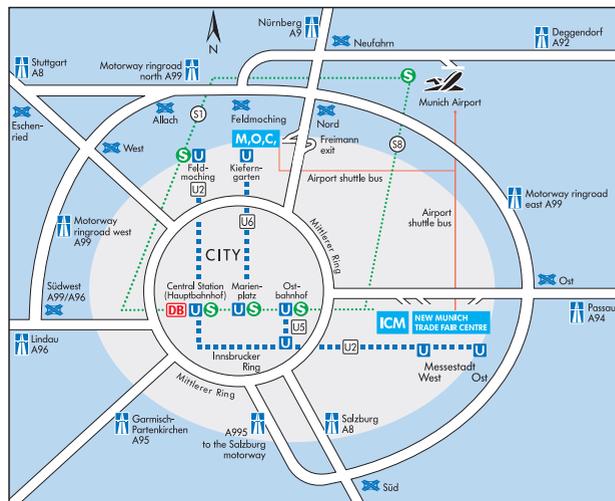Klaus Laumann, TU München
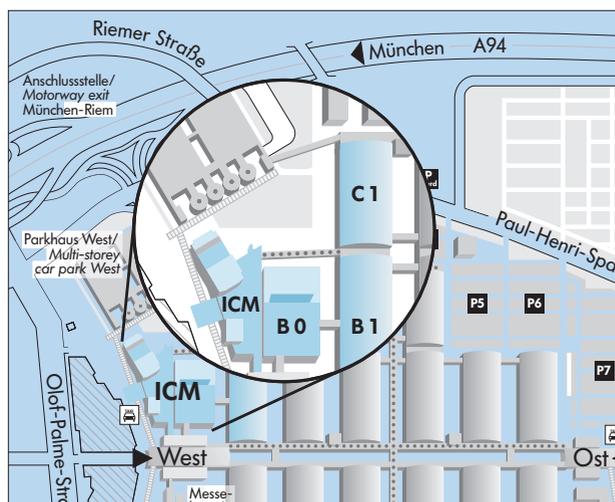Tony Poitschke, TU München

Local Information

Venue

The meeting will take place at the International Congress Center Munich (ICM).
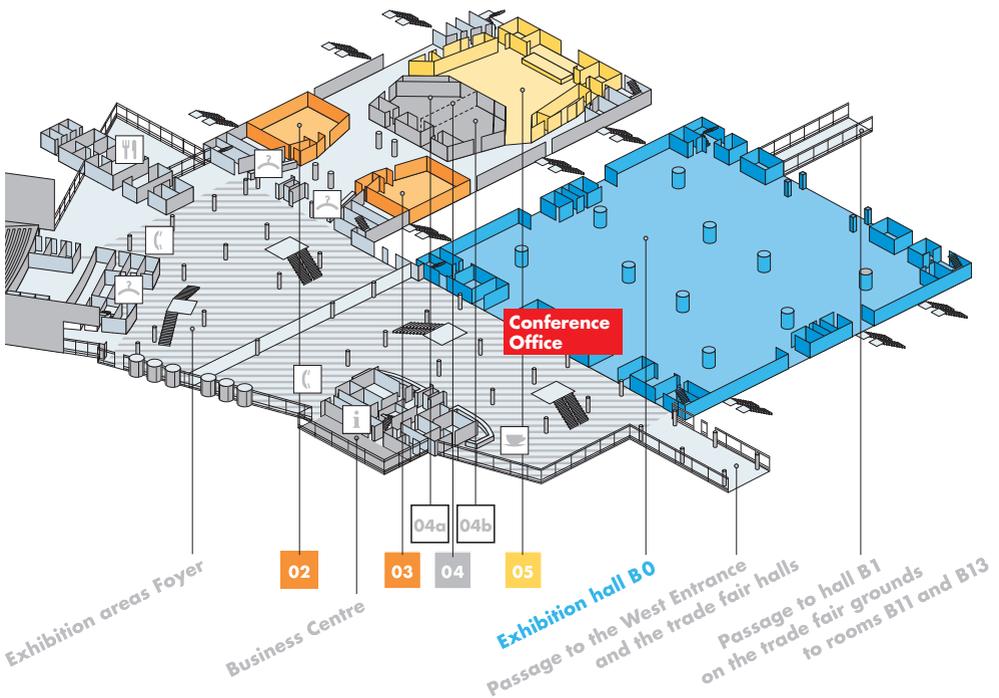
Getting there

Subway U2 from Munich central railway station into direction "Messestadt." Get off at station "Messestadt West."

Overview of ground floor

- The conference office will be located in Hall B0
- The poster exhibition and breaks will take place in Hall B0

- Tutorials will be held in Room 2 and 3
- Technical sessions will be held in Room 5

Conference Office

04a 04b

02 Exhibition areas Foyer

03 04 Business Centre

05 Exhibition hall B0

Passage to the West Entrance and the trade fair halls

Passage to hall B1 on the trade fair grounds to rooms B11 and B13

More Information: www.icm-muenchen.de

DAGM 2008

30th Annual Symposium of the German Association for Pattern Recognition

Gastronomy

West Entrance, 1st Floor
Restaurant am See
Phone: 9 49-2 41 00
11.00-15.30 h

West Entrance, Ground Floor
Westside
Phone: 9 49-2 41 00
08.00-18.00 h
13 June 2008: 08.00-12.00 h

Hall A1, Ground Floor
Max
Phone: 9 49-2 42 51
09.00-17.00 h

Hall A1/A2, 1st Floor
Food Gallery
Phone: 9 49-2 42 53
10-12 June 2008: 11.00-15.00 h

Hall A2, Ground Floor
Melange
Phone: 9 49-2 42 52
09.00-17.00 h

Hall B1, Ground Floor
Bakery
Phone: 9 49-2 41 00
09.00-17.00 h

Hall B2, Ground Floor
Veneto
Phone: 9 49-2 41 00
10-12 June 2008: 09.00-17.00 h

Hall B2/B3, 1st Floor
Valentin's
Phone: 9 49-2 41 00
11.00-15.00 h
(only open if the weather is bad)

Hall B2/B3, Ground Floor (Atrium)
Monaco
Phone: 9 49-2 41 00
09.00-17.00 h

Hall B3, Ground Floor
Chopstix
Phone: 9 49-2 41 00
10-12 June 2008: 09.00-17.00 h

Hall C1, North side
(accessible from outside)
Pizzaservice Marco Pizza
Phone: 9 49-2 89 01, 9 04 40 71
13 June 2008: 17.00-22.30 h

Atrium A1/B1
Bistro Garten
Phone: 9 49-2 41 00
11.30-18.00 h
(only open if the weather is good)

B1.280
Able Espresso-Bar
09.00-17.00 h

Several alternatives are also available at the "Riemarkaden" shopping mall directly next to the trade-fair center.

Social Events

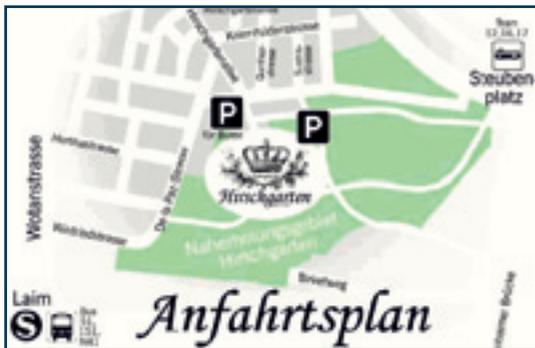### Meet the Industry and Welcome Reception   June 10, 2008

This special event is organized by VDMA (Verband Deutscher Maschinen und Anlagenbau) in conjunction with DAGM and AUTOMATICA, with the special purpose to boost the synergy effects that are especially possible at this year's DAGM because of the unique combination of DAGM together with the AUTOMATICA fair. This will be an excellent occassion for participants to visit the fair just after having registered (when they receive their free AUTOMATICA ticket) and meet at the VDMA Booth 120 in Hall A1 of the New Munich Trade Fair Centre, not far away from the registration site in Hall B0. Every DAGM registrant is encouraged to exploit this opportunity in order to meet representatives of industrial companies and foster important contacts. The event will be accompanied by a small reception sponsored by VDMA with drinks and snacks. It starts on Tuesday, 10 June, at 16:00 and is foreseen to end around 17:30, so that the participants can continue the party back in Hall B0 at the official Welcome Reception of DAGM 2008, starting at 18:00.

DAGM Dinner   June 12, 2008

The local organizers of DAGM 2008 are pleased to announce the social event in the evening of June 12, 2008, at the Königliche Hirschgarten (www.hirschgarten.de).
A Bavarian buffet and various beer specialties will be offered.

The „Königliche Hirschgarten" has been founded by Kurfürst Karl Theodor in 1780. Originaly it was used as a hunting area by the Royals, as it is located near the castle of Nymphenburg. Nowadays it is mainly used as a public park. Hirschgarten's main attractions are the 2 hectare large deer garden and the beer garden. With its capacity of 8,000 visitors the Augustiner Biergarten is referred to as the biggest one in Europe. Besides a variety of beer of Munich's famous Augustiner brewery a large range of Bavarian specialties are offered.
The easiest way to get there from the city center is to take the Tramway 16 (direction Romanplatz) or 17 (direction Amalienburgstrasse) from the central railway station.
Exit the tram at Steubenplatz. Signs will guide you to the beer garden, which is basically located at the end of Königsbauerstraße.

DAGM 2008

30th Annual Symposium of the German Association for Pattern Recognition

DAGM Day Tickets for Visitors of AUTOMATICA Fair

In order to exploit the synergy effects between DAGM and AUTOMATICA, this special service has been exclusively arranged for visitors of AUTOMATICA, who have already purchased a ticket for the AUTOMATICA fair. They can acquire a 1-day ticket to visit one single day of DAGM (choice between 11, 12 and 13 June) for the special price of **EUR 50** onsite at the registration desk of DAGM in Hall B0. This is a special fee only provided for 1-day visitors of DAGM (people who want to attend DAGM for more than one day will need a regular registration for DAGM onsite or via our web interface http://dagm2008.confmaster.net) and does not include the DAGM proceedings nor the DAGM social events.

All regular DAGM registrants will receive a free ticket for the AUTOMATICA trade fair including a free ticket for the Munich public transportation network to commute to the conference venue, i. e. the International Congress Centre Munich (ICM), right next to the Munich Trade Fair Centre during DAGM.

WLAN and Internet Access

The local organizers of DAGM 2008 offer free WLAN access in Hall B0. Access information is available at the conference office.
Internet access is also available by using the PCs in the "Internet Cafe" next to the conference office.

Speakers may upload and check their presentation in the Speakers corner in the conference office.

The Conference Center's WLAN can be used anywhere in the ICM. Tickets can be purchased in the Conference Office (Hall B0). Prices: EUR 5 for 1 hour, EUR 10 for 2 hours, EUR 30 for 8 hours. You will only be charged for time actually spent online.

TUESDAY, June 10, 2008

09:00-12:00	**Tutorial A: Kernel Methods for Object Recognition** *Dr. Christoph Lampert,* MPI for Biological Cybernetics, Tübingen	Room 2
14:00-17:00	**Tutorial B: Graphical models for Pattern Recognition** *Benedikt Hörnler,* TU München	Room 2
08:30-20:00	**Registration** - Conference Off.	Hall B0
16:00-17:30	**Meet the Industry** (VDMA Machine Vision & EMVA)	Hall A1 Booth 120
18:00-20:00	**Welcome Reception**	Hall B0

DAGM 2008

30th Annual Symposium of the German Association for Pattern Recognition

WEDNESDAY, June 11, 2008

09:00-09:20	**Opening** (Prof. Arndt Bode, Vice President TUM)	Room 5
09:20-10:00	**Olympus Prize Awarding and Talk** (Chair: J. Buhmann)	
	Oral Session 1: Learning & Classification (Chair: J. Buhmann)	Room 5
10:00-10:30	**Boosting for Model-Based Data Clustering** *Amir Saffari, Horst Bischof* (Page 51)	
10:30-11:00	**Coffee Break**	Hall B0
11:00-11:30	**Fast Generalized Belief Propagation for MAP Estimation on 2D and 3D Grid-like Markov Random Fields** *Kersten Petersen, Janis Fehr, Hans Burkhardt* (Page 41)	
11:30-12:00	**A Multiple Kernel Learning Approach to Joint Multi-Class Object Detection** *Christoph Lampert, Matthew B. Blaschko* (Page 31)	
12:00-12:30	**A Performance Evaluation of Single and Multi-Feature People Detection** *Christian Wojek, Bernt Schiele* (Page 82)	
12:30-12:45	**Statement: Science Meets Industry - Seeing the Benefits!** *Olaf Munkelt*, MVTec	
12:45-14:00	**Lunch**	
14:00-15:00	**Invited Talk** (Chair: W. Förstner) Human Pattern Analysis from Face-to-Face Processing to Social Mining *Dr. Alejandro Jaimes*	Room 5

WEDNESDAY, June 11, 2008

	Oral Session 2: Tracking (Chair: B. Radig)	Room 5
15:00-15:30	**Efficient Tracking as Linear Program on Weak Binary Classifiers** *Michael Grabner, Christopher Zach, Horst Bischof* (Page 102)	
15:30-16:00	**A Comparison of Region Detectors for Tracking** *Andreas Haja, Bernd Jähne, Steffen Abraham* (Page 112)	
16:00-16:30	**Model-based Motion Capture for Crash Test Video Analysis** *Juergen Gall, Bodo Rosenhahn, Stefan Gehrig, Hans-Peter Seidel* (Page 92)	
16:30-17:00	**Poster Teaser 1** (Chair: J. Denzler)	Room 5
17:00-18:30	**Coffee & Poster Session 1**	Hall B0
19:00	**DAGM General Assembly**	Room 5

11

DAGM 2008

30th Annual Symposium of the German Association for Pattern Recognition

THURSDAY, June 12, 2008

	Oral Session 3: Medical Image Processing & Segmentation (Chair: T. Martinetz)	Room 5
09:00-09:30	**Using Eigenvalue Derivatives for Edge Detection in DT-MRI Data** *Thomas Schultz, Hans-Peter Seidel* (Page 193)	
09:30-10:00	**Segmentation of SBFSEM Volume Data of Neural Tissue by Hierarchical Classification** *Björn Andres, Ullrich Koethe, Moritz Helmstaedter, Winfried Denk, Fred Hamprecht* (Page 142)	
10:00-10:30	**Weakly Supervised Cell Nuclei Detection and Segmentation on Tissue Microarrays of Renal Cell Carcinoma** *Thomas Fuchs, Tilman Lange, Peter Wild, Holger Moch, Joachim Buhmann* (Page 173)	
10:30-11:00	**Coffee Break**	Hall B0
	Oral Session 4: Audio, Speech & Handwriting Recognition (Chair: J. Hornegger)	Room 5
11:00-11:30	**Switching Linear Dynamic Models for Noise Robust In-Car Speech Recognition** *Björn Schuller, Martin Wöllmer, Tobias Moosmayr, Gerhard Rigoll* (Page 244)	
11:30-12:00	**Learnability of User Preferences under Unreliable and Sparse User Feedback** *Yvonne Moh, Wolfgang Einhauser, Joachim Buhmann* (Page 224)	
12:00-12:30	**Novel VQ Designs for discrete HMM On-Line Handwritten Whiteboard Note Recognition** *Joachim Schenk, Stefan Schwärzler, Günther Ruske, Gerhard Rigoll* (Page 234)	
12:30-14:00	**Lunch**	

THURSDAY, June 12, 2008

14:00-15:00	**Invited Talk** (Chair: G. Rigoll) "HCI": Human-Centered Intelligent Human-Computer Interaction *Prof. Maja Pantic*	Room 5
15:00-15:30	**Poster Teaser 2** (Chair: G. Fink)	Room 5
15:30-16:30	**Coffee & Poster Session 2**	Hall B0
	Oral Session 5: Multiview Geometry & 3D-Reconstruction (Chair: R. Mester)	Room 5
16:30-17:00	**3D Body Scanning in a Mirror Cabinet** *Sven Molkenstruck, Simon Winkelbach, Friedrich M. Wahl* (Page 284)	
17:00-17:30	**On Sparsity Maximization in Tomographic Particle Image Reconstruction** *Stefania Petra, Andreas Schroeder, Bernhard Wieneke, Christoph Schnoerr* (Page 294)	
17:30-18:00	**Photoconsistent Relative Pose Estimation Between a PMD 2D3D-Camera and Multiple Intensity Cameras** *Christian Beder, Ingo Schiller, Reinhard Koch* (Page 264)	
20:00	**DAGM Dinner** - Königlicher Hirschgarten	

DAGM 2008

30th Annual Symposium of the German Association for Pattern Recognition

FRIDAY, June 13, 2008

	Oral Session 6: Motion & Matching (Chair: R. Koch)	Room 5
09:00-09:30	**An Evolutionary Approach for Learning Motion Class Patterns** *Meinard Mueller, Bastian Demuth, Bodo Rosenhahn* (Page 365)	
09:30-10:00	**A Variational Approach to Adaptive Correlation for Motion Estimation in Particle Image Velocimetry** *Florian Becker, Bernhard Wieneke, Jing Yuan, Christoph Schnoerr* (Page 335)	
10:00-10:30	**Physically Consistent Variational Denoising of Image Fluid Flow Estimates** *Andrey Vlasenko, Christoph Schnoerr* (Page 406)	
10:30-11:00	**Optical Rails. View-based Point-To-Point Navigation using Spherical Harmonics** *Holger Friedrich, David Dederscheck, Eduard Rosert, Rudolf Mester* (Page 345)	
11:00-11:30	**Coffee Break**	Hall B0
11:30-12:30	**Invited Talk** (Chair: F. Wahl) Non-Chronological Video Editing and Video Synopsis *Prof. Shmuel Peleg*	Room 5
12:30-14:00	**Lunch**	
	Oral Session 7: Image Analysis (Chair: F. Hamprecht)	Room 5
14:00-14:30	**Perspective Shape from Shading with Non-Lambertian Reflectance** *Oliver Vogel, Michael Breuss, Joachim Weickert* (Page 517)	
14:30-15:00	**Comparing Local Feature Descriptors in pLSA-Based Image Models** *Eva Hörster, Thomas Greif, Rainer Lienhart, Malcolm Slaney* (Page 446)	
15:00-15:30	**A Local Discriminative Model for Background Subtraction** *Adrian Ulges, Thomas Breuel* (Page 507)	
15:30-16:00	**On the Relation Between Anisotropic Diffusion and Iterated Adaptive Filtering** *Michael Felsberg* (Page 436)	
16:00	**Awards and Closing** (Chair: G. Sommer)	Room 5

AUTOMATICA

INNOVATION AND SOLUTIONS
3rd International Trade Fair for Automation
10–13 June 2008 | New Munich Trade Fair Centre
www.automatica-munich.com

WEDNESDAY, June 11, 2008

| 17:00-18:30 | POSTER SESSION 1 | Hall B0 |

Learning & Classification

1 MAP-Inference for Highly-Connected Graphs
   with DC-Programming
   Jörg Kappes, Christoph Schnoerr (Page 1)
2 Simple Incremental One-Class Support Vector Classification
   Kai Labusch, Fabian Timm, Thomas Martinetz (Page 21)
3 Improving the Run-time Performance of Multi-class
   Support Vector Machines
   Andrey Sluzhivoy, Josef Pauli, Volker Rölke,
   Anastasia Noglik (Page 61)
4 Sliding-Windows for Rapid Object Class Localization:
   a Parallel Technique
   Christian Wojek, Gyuri Dorko, Andre Schulz,
   Bernt Schiele (Page 71)
5 Approximate Parameter Learning in Conditional
   Random Fields: An Empirical Investigation
   Filip Korc, Wolfgang Förstner (Page 11)

DAGM 2008

30th Annual Symposium of the German Association for Pattern Recognition

WEDNESDAY, June 11, 2008

| 17:00-18:30 | POSTER SESSION 1 | Hall B0 |

Motion & Matching

6 Staying Well Grounded in Markerless Motion Capture
Bodo Rosenhahn, Christian Schmaltz, Thomas Brox,
Joachim Weickert, Hans-Peter Seidel (Page 385)

7 An Unbiased Second-Order Prior for High-Accuracy
Motion Estimation
Werner Trobin, Thomas Pock, Daniel Cremers,
Horst Bischof (Page 396)

8 Decomposition of Quadratic Variational Problems
Florian Becker, Christoph Schnoerr (Page 335)

9 Convex Hodge Decomposition of Image Flows
Jing Yuan, Gabriele Steidl, Christoph Schnoerr (Page 416)

10 Postprocessing of Optical Flows via Surface Measures
and Motion Inpainting
Claudia Kondermann, Daniel Kondermann, Christoph Garbe
(Page 355)

11 Relative Pose Estimation from Two Circles
Stefan Rahmann, Veselin Dikov (Page 375)

WEDNESDAY, June 11, 2008

| 17:00-18:30 | POSTER SESSION 1 | Hall B0 |

Image Analysis

12 Image Tagging Using PageRank over Bipartite Graphs
Christian Bauckhage (Page 426)

13 The Conformal Monogenic Signal
Lennart Wietzke, Gerald Sommer (Page 527)

14 Example-based Learning for Single Image Super-resolution
Kwang In Kim, Younghee Kwon (Page 456)

15 Measuring Plant Root Growth
Matthias Mühlich, Daniel Truhn, Hanno Scharr, Til Aach, Kerstin Nagel, Achim Walter (Page 497)

16 Statistically Optimal Averaging for Image Restoration and Optical Flow Estimation
Kai Krajsek, Rudolf Mester, Hanno Scharr (Page 466)

17 Learning Visual Compound Models from Parallel Image-Text Datasets
Jan Moringen, Sven Wachsmuth, Sven Dickinson, Suzanne Stevenson (Page 486)

18 Deterministic Defuzzification based on Spectral Projected Gradient Optimization
Tibor Lukic, Natasa Sladoje, Joakim Lindblad (Page 476)

DAGM 2008

30th Annual Symposium of the German Association for Pattern Recognition

15:30-16:30	Hall B0

POSTER SESSION 2

Medical Image Processing & Segmentation

19 A Novel Approach for Detection of Tubular Objects and its Application to Medical Image Analysis
Christian Bauer, Horst Bischof (Page 163)

20 Combination of Multiple Segmentations by a Random Walker Approach
Pakaket Wattuya, Xiaoyi Jiang, Kai Rothaus (Page 214)

21 Space-Time Multi-Resolution Banded Graph-Cut for Fast Segmentation
Tobi Vaudrey, Daniel Gruber, Andreas Wedel, Jens Klappstein (Page 203)

22 A Probabilistic Segmentation Scheme
Dmitrij Schlesinger, Boris Flach (Page 183)

23 Real-Time Neighborhood Based Disparity Estimation Incorporating Temporal Evidence
Bogumil Bartczak, Daniel Jung, Reinhard Koch (Page 153)

Audio, Speech & Handwriting Recognition

24 Natural Language Understanding by Combining Statistical Methods and Extended Context-free Grammars
Stefan Schwärzler, Joachim Schenk, Frank Wallhoff, Günther Ruske, (Page 254)

THURSDAY, June 12, 2008

| 15:30-16:30 | POSTER SESSION 2 | Hall B0 |

Tracking

25 Combining Densely Sampled Form and Motion for Human Action Recognition
Konrad Schindler, L van Gool (Page 122)

26 Recognition and Tracking of 3D Objects
Christian Wiedemann, Markus Ulrich, Carsten Steger (Page 132)

Multiview Geometry & 3D-Reconstruction

27 Resolution Enhancement of PMD Range Maps
Rajagopalan Ambasamudram, Arnav Bhavsar, Frank Wallhoff, Gerhard Rigoll (Page 304)

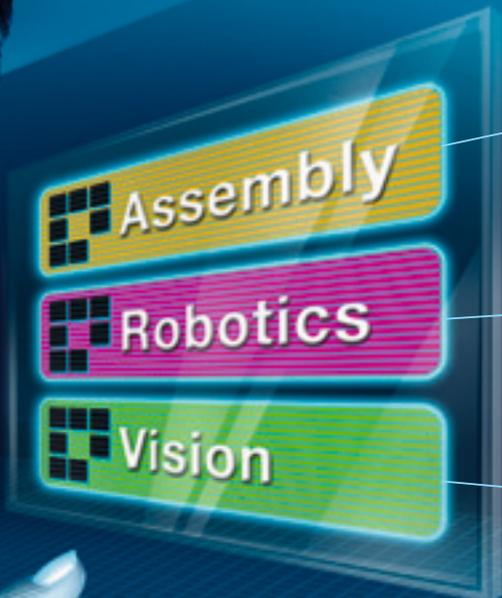28 Implicit Feedback Between Reconstruction and Tracking in a Combined Optimization Approach
Olaf Kähler, Joachim Denzler (Page 274)

29 A Variational Model for the Joint Recovery of the Fundamental Matrix and the Optical Flow
Levi Valgaerts, Andres Bruhn, Joachim Weickert (Page 314)

PUSH THE PROGRESS BUTTON

**Experience tomorrow's
automation technology**

Assembly

Robotics

Vision

AUTOMATICA

INNOVATION AND SOLUTIONS

**3rd International Trade Fair for Automation
10–13 June 2008 | New Munich Trade Fair Centre**

www.automatica-munich.com