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1 Welcome to DAGM and GfKl Conference 2011

Dear Participants,

Welcome to the 2011 annual conferences of DAGM and GfKl, which are for the first time held jointly this year. Frankfurt am Main, a city with a strong international vibe and a rich cultural and historical tradition hosts the convention of scientists from the pattern recognition and classification fields. This offers an extraordinary forum for scientific exchange and contact between researchers in the two fields. We hope the event will provide a stimulating experience for all participants from both conferences.

The technical program of DAGM 2011 was a joint endeavour between the VSI group of Goethe University and the Computer Vision Laboratory at Linköpings Universitet, Sweden. It covers all aspects of pattern recognition such as early vision to machine learning and robot vision. The DAGM 2011 call for papers resulted in 98 submissions from authors in more than 24 countries, from which a total of 42 papers were selected, corresponding to an acceptance rate of below 43%. The Program Chairs assigned 20 papers for oral and 22 papers for poster presentation, and grouped the papers into sessions. All accepted DAGM papers are compiled in the proceedings published in the Springer Lecture Notes in Computer Science series as volume 6835.

The program of the GfKl 2011, this year in partnership with the International Federation of Classification Societies (IFCS), covers theory, methods and applications of classification, clustering and data analysis. The scientific program committee peer-reviewed the contributed abstracts and arranged a program consisting of 188 oral presentations which are structured in plenary, semi-plenary, invited, special, contributed and workshop sessions of the IFCS 2011 symposium and the GfKl 2011 program. Full papers will be subject of a peer review process and accepted papers will be published as
edited post conference proceedings in the Springer Series "Studies in Classification, Data Analysis, and Knowledge Organization". We express our appreciation and thanks to all the members of the DAGM and GfKI/IFCS program committees for their valuable service to the community.

We would also like to express our thanks to the Deutsche Forschungsgemeinschaft (DFG) for supporting the IFCS Symposium.

We are proud to present 15 invited plenary and semi-plenary talks from internationally renowned scientists:

- Donald Geman: “Image interpretation by entropy pursuit”
- Yann LeCun: “Learning visual feature hierarchies”
- Richard Samworth: “Optimal weighted nearest neighbour classifiers”
- Arndt von Haeseler: “How well does a phylogenetic tree represent the underlying data”
- Gunnar Erik Carlsson: “Topology and classification”
- Gilles Celeux: “Statistical inference for the latent block model: a review”
- Andrea Cerioli: “Multivariate outlier detection and robust clustering”
- Sylvia Frühwirth-Schnatter: “Model-based clustering of time series”
- Willem J. Heiser: “Supervised and unsupervised classification of rankings – Using a Kemeny distance framework”
- Bruce G. Lindsay: “Revisiting projection pursuit”
- Carlos G. Matrán: “Trimming: An adaptive and flexible way for searching for a clustering pattern in presence of noise”
- Geoff McLachlan: “On the ever increasing role of mixture models in classification”
- Ilya Shabanov: “Non-linear curvature mapping – A novel approach on morphological classification of neolithic pottery”
- Douglas Steinley: “Finding clusters in high-dimensional data via multiple projections of variable subsets”
- Adilson Elias Xavier: “Solving clustering problems by the hyperbolic smoothing approach”
Finally, we would like to express our gratitude to all the kind people who contributed to making DAGM&GfKl 2011 in Frankfurt a success. This refers in particular to the members of the Visual Sensorics and Information Processing Laboratory at Goethe University, the members of the Computer Vision Laboratory of Linköpings Universitet, Sweden, and the members of the Databionik Group at Marburg University.

We wish all participants a pleasant, inspiring and stimulating stay in Frankfurt and look forward to DAGM 2012 in Graz and GfKl 2012 in Hildesheim!

Michael Felsberg, Linköpings Universitet, Sweden  
Eyke Huellermeier, University of Marburg, Germany  
Berthold Lausen, University of Essex, UK  
Rudolf Mester, Goethe University Frankfurt, Germany  
Alfred Ultsch, University of Marburg, Germany  
Dirk van den Poel, University of Gent, Belgium

from left to right: Rudolf Mester, Michael Felsberg, and Eyke Huellermeier

from left to right: Berthold Lausen, Alfred Ultsch, and Dirk van den Poel
# 1.1 DAGM Committee

## General Chairs
- **Rudolf Mester**
  Uni. Frankfurt, Germany & Linköpings Univ., Sweden
- **Michael Felsberg**
  Linköpings Univ., Sweden

## Local Organization
- **Holger Friedrich**
  Univ. Frankfurt, Germany
- **Christian Conrad**
  Univ. Frankfurt, Germany

## CMT Management
- **Liam Ellis**
  Linköpings Univ., Sweden

## Graphic Design
- **David Dederscheck**
  Univ. Frankfurt, Germany

## Program Committee
### Chairs
- **Michael Felsberg**
  Linköpings Univ., Sweden
- **Rudolf Mester**
  Univ. Frankfurt, Germany & Linköpings Univ., Sweden

### Members
- **Horst Bischof**
  TU Graz, Austria
- **Thomas Brox**
  Univ. Freiburg, Germany
- **Joachim Buhmann**
  ETH Zürich, Switzerland
- **Daniel Cremers**
  TU München, Germany
- **Andreas Dengel**
  DFKI, Germany
- **Joachim Denzler**
  Univ. Jena, Germany
- **Gernot Fink**
  TU Dortmund, Germany
- **Boris Flach**
  Czech TU, Czech Republic
- **Wolfgang Förster**
  Univ. Bonn, Germany
- **Uwe Franke**
  Daimler AG, Germany
- **Peter Gehler**
  MPI Informatik, Germany
- **Michael Goesele**
  TU Darmstadt, Germany
- **Fred Hamprecht**
  Univ. Heidelberg, Germany
- **Joachim Hornegger**
  Univ. Erlangen Nürnberg, Germany
- **Xiaoyi Jiang**
  Univ. Münster, Germany
- **Bernd Jähne**
  Univ. Heidelberg, Germany
- **Reinhard Koch**
  Univ. Kiel, Germany
- **Norbert Krüger**
  Syddansk Univ., Denmark
- **Wolfgang Förster**
  Univ. Bonn, Germany
- **Arjan Kuijper**
  Fraunhofer IGD, Germany
- **Bastian Leibe**
  RWTH Aachen, Germany
- **Hendrik Lensch**
  Univ. Ulm, Germany
- **Helmut Mayer**
  TU München, Germany
- **Roland Memisevic**
  Univ. Frankfurt, Germany
- **Klaus-Robert Müller**
  TU Berlin, Germany
- **Hermann Ney**
  RWTH Aachen, Germany
- **Gunnar Rätsch**
  MPI Tübingen, Germany
- **Bodo Rosenhahn**
  Univ. Hannover, Germany
- **Stefan Roth**
  TU Darmstadt, Germany
- **Volker Roth**
  Univ. Basel, Switzerland
- **Carsten Rother**
  MS Research Cambridge, UK
- **Hanno Scharr**
  FZ Jülich, Germany
- **Bernt Schiele**
  MPI Informatik, Germany
- **Konrad Schindler**
  ETH Zürich, Switzerland
- **Cristian Sminchisescu**
  Univ. Bonn, Germany
- **Klaus Tönnies**
  Univ. Magdeburg, Germany
- **Thomas Vetter**
  Univ. Basel, Switzerland
- **Friedrich Wahl**
  TU Braunschweig, Germany
- **Joachim Weickert**
  Univ. des Saarlandes, Germany
1.2 GfKl Committee

General Chairs
Alfred Ultsch  Univ. of Marburg, Germany
Eyke Huellermeier  Univ. of Marburg, Germany

Local Organization
Birgit Strassheim  Univ. Marburg, Germany
Florian Meyer  Univ. Marburg, Germany

Conftool Management
Florian Meyer  Univ. Marburg, Germany

Editors Conference Proceedings
Berthold Lausen  Univ. of Essex, UK
Alfred Ultsch  Univ. of Marburg, Germany
Dirk van den Peol  Univ. Gent, Belgium

Program Committee
Chair
Berthold Lausen  Univ. of Essex, UK

Members
Scientific Program Committee (GfKl & IFCS)
Daniel Baier  Univ. Cottbus, Germany
Hans-Hermann Bock  RWTH Aachen, Germany
Reinhold Decker  Univ. Bielefeld, Germany
Anuška Ferligoj  Univ. of Ljubljana, Slovenia
Wolfgang Gaul  KIT, Karlsruhe, Germany
Christian Hennig  UCL, London, UK
Irmela Herzog  IVR, Bonn, Germany
Eyke Hüllermeier  Univ. Marburg, Germany
Krzysztof Jajuga  Univ. Wroclaw, Poland
Hans Kestler  Univ. Ulm, Germany
Andreas Koch  Univ. Salzburg, Austria
Sabine Kroll-Schwerdt  Univ. Luxembourg, Lx.
Berthold Lausen  Univ. Essex, UK
Hermann Locarek-Junge  Univ. Dresden, Germany
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George Menaxes  Univ. of Thessaloniki, Greece
Boris Mirkin  London Univ., UK
Masahiro Mizuta  Hokkaido Univ., Japan
Angela Montanari  Univ. of Bologna, Italy
Rebecca Nugent  Carnegie Mellon Univ., USA
Akinori Okada  Tama Univ., Japan
Gunter Ritter  Univ. Passau, Germany
Mark de Rooij  Leiden Univ., Netherlands
Alfred Ultsch  Univ. Marburg, Germany
Dirk van den Poel  Univ. Gent, Belgium
Iven van Mecheleen  Univ. Leuven, Belgium
Gilles Venturini  Tours Univ., France
Jeroen Vermunt  Tilburg Univ., Netherlands
Maurizio Vichi  Univ. Rome, Italy
Claus Weihs  TU Dortmund, Germany
2 Conference and Local Information

The following pages contain general information about Frankfurt and the conference venue, including local transit information, area maps, and floor plans.

2.1 Registration Desk

If you have any questions do not hesitate to contact the registration desk at the entrance hall of the Hörsaalzentrum.
Opening hours are: Tue 08:00–19:00, Wed 08:00–19:00, Thu 08:30–18:30 and Fri 08:30–16:30.

2.2 Conference Badge

Your conference badge can be used as a local transit pass (including bus, tram, U-Bahn, S-Bahn, and local trains) within the whole RMV area (local transit carrier) from August 30 to September 2, 2011. Plans of the complete local area network are shown at every local train station or on www.rmv.de. The local area network of Frankfurt is printed in this booklet as well.

2.3 Welcome Reception

Drinks and snacks will be served at the Foyer E3 of the Hörsaalzentrum on Tuesday evening (see page 11 and 22). The welcome reception is open to all attendees.
2.4 Conference Dinner

The conference dinner will be held at Campus Westend, Casino, Festsaal 2 on Thursday evening (see page 9 and 47).
The conference dinner is open to all attendees with full conference registration, holders of additional dinner tickets, and students invited to the Young Researcher’s Forum. The dinner is not included in student registrations or tutorial/workshop only registrations.
A yellow point on your conference badge means that you are entitled to participate in the conference dinner. Please make sure that you carry your badge with you!
Additional dinner tickets are sold at the registration desk (limited availability).

2.5 Internet Access

Free internet access is provided throughout Campus Westend. Please use one of the following options to set up an internet connection.

- If you have an eduroam account, you may authenticate with your login credentials (username@university, password).
  – SSID: eduroam

- Otherwise, we provide access based on web authentication. Please contact the registration desk to get your individual username and password as well as detailed instructions on how to set up an internet connection using web authentication.
  – SSID: FREIFLUG

2.6 Maps and Floor Plans

On the following pages you will find maps of the conference venue and a local transit network map.
Conference venue: Goethe University Campus Westend
2 Conference and Local Information

Hörsaalzentrum 1st floor

Hörsaalzentrum 2nd floor
2.6 Maps and Floor Plans

Hörsaalzentrum 3rd floor

Foyer

Poelzig-Bau (‘IG-Hochhaus’)
RMV network map

not included in the pdf version of the booklet, see 
2.6 Maps and Floor Plans
2.7 Restaurants in Frankfurt

The Mensa at Campus Westend (Casino building, see page 9) serves a diversity of food at reasonable prices. Several alternatives to the Mensa outside Campus Westend are listed below. Note that lunch is not included in the conference fee.

1. Surf & Turf (American)
   Grüneburgweg 95
2. The Ivory Club (Indian, Steak House)
   Taunusanlage 15
   An der Welle 3
4. M-Steakhouse (American)
   Feuerbachstraße 11a
5. Bombay Palace (Indian, Asian)
   Darmstädtier Landstr. 6
6. The Black Bulls (American, Steak House, Vegetarian)
   Bockenheimer Landstr. 92
7. KuBu am Opernplatz (German, International)
   Opernplatz 2
8. Zarges (French, Mediterranean, Vegetarian)
   Kalbaecher Gasse 10
9. Zenzakan (Chinese, Japanese, Thai, Vietnamese)
   Taunusanlage 15
10. Vapiano (Italian)
    Goetheplatz 1-3
11. Oscar’s (French)
    Am Kaiserplatz
12. La Boveda (Spanish)
    Feldbergstr. 10
13. Tiger-Restaurant (French)
    Heiligkreuzgasse 16-20
14. Holbein’s (International, Mediterranean)
    Holbeinstr. 1
The program of DAGM & GfKl 2011 is composed of several sessions on different topics, open to all attendees of the conference. We will have a single DAGM track and multiple GfKl tracks running at the same time, and joint sessions of both DAGM and GfKl with talks of several invited speakers. The program is structured in the following way: For each day, the program of the DAGM track is followed by the program of the GfKl of the same day. Blue and red markers on the page borders indicate the DAGM and GfKl tracks, respectively. Additionally, within the Book of Abstracts (handed out with the registration material) you will find an abstract for every presented paper at DAGM & GfKl 2011.

The coarse schedule of the conference is as follows:

<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td>08:00</td>
<td>Tutorial A</td>
<td>Opening Ceremony</td>
<td>Invited Talk</td>
<td>Invited Talk</td>
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<td></td>
<td>Tutorial B</td>
<td>Invited Talk</td>
<td>Poster Session 1</td>
<td>Poster Session 2</td>
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<td>Coffee</td>
<td>Coffee</td>
<td>Machine Learning</td>
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<tr>
<td>10:00</td>
<td>Tutorial C</td>
<td>Invited Talk</td>
<td>Coffee</td>
<td>Robot Vision</td>
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<td>Lunch</td>
<td>Sessions</td>
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<td>11:00</td>
<td>Tutorial D</td>
<td>Opening Ceremony</td>
<td>Invited Talk</td>
<td>Invited Talk</td>
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<td>Talk</td>
<td>Poster Session 1</td>
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<td>Tutorial E</td>
<td>Invited Talk</td>
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<td>Shape &amp; Matching</td>
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<td>Talk</td>
<td>Lunch</td>
<td>Sessions</td>
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<td>Coffee</td>
<td>Lunch</td>
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<tr>
<td>16:00</td>
<td>Tutorial F</td>
<td>Coffee</td>
<td>Postersession 3</td>
<td>Segmentation</td>
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<td>Poster Session 3</td>
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<td>&amp; Early Vision</td>
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<td>Sessions</td>
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<td>17:00</td>
<td>Lunch</td>
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<td>Welcome Reception</td>
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<td>SFC Meeting</td>
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<td>19:00</td>
<td>SFC Dinner</td>
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*Note: The schedule is a summary and does not include detailed timing information.*
<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Location</th>
<th>Chair/Co-Chairs</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:00am -</td>
<td>Opening IFCS: Opening, Chikio Hayashi Awards (CHA), short memorial</td>
<td>HZ 6</td>
<td>Andrea Cerioli</td>
</tr>
<tr>
<td>9:00am</td>
<td>event for past IFCS President J. Douglas Carroll</td>
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<tr>
<td>9:35am -</td>
<td>Tutorial A: Tensors in Computer Vision and Image Processing, Klaas</td>
<td>HZ 7</td>
<td>Stefan Roth</td>
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<tr>
<td>10:20am -</td>
<td>Nordberg</td>
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<tr>
<td>10:50am -</td>
<td>Tutorial B: Random Field Models for Natural Image and Scene Statistics,</td>
<td>HZ 6</td>
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<tr>
<td>10:50am -</td>
<td>Stefan Roth</td>
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<tr>
<td>11:35am</td>
<td>InvitedSession 1: A session in memory of Jean-Pierre Barthelemy</td>
<td>IG 251</td>
<td>Michele Costa</td>
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<tr>
<td>11:35am -</td>
<td>Chair: Bernard Fichet</td>
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<tr>
<td>11:45am -</td>
<td>InvitedSession 2: Latent class models</td>
<td>IG 254</td>
<td>Isabella Morlini</td>
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<tr>
<td>1:00pm -</td>
<td>InvitedSession 3: Modern multidimensional unfolding</td>
<td>IG 251</td>
<td>Rebecca Ann Nugent</td>
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<tr>
<td>1:00pm</td>
<td>InvitedSession 4: Estimating and visualizing high-dimensional cluster</td>
<td>IG 254</td>
<td>Roland Memisevic</td>
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<tr>
<td>1:00pm</td>
<td>structure</td>
<td>Chair: Rebecca Ann Nugent</td>
<td>HZ 7</td>
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<tr>
<td>3:55pm -</td>
<td>IFCS Plenary 3: Douglas Steinley</td>
<td>IG 254</td>
<td>Roland Memisevic</td>
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<td>4:40pm -</td>
<td>Chair: Gunnar Erik Carlsson</td>
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<tr>
<td>5:10pm</td>
<td>IFCS Presidential: Geoff McLachlan</td>
<td>HZ 6</td>
<td>Addison Elias Xavier</td>
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<tr>
<td>7:00pm</td>
<td>Welcome Reception</td>
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<tr>
<td>8:00pm</td>
<td>IFCS Meeting: IFCS Council meeting</td>
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<tr>
<td>8:15pm -</td>
<td>IFCS Dinner: IFCS Council dinner</td>
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<tr>
<td>10:30 – 11:00</td>
<td>Clustering, Grouping, and Visualization</td>
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<tr>
<td>10:30 – 11:00</td>
<td>Keynote Talk (12:00 – 13:00), Challenges of Exploration, Learning and</td>
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<tr>
<td></td>
<td>Goal-Directed Behavior, Marc Toussaint</td>
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<tr>
<td>14:00 – 15:40</td>
<td>Tutorial C: Higher-Order Feature Learning: Building A Computer Vision</td>
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<td></td>
<td>“Swiss Army Knife”, Roland Memisevic</td>
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<td>Chair: Gilles Celeux</td>
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<tr>
<td>15:40 –</td>
<td>Tutorial D: Convex Optimization for Computer Vision, Thomas Pock &amp;</td>
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<tr>
<td>16:00 –</td>
<td>Daniel Cremers, Location: HZ 8</td>
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<td>Keynote Talk (14:00 – 15:00), Neurons Driving Cognitive Robots, Jochen</td>
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<td>J. Steil, Location: HZ 9</td>
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<td>Recognition of Dynamic Patterns, (15:00 – 15:40), Location: HZ 9</td>
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<tr>
<td>18:00</td>
<td>Meeting of the German Neural Network Society and the GI Arbeitskreis</td>
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<td></td>
<td>Neuronale Netze, (18:00)</td>
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3.1 Tuesday – DAGM Tutorials

**DAGM Tutorial A**

**Tensors in Computer Vision and Image Processing**

*Klas Nordberg*, Linköping University, Sweden

The concept of tensors has been around in image processing and computer vision a few decades, with two main applications areas: as descriptors of local features in image data, mainly in the context of local orientation, and in geometry where they are used for representing various types of matching constraints or mappings between geometric objects. The tutorial consists of three parts.

1. A mathematical background to what tensors are and why it is reasonable that such a rather abstract mathematical construction should be useful in different fields of physics as well as in image processing and computer vision. Notation issues are also discussed.

2. An overview of tensors for orientation representation, with applications to motion estimation, interest point detection, and image de-noising. Recent developments in this field are extensions of the basic orientation tensors to more complex descriptors, e.g., of multiple orientations or multiple line segments, as well as novel methods for estimating orientation tensors.

3. An overview of tensors in multiple-view geometry and multiple-point geometry. Some recent developments in this field are presented, such as a general framework for constructing both constraint tensors for multiple views/points and mappings for the reconstituting of point/views based on multiple views/points, and minimal parameterizations of such tensors.

Contents:

1. *Introduction to tensors*:
   - What are tensors? Why do we need them? Indices or no indices?
   - Operations on tensors.

2. *Tensors in image processing*:

3. *Tensors in geometry*:
Matching constraints, is there a general principle? Reconstruction, not only of points. Minimal representations.

**DAGM Tutorial B**

09:00 – 12:30

Location: **HZ 8**

**Random Field Models for Natural Image & Scene Statistics**

**Stefan Roth**, Technical University Darmstadt

Images, the basic input to any computer vision or biological vision system, span a vast space. As a simple example, there are about 101,000 different 8-bit gray-scale images of a size as small as 20 by 20 pixels. However, most of these images lack any “interesting” structure and are very unlikely to be encountered by an eye or a camera in the real world. Those that do, on the other hand, are loosely tagged as natural images. Though occupying only a tiny fraction of the image space, natural images stand out with particular statistical properties. Other dense scene representations, such as depth or motion, share similar characteristics.

Recently, we have witnessed a surge of interest in modeling the statistics of natural images and scenes with applications ranging from low-level (e.g., denoising, deblurring, stereo, optical flow), over mid-level (e.g., segmentation, color constancy) to high-level vision (e.g., recognition). Random field models have emerged as a powerful tool in this context. The goal of this tutorial is to introduce random fields and their applications to modeling natural image and scene statistics. After reviewing basic statistical properties of images, scene depth and motion, I will discuss a variety random field models, covering the range from early works to the current state of the art, from pairwise to high-order models, and from generative (MRF) to discriminative (CRF) approaches. Finally, inference and applications in various domains will be discussed as well.

**Contents:**

1. *Introduction:*
   Motivation and application examples. Image and dense scene representations. Basic statistical properties. Local statistical models.
2. Random field models of image and scene statistics:
   Markov random fields (MRFs). Early random field models. Learning and Inference. Conditional random fields (CRFs). Survey of recent MRF and CRF models.

3. Applications:

---

**Coffee Break**  
10:20 – 10:50  
Location: HZ Foyer E3 & IG 457

**Lunch Break**  
12:30 – 14:00

**DAGM Tutorial C**  
14:00 – 17:30  
Location: HZ 7

**Higher-Order Feature Learning: Building a Computer Vision ‘Swiss Army Knife’**  
Roland Memisevic, Goethe University Frankfurt

In many vision tasks, good performance is all about the right representation. Learning of image features (AKA Sparse Coding or Dictionary Learning) has therefore become a standard approach to many recognition, denoising and other vision tasks.

While standard feature learning works well on static images, most interesting tasks go beyond these: Problems like video and motion understanding, stereo vision, invariant recognition, etc. do not come in the form of unordered, static images. Instead, it is the relationship between images that carries the relevant information.

Recently, Higher-order Sparse Coding models have emerged to address this issue, and many of these models are currently the best performing methods in tasks involving videos, stereo data, or image pairs. Many of the models
were introduced independently and for various different tasks, but they are all based on the same core idea: Sparse codes can act like “gates”, that modulate the connections between the other variables in a model. This allows them to represent changes in images and it turns model parameters into “stereo”, “mapping” or “spatio-temporal” features. The tutorial will show how Higher Order Features allow us to learn to “relate” images. It will discuss efficient learning and inference methods and it will present a tour of recent applications. The tutorial will also discuss some connections of these models to biological models of simple and complex cells and to multi-layer and recent deep learning methods.

Contents:

1. Introduction:
   Sparse Coding, Feature Learning and Natural Images. Learning how Images Change. Examples From Stereo, Video and Motion Modeling.

2. Models and Methods:

3. Inference And Learning:

4. A Tour of Higher order Features in Practice:

Tutorial D 14:00 – 17:30
Location: HZ 8

Convex Optimization for Computer Vision
Thomas Pock and Daniel Cremers,
Graz University of Technology / Technical University of Munich

Variational methods have had great success to solve many problems in computer vision and image processing. They can be divided into two funda-
mentally different classes: convex and non-convex problems. The obvious advantage of convex problems is that they allow to compute a global minimum. This means that the quality of the solution solely depends on the accuracy of the variational model. On the other hand, for non-convex problems, the quality of the solution is subject to both the model and the optimization algorithm, since in general only a local minimizer can be computed. The goal of this tutorial is therefore firstly to give a gentle introduction into convex optimization. Secondly, we discuss recent applications of convex optimization to computer vision and image processing problems. We will cover modern techniques such as convex relaxation techniques, primal-dual optimization schemes and real-time capable implementations on the GPU.

Contents:

1. Introduction into convex optimization:
   convex sets. convex functions. least squares problems. linear programming problems.
2. Optimization algorithms:
   generic methods (gradient descend, Newton, ...). constrained optimization. accelerated gradient methods. primal-dual algorithms. parallelization on the GPU.
3. Applications:
   image restoration. optical flow. the Mumford-Shah model. minimal partitions and minimal surfaces. 3D reconstruction.

Coffee Break 16:00 – 16:30
Location: HZ Foyer E3 & IG 457

Welcome Reception 18:15 – 19:00
Location: HZ Foyer E3
3.2 Tuesday – NC² Workshop

**Opening**  
09:00 – 09:10  
Location: HZ 9

**Sparse Representation of Data**  
09:10 – 10:30  
Location: HZ 9

- Learning Motion Primitives using Spatio-Temporal NMF  
  *Sven Hellbach, Christian Vollmer, Julian P. Eggert, Horst-Michael Groß*

- Image Deconvolution with Sparse Priors  
  *Jens Hocke, Thomas Martinetz, Erhardt Barth*

- Relational Extensions of Learning Vector Quantization  
  *Xibin Zhu, Frank-Michael Schleif, Barbara Hammer*

- Fuzzy Supervised Neural Gas with Sparsity Constraint  
  *Marika Kästner, Thomas Villmann*

**Coffee Break**  
10:30 – 11:00  
Location: HZ Foyer E3 & IG 457

**Clustering, Grouping, and Visualization**  
11:00 – 12:00  
Location: HZ 9

- Online Semi-Supervised Growing Neural Gas  
  *Oliver Beyer, Philipp Cimiano*

- Hallucinating Image Features to Supplement Perceptual Groups  
  *Martin Meier, Robert Haschke, Helge Ritter*

- How to evaluate Dimensionality Reduction?  
  *Wouter Lueks, Bassam Mokbel, Michael Biehl, Barbara Hammer*
Challenges of Exploration, Learning and Goal-Directed Behavior
Marc Toussaint, FU Berlin, Germany

Natural environments composed of many manipulable objects can be described in terms of probabilistic relational models. Autonomous learning, exploration and planning in such environments is generally hard, but can be tackled when exploiting the inherent relational structure. I will first cover some basic research of our lab in the area of planning by inference before I address in more detail our recent advances in relational exploration, learning and planning, with emphasis on robotics applications. The question of how neurons could do such kind of “inference in relational representations” is rather puzzling to me – but I conjecture that animals and humans in some way or another have to do such kinds of computations.

Neurons Driving Cognitive Robots
Jochen J. Steil, Bielefeld University, Germany

Cognitive Robotics is one major application domain for neural learning methods, whereas robustness to environmental conditions, learning in interaction with human partners, and developmental learning are ideal and challenging playgrounds. We will discuss recent progress using brain-inspired learning and architecture with focus on three important questions: how to get from simple movement to rich motor skills? What do human inspired computational architectures contribute? How shall interaction with human users be shaped? Application examples will include the child-like
iCub, the commercial humanoid Nao and the Honda humanoid robot. Finally, we will illustrate that the developed methods are also highly relevant for tomorrow’s much more flexible automation technology.

**Recognition of Dynamic Patterns**  
15:00 – 15:40  
Location: **HZ 9**

- Recognizing Human Activities using a Layered HMM Architecture  
  *Michael Glodek, Lutz Bigalke, Günther Palm, Friedhelm Schwenker*

- Unsupervised Identification of Object Manipulation Operations from Multimodal Input  
  *Alexandra Barchunova, Jan Moringen, Ulf Grossekathoefer, Robert Haschke, Sven Wachsmuth, Herbert Janssen, Helge Ritter*

**Coffee Break**  
15:40 – 16:00  
Location: **HZ Foyer E3 & IG 457**

**Vision and Robotics**  
16:10 – 17:30  
Location: **HZ 9**

- Online Learning in the Loop: Fast Explorative Learning of Inverse Models in High Dimensions  
  *Matthias Rolf, Jochen Steil*

- Learning a Neural Multimodal Body Schema: Linking Vision with Proprioception  
  *Johannes Lohmann, Martin V. Butz*

- Object-Class Segmentation using Deep Convolutional Neural Networks  
  *Hannes Schulz, Sven Behnke*

- A Spiking Neural Network for Situation-independent Face Recognition  
  *Marco K. Müller, Michael Tremer, Christian Bodenstein, Rolf P. Würtz*

**Nomination of the Best Presentation Award and Closing**  
17:30 – 17:40  
Location: **HZ 9**
Meeting of the German Neural Network Society and the GI Arbeitskreis neuronale Netze
18:00 – open end
Location: HZ 9

Welcome Reception
18:15 – 19:00
Location: HZ Foyer E3
3.3 Tuesday – IFCS Symposium

Opening Ceremony 09:00 – 09:35
Location: HZ 6
- Chikio Hayashi Awards (CHA)
- Short memorial event for past IFCS president J. Douglas Carroll

IFCS Plenary 09:35 – 10:20
Chair: Andrea Cerioli
Location: HZ 6

Statistical Inference for the Latent Block Model: A Review
Gilles Celeux, INRIA, France

Coffee Break 10:20 – 10:50
Location: HZ Foyer E3 & IG 457

IFCS Plenary 10:50 – 11:35
Chair: Geoff McLachlan, Carlos Matrán
Location: HZ 6

Revisiting Projection Pursuit and Principal Component Analysis (Presidents invited talk)
Bruce George Lindsay, Penn State University, United States of America

A Session in Memory of Jean-Pierre Barthelemy 11:45 – 13:00
Chair: Bernard Fichet
Location: IG 251
- Some of my Work with Jean-Pierre Barthelemy – and Beyond
  Fred McMorris
- From Individual Categorisations to Consensus ones
  Alain Guénoche
Multilevel Clustering Systems, with or without Overlapping Clusters, and Dissimilarities  
*Patrice Bertrand*

**Latent Class Models**  
11:45 – 13:00  
Chair: **Michele Costa, Isabella Morlini**  
Location: **IG 254**

- Latent Class Modeling of Time Series Data  
  *José G. Dias*

- On Dynamic Hurdle Models for Longitudinal Zero-Inflated Count Data  
  *Jan Bulla, Mruotti Antonello*

- A Dynamic Analysis of Stock Markets using a Hidden Markov Model  
  *Luca De Angelis, Leonard J. Paas*

**Special Session 1**  
11:45 – 13:00  
Chair: **Henk Kiers**  
Location: **IG 454**

- Regularization and Model Selection with Categorical Covariates (CHA winner)  
  *Jan Gertheiss, Veronika Stelz, Gerhard Tutz*

- Model-based Clustering of Time Series in Group-specific Functional Subspaces (CHA winner)  
  *Charles Bouveyron*

- Ranking and Clustering Large Number of Cereal Selection Lines from Experiments without Randomization and Replications of the Lines  
  *George Menexes*

**Lunch Break**  
13:00 – 14:30

**Modern Multidimensional Unfolding**  
14:30 – 15:45  
Chair: **Mark de Rooij**  
Location: **IG 251**

- Restricted Unfolding: Preference Analysis with Optimal Transformations of Preferences and Attributes  
  *Frank M.T.A. Busing*
3.3 Tuesday – IFCS Symposium

- Sparse Multidimensional Unfolding  
  *Katrijn Van Deun*

- Trend Vector Models  
  *Mark de Rooij*

### Estimating and Visualizing High-Dimensional Cluster Structure

**14:30 – 15:45**

**Chair:** Rebecca Ann Nugent  
**Location:** IG 254

- Bias Correction in Sentiment Analysis  
  *Brendan Murphy*

- Clustering using Latent Variable Models (CHA winner)  
  *Claire Gormley*

- Estimating and Visualizing Cluster Structure in a Constrained Hypercube as a Proxy for Cognitive Diagnosis Models  
  *Rebecca Ann Nugent, Nema Dean*

### Special Session 2

**14:30 – 15:45**

**Chair:** Gilles Celeux  
**Location:** IG 454

- Embedded Variable Selection in Classification Trees (CHA winner)  
  *Servane Gey, Tristan Mary-Huard*

- Solving Complex Optimization Problems with many Parameters by Means of Optimally Designed Block-Relaxation Algorithms (CHA winner)  
  *Tom Wilderjans, Iven Van Mechelen, Dirk Depril*

- Hierarchical Clustering for Distribution Valued Dissimilarity Data  
  *Masahiro Mizuta*

### IFCS Plenary

**15:55 – 16:40**

**Chair:** Gunnar Erik Carlsson  
**Location:** HZ 6

**Finding Clusters in High-Dimensional Data via Multiple Projections of Variable Subsets**  
*Douglas Steinley*, University of Missouri, United States of America
Coffee Break  
16:40 – 17:10  
Location: **HZ Foyer E3 & IG 457**

IFCS Plenary  
17:10 – 18:00  
Chair: **Adilson Elias Xavier**  
Location: **HZ 6**  
 **The Ever-Increasing Role of Mixture Models in Classification**  
Geoff McLachlan, University of Queensland, Australia

Welcome Reception  
18:15 – 19:00  
Location: **HZ Foyer E3**

IFCS Council Meeting  
19:00 – 20:00  
Location: **IG 251**  
For IFCS executive committee and IFCS member societies representatives only.

IFCS Council Dinner  
20:15 – 22:15  
Location: **TBA**  
For IFCS executive committee and IFCS member societies representatives only.
<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
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<tbody>
<tr>
<td>9:00am</td>
<td>Opening Ceremony DAGM and GfKl/IFCS</td>
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<td>9:30am</td>
<td>Plenary 1: Donald Geman</td>
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<tr>
<td>10:30am</td>
<td>DAGM 1: Poster Spotlights 1 (10:25 - 10:45)</td>
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<tr>
<td>10:30am</td>
<td>SemPlenary 1: Gunnar Carlsson</td>
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<td>11:10am</td>
<td>Break 4: coffee break</td>
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<tr>
<td>11:10am</td>
<td>Dagm 2: Poster session 1 (10:45 - 12:25)</td>
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<tr>
<td>11:40am</td>
<td>InvitedSession 5: Current Issues in Cluster Analysis</td>
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<tr>
<td>11:40am</td>
<td>InvitedSession 6: Analysis of Qualitative Variables</td>
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<tr>
<td>12:55pm</td>
<td>Break 5: lunch break</td>
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<td>1:30pm</td>
<td>Working group 1: AGM AG-DANK (Datenanalyse und Numerische Klassifikation)</td>
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<tr>
<td>2:00pm</td>
<td>Award 1: DAGM Award / GfKl Awards</td>
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<td>3:15pm</td>
<td>Plenary 2: Arndt von Haeseler</td>
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<tr>
<td>4:35pm</td>
<td>Break 6: coffee break</td>
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<tr>
<td>4:35pm</td>
<td>DAGM 3: Object recognition (4:35 - 5:50)</td>
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<tr>
<td>6:30pm</td>
<td>General Assembly of the DAGM (17:50 - 19:00)</td>
</tr>
</tbody>
</table>
3.4 Wednesday – DAGM

Opening Ceremony DAGM and GfKL
09:00 – 09:30
Location: HZ 1

- Alfred Ultsch, University of Marburg, Germany
- Roser Valenti, Vice president University of Frankfurt
- Representative of the City of Frankfurt
- Representative of the Bernstein Focus Neurotechnology Frankfurt
- Rudolf Mester, Goethe University Frankfurt

Invited Talk
09:30 – 10:25
Chair: Rudolf Mester
Location: HZ 1

Image Interpretation by Entropy Pursuit
Donald Geman, Johns Hopkins University, Baltimore

Image interpretation, which is effortless and instantaneous for people, is one of the grand challenges of artificial intelligence. The dream is to build a “description machine” which produces a rich semantic annotation of the underlying scene, including the names and poses of the objects that are present, as well as recognizing actions and context. Mathematical frameworks are advanced from time to time, but none is yet widely accepted, and none clearly points the way to closing the gap with natural vision. After reviewing the general situation, I will outline an approach inspired by the efficiency of the divide-and-conquer strategy in games like “twenty questions” and by selective attention in natural vision. This leads to an information-theoretic, model-based framework for determining what evidence to acquire from multiple scales, locations and semantic resolutions, and for coherently integrating the evidence by updating likelihoods.

Poster Spotlights 1
10:25 – 10:45
Chair: Rudolf Mester
Location: HZ 1
A Bayesian Approach for Scene Interpretation with Integrated Hierarchical Structure  
*Martin Drauschke, Wolfgang Foerstner*

Multi-view Active Appearance Models for the X-ray Based Analysis of Avian Bipedal Locomotion  
*Daniel Haase, John Nyakatura, Joachim Denzler*

A Fully Implicit Framework for Sobolev Active Contours and Surfaces  
*Maximilian Baust, Nassir Navab*

Implicit Scene Context for Object Segmentation and Classification  
*Jan Wegner, Bodo Rosenhahn, Uwe Soergel*

An Estimation Theoretical Approach to Ambrosio-Tortorelli Image Segmentation  
*Kai Krajsek, Ines Dedovic, Hanno Scharr*

Combined Head Localization and Head Pose Estimation for Video-based Advanced Driver Assistance Systems  
*Andreas Schulz, Naser Damer, Mika Fischer, Rainer Stiefelhagen*

Towards Cross-modal Comparison of Human Motion Data  
*Thomas Helten, Meinard Mueller, Jochen Tautges, Andreas Weber*

Indoor Calibration using Segments Chains  
*Jamil Draréni, Renaud Marlet, Renaud Keriven*

Multilinear Model Estimation with $L^2$-Regularization  
*Frank Schmidt, Hanno Ackermann, Bodo Rosenhahn*

Optimization of Quadrature Filters based on the Numerical Integration of Improper Integrals  
*Andreas Krebs, Johan Wiklund, Michael Felsberg*

Real Time Head Pose Estimation from Consumer Depth Cameras  
*Gabriele Fanelli, Thibaut Weise, Juergen Gall, Luc Van Gool*

Putting MAP back on the Map  
*Patrick Pletscher, Sebastian Nowozin, Pushmeet Kohli, Carsten Rother*
- Pose-Consistent 3D Shape Segmentation Based on a Quantum Mechanical Feature Descriptor
  
  *Mathieu Aubry, Daniel Cremers, Ulrich Schlickewei*

**Coffee Break**  
11:10 – 11:40  
Location: **HZ Foyer E3 & IG 457**

**Lunch Break**  
12:25 – 14:00

DAGM program committee meeting in HZ 12 (for DAGM PC members only)

**DAGM Award and GfKl Awards**  
14:00 – 15:15  
Chair: **Joachim M. Buhmann, Reinhold Decker**  
Location: **HZ 1**

- Laudatio Best Paper Award GfKl 2010 – Methods
  
  *Hans-Hermann Bock*

- Bias-Variance Analysis of Local Classification Methods (Best Paper Award GfKl 2010 – Methods)
  
  *Julia Schi**

- Laudatio Best Paper Award GfKl 2010 – Applications
  
  *Andreas Geyer-Schulz*

- Teacher’s Typology of Student Categories. A Cluster Analytic Study (Best Paper Award GfKl 2010 – Applications)
  
  *Thomas Hörstermann*

- Laudatio *Deutscher Mustererkennungspreis 2011*
  
  *Joachim M. Buhmann*

- *Deutscher Mustererkennungspreis 2011 – Awardee Talk*

**Invited Talk**  
15:15 – 16:10  
Chair: **Berthold Lausen**  
Location: **HZ 1**
How Well Does a Phylogenetic Tree Represent the Underlying Data?

Arndt von Haeseler, Center for Integrative Bioinformatics Vienna (CIBIV), Wien, Austria

see page 39

Coffee Break 16:10 – 16:35
Location: HZ Foyer E3 & IG 457

Object Recognition 16:35 – 17:50
Chair: Christoph Lampert Location: HZ 1

- Multiple Instance Boosting for Face Recognition in Videos
  Paul Wohlhart, Martin Köstinger, Peter Roth, Horst Bischof 16:35
- SHOG – Spherical HOG Descriptors for Rotation Invariant 3D Object Detection
  Henrik Skibbe, Marco Reisert, Hans Burkhardt 17:00
- Pick your Neighborhood – Improving Labels and Neighborhood Structure for Label Propagation
  Sandra Ebert, Mario Fritz, Bernt Schiele 17:25

General Assembly of the DAGM 18:30 – 19:45
Location: HZ 1
3.5 Wednesday – GfKl

Opening Ceremony DAGM and GfKl  
09:00 – 09:30
Location: HZ 1

- Alfred Ultsch, University of Marburg, Germany
- Roser Valenti, Vice president University of Frankfurt
- Representative of the City of Frankfurt
- Representative of the Bernstein Focus Neurotechnology Frankfurt
- Rudolf Mester, Goethe University Frankfurt

Invited Talk  
09:30 – 10:25
Chair: Rudolf Mester
Location: HZ 1

Image Interpretation by Entropy Pursuit
Donald Geman, Johns Hopkins University, Baltimore

see page 32

Semi-Plenary  
10:30 – 11:10
Chair: Iven Van Mechelen
Location: HZ 7

Topology and Classification
Gunnar Erik Carlsson, Stanford University, United States of America

Semi-Plenary  
10:30 – 11:10
Chair: Hans-Hermann Bock
Location: HZ 8

Model-based Clustering of Time Series
Sylvia Frühwirth-Schnatter, Wirtschaftsuniversität Wien, Austria

Coffee Break  
11:10 – 11:40
Location: HZ Foyer E3 & IG 457
### Current Issues in Cluster Analysis

**11:40 – 12:55**  
**Location:** HZ 7

**Chair:** Gunter Ritter

- New Advances in Robust Clustering Based on Trimming: The TCLUST Approach  
  *Agustin Mayo-Iscar*

- Some Tricky Issues in Comparative Simulations of Clustering Methods, Including the Robust Improper ML Estimator  
  *Christian Hennig, Pietro Coretto*

- Testing for the Number of Regimes in Markov Dependent Mixtures (HMMs)  
  *Florian Schwaiger*

### Analysis of Qualitative Variables

**11:40 – 12:55**  
**Location:** HZ 8

**Chair:** Henk Kiers

- Multiple Correspondence Analysis with Missing  
  *Julie Josse*

- Clustering of Variables via the PCAMIX  
  *Vanessa Kuentz*

- Chance Corrected Correlation Measures for Qualitative Variables  
  *Henk Kiers*

### Marketing and Management 1

**11:40 – 12:55**  
**Location:** HZ 9

**Chair:** Daniel Baier

- Antecedents and Outcomes of Participation in Social Networking Sites  
  *Sandra Maria Correia Loureiro*

- Nonsymmetric Correspondence Analysis of Abbreviated Hard Laddering Interviews  
  *Adam Sagan, Eugene Kaciak*

- Feature Selection and Clustering of Digital Images Versus Questionnaire Based Grouping of Consumers: A Comparison  
  *Ines Daniel, Daniel Baier*
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<th>Medical and Health Sciences 1</th>
<th>11:40 – 12:55</th>
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<tr>
<td><strong>Chair:</strong> Vladimir Makarenkov</td>
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<tr>
<td>Association of Complex Human Pain Phenotypes with Complex Pain Genotypes using a Self-organizing Maps Approach</td>
<td><strong>Jörn Lötsch, Alfred Ultsch</strong></td>
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<td>Bivariate Binary Classification using the Ideal Point Classification Model</td>
<td><strong>Hailemichael Metiku Worku</strong></td>
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<td>Under what circumstances do regular Computerized Adaptive Tests allow for sound clinical classifications?</td>
<td><strong>Niels Smits</strong></td>
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<th>Text Mining, Web Mining and Ontology Learning</th>
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<td><strong>Chair:</strong> Andreas Geyer-Schulz</td>
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<td>An Approach for Topic Trend Detection</td>
<td><strong>Wolfgang Gaul, Dominique Vincent</strong></td>
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<td>An approach to using Ontologies for Interpreting Text Documents</td>
<td><strong>Boris Mirkin, Ekaterina Chernyak, Olga Chugunova, Julia Askarova, Susana Nascimento</strong></td>
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<tr>
<td>Recommender Systems for Biosurveillance 2.0</td>
<td><strong>Ernesto Diaz-Aviles, Avaré Stewart, Wolfgang Nejdl</strong></td>
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<th>Classification, Discriminant Analysis and Supervised Learning 1</th>
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<tr>
<td><strong>Chair:</strong> Eyke Huellermeier</td>
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<tr>
<td>Temporally locally adaptive Linear Discriminant Analysis</td>
<td><strong>Karsten Lübke, Julia Schöffner, Stefanie Hillebrand, Claus Weihs</strong></td>
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<tr>
<td>A Statistical Survey on Bulk Emails with Symbolic Data Analysis</td>
<td><strong>Hiroyuki Minami</strong></td>
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</table>
- Determining the Similarity Between US Cities using a Gravity Model for Search Engine Query Data
  
  *Paul Hofmarcher, Bettina Grün, Kurt Hornik, Patrick Mair*

**Lunch Break**  
12:55 – 14:00

**AGM AG – DANK (Datenanalyse und Numerische Klassifikation)**  
13:30 – 13:50

Chair: *Christian Hennig, Alfred Ultsch*  
Location: HZ 7

**DAGM Award and GfKl Awards**  
14:00 – 15:15

Chair: *Joachim M. Buhmann, Reinhold Decker*  
Location: HZ 1

- Laudatio Best Paper Award GfKl 2010 – Methods  
  *Hans-Hermann Bock*

- Bias-Variance Analysis of Local Classification Methods (Best Paper Award GfKl 2010 – Methods)  
  *Julia Schiffner*

- Laudatio Best Paper Award GfKl 2010 – Applications  
  *Andreas Geyer-Schulz*

- Teacher’s Typology of Student Categories. A Cluster Analytic Study (Best Paper Award GfKl 2010 – Applications)  
  *Thomas Hörstermann*

- Laudatio *Deutscher Mustererkennungspreis 2011*  
  *Joachim M. Buhmann*

- *Deutscher Mustererkennungspreis 2011 – Awardee Talk*

**Invited Talk**  
15:15 – 16:10

Chair: *Berthold Lausen*  
Location: HZ 1
How Well Does a Phylogenetic Tree Represent the Underlying Data?

Arndt von Haeseler, Center for Integrative Bioinformatics Vienna (CIBIV), Wien, Austria

As models of sequence evolution become more and more complicated, many criteria for model selection have been proposed, and tools are available to select the best model for an alignment under a particular criterion. However, in many instances the selected model fails to explain the data adequately as reflected by large deviations between observed pattern frequencies and the corresponding expectation. We present an approach to evaluate the goodness of fit. We introduces a minimum number of "extra substitutions" on the inferred tree to provide a biologically motivated explanation why the alignment may deviate from expectation. These extra substitutions plus the evolutionary model then fully explain the alignment. We illustrate the method on several examples.

Coffee Break  
16:10 – 16:35  
Location: HZ Foyer E3 & IG 457

Clustering and Unsupervised Learning 1  
16:35 – 18:15  
Chair: Krzysztof Jajuga  
Location: HZ 7

- Cluster Analysis Based on Multi-layer Structure  
  Akinori Okada, Satoru Yokoyama

- Clustering Considering Local Density of Units  
  Vladimir Batagelj

- Factorial PD-Custering  
  Cristina Tortora, Mireille Gettler Summa, Francesco Palumbo

- Random Projections for Stopping the Process of Divisions in k-means Bisection Clustering  
  Boris Mirkin
Classification, Discriminant Analysis and Supervised Learning 2  
16:35 – 18:15  
Chair: Mark de Rooij  
Location: HZ 8

- Machine Learning based Approach for Hyper-parameter Optimization  
  Lars Schmidt-Thieme
- Efficient Sampling and Handling of Variance in Tuning Model Chains with Kriging  
  Bernd Bischl, Patrick Koch, Wolfgang Konen, Claus Weihs
- Parametric Analysis of Interval Data  
  Paula Brito, Pedro Duarte Silva
- Local Clique Merging: An Extension of the Maximum Common Subgraph Measure for the Classification of Graph Structures  
  Thomas Fober, Eyke Huellermeier

Marketing and Management 2  
16:35 – 18:15  
Chair: Reinhold Decker  
Location: HZ 9

- Multi-Group Confirmatory Factor Analysis Model in mixed-culturally populations  
  Piotr Tarka
- Feature-based joint analysis of product perception and preference  
  Michel Meulders
- Statistical Software for Clustering Images  
  Robert Naundorf, Daniel Baier

Medical and Health Sciences 2  
16:35 – 18:15  
Chair: Berthold Lausen  
Location: IG 251

- Dimensions of Job Characteristics as Predictors of Job Satisfaction and Professional Satisfaction  
  Silvina Santana, Sandra Loureiro, José Cerdeira
- Mortality in EU countries – Dependence Analysis With the Use of Log-linear Models  
  Justyna Julia Brzezińska
- Rapid Adaptation of Brain Reading Interfaces based on Threshold Adjustment
  Jan Hendrik Metzen, Elsa Andrea Kirchner

- Identification of Risk Factors in Coronary Bypass Surgery
  Julia Schiffner, Erhard Godehardt, Stefanie Hillebrand, Alexander Albert, Artur Lichtenberg, Claus Weihs

### Multivariate Statistical Methods 1
16:35 – 18:15
Chair: **Nema Dean**
Location: **IG 254**

- Bayesian Binary Quantile Regression with the bayesQR R-package
  Dries F. Benoit, Dirk Van den Poel

- Factor Preselection and Multiple Measures of Dependence
  Nina Büchel, Kay F. Hildebrand, Ulrich Müller-Funk

- ECO-power: A Novel Method to Reveal Common Mechanisms Underlying Coupled Data
  Martijn Schouteden, Katrijn Van Deun, Iven Van Mechelen

- Intrablocks Correspondence Analysis
  Campo Elías Pardo, Jorge Eduardo Ortiz

### General Assembly of the Gesellschaft für Klassifikation
18:30 – 19:45
Location: **HZ 7**
<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Location</th>
<th>Chair</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:00am - 9:55am</td>
<td>Plenary 3: Yann LeCun</td>
<td>HZ 6</td>
<td></td>
</tr>
<tr>
<td>10:00am - 10:40am</td>
<td>SemPlenary 3: Willem Heiser, Poster session</td>
<td>HZ 7</td>
<td>Akinori Okada</td>
</tr>
<tr>
<td>10:40am - 11:10am</td>
<td>Break 7: coffee break</td>
<td></td>
<td></td>
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<tr>
<td>11:10am - 12:50pm</td>
<td>Contributed 11: Clustering and Unsupervised Learning 2</td>
<td>HZ 7</td>
<td>Hans-Hermann Bock</td>
</tr>
<tr>
<td>11:50pm - 2:00pm</td>
<td>Break 8: lunch break</td>
<td></td>
<td></td>
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<tr>
<td>1:00pm - 1:50pm</td>
<td>Working group 2: AGM AG-BT (Biostatistik)</td>
<td>HZ 8</td>
<td>Hans Kestler</td>
</tr>
<tr>
<td>2:00pm - 3:40pm</td>
<td>DAGM 6: Shape and applications</td>
<td>HZ 6</td>
<td>Christian Hennig</td>
</tr>
<tr>
<td>3:40pm - 4:10pm</td>
<td>Break 9: coffee break</td>
<td></td>
<td></td>
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<tr>
<td>4:10pm - 6:15pm</td>
<td>DAGM 7: Segmentation and Early Vision</td>
<td>HZ 6</td>
<td>Christian Hennig</td>
</tr>
<tr>
<td>6:30pm - 10:30pm</td>
<td>Dinner: Conference Dinner</td>
<td></td>
<td></td>
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</table>


3.6 Thursday – DAGM

**Invited Talk**

09:00 – 09:55

Chair: Michael Felsberg

**Location**: HZ 6

**Learning Visual Feature Hierarchies**

Yann LeCun, New York University, New York

Intelligent perceptual tasks such as vision and audition require the construction of good internal representations. Theoretical and empirical evidence suggest that the perceptual world is best represented by a multi-stage hierarchy in which features in successive stages are increasingly global, invariant, and abstract. An important challenge for Machine Learning and Pattern Recognition is to devise “deep learning” methods for multi-stage architecture than can automatically learn good feature hierarchies from labeled and unlabeled data.

We will demonstrate the use of deep learning methods, based on unsupervised sparse coding, to train convolutional network (ConvNets). ConvNets are biologically-inspired architectures consisting of multiple stages of filter banks, interspersed with non-linear operations, and spatial pooling operations.

A number of applications will be shown through videos and live demos, including a category-level object recognition system that can be trained on the fly, a pedestrian detector, a system that recognizes human activities in videos, and a trainable vision system for off-road mobile robot navigation. Specialized hardware architecture that implement these algorithms will also be described.

**Poster Spotlights 2, Young Researcher’s Forum and Adverse Vision Conditions Challenge**

09:55 – 10:45

Chair: Michael Felsberg

**Location**: HZ 6

**Coffee Break**

10:40 – 11:10

**Location**: HZ Foyer E3 & IG 457
Poster Session 2, Young Researcher’s Forum and Adverse Vision Conditions Challenge 10:45 – 12:25

Location: HZ Foyer

- People Tracking Algorithm for Human Height Mounted Cameras  
  Vladimir Kononov, Vadim Konushin, Anton Konushin

- Multi-Person Localization and Track Assignment in Overlapping Camera Views  
  Martijn Liem, Dariu Gavrila

- Relaxed Exponential Kernels for Unsupervised Learning  
  Karim Abou-Moustafa, Mohak Shah, Fernando De La Torre, Frank Ferrie

- Using Landmarks as a Deformation Prior for Hybrid Image Registration  
  Marcel Lüthi, Christoph Jud, Thomas Vetter

- Improving Denoising Algorithms via a Multi-Scale Meta-Procedure  
  Harold Christopher Burger, Stefan Harmeling

Young Researcher’s Forum

- Image Comparison on the Base of a Combinatorial Matching Algorithm  
  Benjamin Drayer

- Large Displacement Optical Flow for Volumetric Image Sequences  
  Benjamin Ummenhofer

- Visual Motion Capturing for Kinematic Model Estimation of a Humanoid Robot  
  Andre Gaschler

- Object Recognition System Guided by Gaze of the User with a Wearable Eye Tracker  
  Takumi Toyama

- Spectral Clustering of ROIs for Object Discovery  
  Paul Bodesheim

- Robust Classification and Semi-Supervised Object Localization with Gaussian Processes  
  Alexander Lütz

- Color Image Segmentation Based on an Iterative Graph Cut Algorithm using Time-of-Flight Cameras  
  Markus Franke
Application of Multi-Modal Features for Terrain Classification on a Mobile System  
Marc Arends

**Adverse Vision Conditions Challenge**

- Robust Point Matching in HDRI Through Estimation of Illumination Distribution  
  Yan Cui, Alain Pagani, Didier Stricker

- Illumination-Robust Dense Optical Flow Using Census Signatures  
  Thomas Müller, Clemens Rabe, Jens Rannacher, Uwe Franke, Rudolf Mester

- Efficient Stereo and Optical Flow with Robust Similarity Measures  
  Christian Unger, Eric Wahl, Slobodan Ilic

**Lunch Break**  
12:25 – 14:00

DAGM Program committee meeting in HZ 12 (for DAGM PC members only)

**Shape and Matching**  
14:00 – 15:40  
Chair: Helmut Mayer  
Location: HZ 6

- Shape- and Pose-Invariant Correspondences using Probabilistic Geodesic Surface Embedding  
  Aggeliki Tsoli, Michael Black  
  14:00

- Dense 3D Reconstruction of Symmetric Scenes from a Single Image  
  Kevin Koeser, Christopher Zach, Marc Pollefeys  
  14:25

- Fingerprints for Machines – Optical Identification of Grinding Imprints  
  Ralf Dragon, Tobias Mörke, Bodo Rosenhahn, Jörn Ostermann  
  14:50

- Efficient and Robust Alignment of Unsynchronized Video Sequences  
  Georgios Evangelidis, Christian Bauckhage  
  15:15

**Coffee Break**  
15:40 – 16:10  
Location: HZ Foyer E3 & IG 457
3.6 Thursday – DAGM

Segmentation 16:10 – 17:00
Chair: Stefan Roth  Location: HZ 6
- Time-consistent Foreground Segmentation of dynamic Content from Color and Depth Video
  Anatol Frick, Markus Franke, Reinhard Koch  16:10
- Channel Coding for Joint Colour and Depth Segmentation
  Marcus Wallenberg, Michael Felsberg, Per-Erik Forssén, Babette Dellen  16:35

Early Vision 17:00 – 17:50
Chair: Stefan Roth  Location: HZ 6
- Simultaneous Interpolation and Deconvolution Model for the 3-D Reconstruction of Cell Images
  Ahmed Elhayek, Martin Welk, Joachim Weickert  17:00
- Steerable Deconvolution – Feature Detection as an Inverse Problem
  Marco Reisert, Henrik Skibbe  17:25

Conference Dinner 19:30 – open end
Location: Casino, Festsaal 2

see page 8
3.7 Thursday – GfKl

**Invited Talk**  
09:00 – 09:55  
Chair: Michael Felsberg  
Location: HZ 6

*Learning Visual Feature Hierarchies*  
Yann LeCun, New York University, New York

*see page 44*

**Semi-Plenary**  
10:00 – 10:40  
Chair: Akinori Okada  
Location: HZ 7

*Semi-Plenary*  
10:00 – 10:40  
Chair: Gunter Ritter  
Location: HZ 8

*Supervised and Unsupervised Classification of Rankings using a Kemeny Distance Framework*  
Willem Jan Heiser, Leiden University, Netherlands, The

*An adaptive and flexible way for Searching for a Clustering Pattern in presence of noise*  
Carlos Matrán, Universidad de Valladolid, Spain

**Semi-Plenary**  
10:00 – 10:40  
Chair: Irmela Herzog  
Location: HZ 9

*Non-Linear Curvature Mapping – A novel approach on morphological classification of neolithic pottery*  
Ilya Shabanov, Klaus-Robert Müller, Wolfram Schier, 1: Technical University of Berlin (TUB), Germany: 2: Free University of Berlin (FUB), Germany
Coffee Break 10:40 – 11:10
Location: HZ Foyer E3 & IG 457

Clustering and Unsupervised Learning 2 11:10 – 12:50
Chair: Hans-Hermann Bock Location: HZ 7

- Multiple Nested Reductions of Single Data Modes As a Tool to Deal with Large Data Sets  
  Iven Van Mechelen, Katrijn Van Deun
- Data Transformations in Data Mining  
  Andreas Baumgart, Ulrich Müller-Funk
- A New Approach for Graph Clustering  
  Wolfgang Gaul, Rebecca Klages
- Measures for Comparing Partitions – Evaluation, Selection, Distributions  
  Andrzej Sokołowski, Sabina Denkowska, Kamil Fijorek, Marcin Salamaga

Multivariate Statistical Methods 2 11:10 – 12:50
Chair: Geoff McLachlan Location: HZ 8

- Individual Differences Scaling (INDSCAL) Revisited  
  Steffen Unkel, John C. Gower, Nickolay T. Trendafilov
- The Comparison of Some Feature Selection Methods in Regression  
  Mariusz Kubus
- Switching PCA for Modeling Changes in the Underlying Structure of Multivariate Time Series Data  
  Kim De Roover, Eva Ceulemans, Marieke Timmerman, Patrick Onghena
- Some thoughts on the aggregation of variables in dissimilarity design  
  Christian Hennig

Data Analysis in Archaeology and Geography 11:10 – 12:50
Chair: Alfred Ultsch Location: HZ 9
Classification of Roman Tiles With Stamp PARDALIUS  
Hans-Joachim Mucha, Jens Dolata, Hans-Georg Bartel

Geochemical and Statistical Investigation of Clay Deposits in the Troad and its Implication for Provenance of Bronze Age Fine Pottery from Troia  
Carlos Morales-Merino, Cornelia Schubert, Hans-Joachim Mucha, Hans-Georg Bartel

Parallel Coordinate Plots in Archaeology  
Irmela Herzog, Frank Siegmund

On the Efficiency of German Regions  
Nguyen Xuan Thinh, Martin Behnisch, Alfred Ultsch

Marketing and Management 3  
11:10 – 12:50  
Chair: Dirk van den Poel  
Location: IG 251

Targeting Voters with Logistic Regression Trees  
Thomas Rusch, Kurt Hornik, Wolfgang Jank, Ilro Lee, Achim Zeileis

Product Design Optimization using Ant Colony and Bee Algorithms: A Comparison  
Sascha Voekler, Daniel Baier

Using User Generated Content for Image Clustering and Market Segmentation  
Diana Schindler

Logic Based Conjoint Analysis using the Commuting Quantum Query Language  
Ingo Schmitt, Daniel Baier

Banking and Finance 1  
11:10 – 12:50  
Location: IG 254

Multivariate Analysis of Dividend Payout of German Prime Standard Issuers  
Joachim Rojahn, Karsten Lübke

Empirical tests of the CAPM and D-CAPM model on the Warsaw Stock Exchange  
Lesław Markowski
Multivariate Modelling of Cross-Commodity Price Relations Along the Petrochemical Value Chain  
*Myriam Thömmes, Peter Winker*

Fundamental Portfolio Construction Based on Mahalanobis Distance  
*Anna Rutkowska-Ziarko*

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**Psychology and Educational Sciences**  
11:10 – 12:50  
Chair: *Sabine Krolak-Schwerdt*  
Location: *IG 454*

- Applying Location Planning Algorithms to Schools: The Case of Special Education in Hessen (Germany)  
  *Alexandra Schwarz*

- Predictive Validity of Tracking Decisions: The development of a new validation criterion  
  *Florian Klapproth, Thomas Hörstermann, Sabine Krolak-Schwerdt*

- Spurious Dimensions in the Application of Principal Components Analysis with the Oblique Rotation to Binary Data  
  *Takashi Murakami, Yuri Irie*

- The R Package CDM for Cognitive Diagnosis Modeling  
  *Thomas Kiefer, Ann Cathrice George, Ali Ünlü, Alexander Robitzsch*

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**Lunch Break**  
12:50 – 14:00

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**AGM AG – BT (Biostatistik)**  
13:00 – 13:50  
Chair: *Hans Kestler, Anne-Laure Boulesteix*  
Location: *HZ 8*

**SIGMA (Special Interest Group Music Analysis)**  
13:00 – 13:50  
Chair: *Claus Weihs*  
Location: *IG 454*
Dissimilarities and Dissimilarity Based Methods  
14:00 – 15:40  
Chair: Christian Hennig  
Location: HZ 7

- Similarity Measures for Learning Ontological Knowledge  
  Floriana Esposito
- On Correction of Similarity Indices for Chance Agreement in Cluster Analysis  
  Ahmed N. Albatineh
- A Psychological Perspective on Similarity and Distance Measures  
  Daniel Mullensiefen
- Learning Time Series Dissimilarities  
  Ahlame Douzal-Chouakria, Cedric Frambourg, Eric Gaussier, Jacques Demongeot

Systems Biology  
14:00 – 15:40  
Chair: Hans Kestler  
Location: HZ 8

- Dynamic Nested Effect Models for Reverse Engineering Transcriptional and Non-Transcriptional Networks from High-Dimensional Time Course Perturbation Effects  
  Holger Fröhlich
- Reconstructing Boolean Functions from Time Series Data  
  Markus Maucher
- Identification of Prognostic Gene Signatures in Cancer Patients from High-dimensional Data  
  Tim Beissbarth
- Differential Analysis of High-throughput Data in a Network Context, Towards a Mechanistic Understanding of Cell Transitions, and Chemotherapy Response  
  Georg Fuellen

Item Response Theory in Psychology and Education  
14:00 – 15:40  
Chair: Christine Hohensinn  
Location: HZ 9
Non-parametric Item Response Models for Scale Construction and Adaptive Testing  
Otto B. Walter

Linear Logistic Models with Relaxed Assumptions in R: Implementation and Application  
Thomas Rusch, Marco Maier, Reinhold Hatzinger

Reporting Differentiated Literacy Results in PISA by using Multidimensional Adaptive Testing  
Andreas Frey, Ulf Kröhne, Nicki-Nils Seitz

Detecting Person Heterogeneity in a Large-scale Orthographic Test by Item Response Models  
Christine Hohensinn, Klaus D. Kubinger, Reif Manuel

Marketing and Management 4  
Chair: Andrzej Sokołowski  
Location: IG 251

Correspondence Mining for the Identification of Relationships in Product Reviews  
Mayra Ruano

Exploratory Analysis of Innovation  
Dominik Antoni Rozkrut

Optimal Network Revenue Management Decisions Including Flexible Demand Data and Overbooking  
Wolfgang Gaul, Christoph Winkler

Swarm Intelligent Recommender Systems  
Ernesto Diaz-Aviles, Avaré Stewart, Mihai Georgescu, Wolfgang Nejdl

Clustering and Unsupervised Learning 3  
Chair: Ulrich Müller-Funk  
Location: IG 254

Preserving Asymmetry of Distance Data in the Clustering Setting  
Jan W. Owsinski

Algorithms for Incorporating Spatial Information into Clustering of High-spectral Data  
Jan Hendrik Kobarg, Theodore Alexandrov
■ Clustering Images using Earth Mover’s Distance: A Comparison of Traditional and New Varieties  
Sarah Frost, Daniel Baier

■ K-Means Clustering of Incomplete Data  
Stephan Dlugosz

Music Classification Workshop 1  
14:00 – 15:40
Chair: Claus Weihs  
Location: IG 454

■ Cepstral Modulation Features for Versatile Audio Classification Tasks  
Anil Nagathil, Rainer Martin

■ A Case Study about the Effort to Classify Music Intervals by Chroma and Spectrum Analysis  
Verena Mattern, Igor Vatolkin, Günter Rudolph

■ Recognition of Harmonic Characteristics for Audio Intervals and Chords  
Igor Vatolkin, Markus Eichhoff, Claus Weihs

■ High Performance Hardware Architectures for Automated Music Classification  
Ingo Schmädecke, Christian Banz, Holger Blume

Coffee Break  
15:40 – 16:10  
Location: HZ Foyer E3 & IG 457

Clustering and Unsupervised Learning 4  
16:10 – 18:15  
Chair: Christian Hennig  
Location: HZ 7

■ Mixture Model Clustering with Explanatory Variables: One Step and Three Step Approaches  
Dereje W. Gudicha, Jeroen K. Vermunt

■ Analysis of One-mode Three-way Asymmetric Data by Multidimensional Scaling and Cluster Analysis  
Atsuho Nakayama, Hiroyuki Tsurumi, Akinori Okada

■ Bayesian Mixture Modeling with Variable Selection  
Tomoki Tokuda, Iven Van Mechelen, Francis Tuerlinckx
- Fuzzy Clustering by the Hyperbolic Smoothing Approach
  *Javier Trejos, Eduardo Piza, Luiz Carlos F. Souza, Alex Murillo, Vinicius L. Xavier, Adilson E. Xavier*

- Implications of Axiomatic Consensus Properties
  *Florent Domenach, Ali Tayari*

**Bioinformatics and Biostatistics 1**  
16:10 – 18:15  
Chair: **Anne-Laure Boulesteix**  
Location: **HZ 8**

- Spatial Classification of Loss of Heterozygosity on Tumor Chromosomes  
  *Paul H. C. Eilers*

- A New Method for the Elimination of Systematic Error from Experimental High-throughput Screening Data  
  *Vladimir Makarenkov, Plamen Dragiev, Robert Nadon*

- The Effect of Microarray Normalization in Resampling Approaches  
  *Christoph Bernau, Ferdinand Jamitzky, Anne-Laure Boulesteix*

- Protein Classification using Amphipathy Maps  
  *Anne-Sophie Knoeller, Hyung-Won Koh, Eyke Huellermeier*

- An Efficient Algorithm for the Detection and Classification of Horizontal Gene Transfer Events and Identification of Mosaic Genes  
  *Alix Boc, Dunarel Badescu, Abdoulaye Baniré Diallo, Vladimir Makarenkov*

**Visualization and Scaling**  
16:10 – 18:15  
Chair: **Wolfgang Gaul**  
Location: **HZ 9**

- A Quantification Method for Data Matrix with Many Missing Values  
  *Tadashi Imaizumi*

- Visualizing Data in Social and Behavioral Sciences: An Application of PARAMAP on Judicial Statistics  
  *Ulas Akkucuk, J. Douglas Carroll, Stephen L. France*

- Convex Optimization as a Tool for Correcting Dissimilarity Matrices for Regular Minimality  
  *Matthias Trendtel, Ali Ünlü*
On The Stress Function of Asymmetric Triangulation Scaling  
Kojiro Shojima

Properties of a General Measure of Configuration Agreement  
Stephen Lee France

### Classification, Discriminant Analysis and Supervised Learning 3  
16:10 – 18:15  
Chair: Jan W. Owsinski  
Location: IG 251

- Semiparametric Identification and Estimation in Hidden Markov Models  
  Daniel Hohmann, Hajo Holzmann

- Regularized Ideal Point Classification  
  Cor Ninaber

- A Comparison of Latent Class Analysis With and Without the Concept of Feature Saliency  
  Susanne Rumstadt, Baier Daniel

- Classification and Regression Trees with Covariates Missing at Random  
  Stephan Dlugosz

- Modeling Mortality in the WikiLeaks Afghanistan War Logs: Combining topicmodels and negative binomial recursive partitioning  
  Paul Hofmarcher, Reinhold Hatzinger, Kurt Hornik, Thomas Rusch

### Banking and Finance 2  
16:10 – 18:15  
Chair: Hermann Locarek-Junge  
Location: IG 254

- A Theoretical and Empirical Analysis of the Black-Litterman Model  
  Wolfgang Bessler, Dominik Wolff

- Vulnerability of Copula-VaR to Misspecification of Margins and Dependence Structure  
  Katarzyna Kuziak

- Probabilistic Neural Networks for the Decision Support of Investment Processes  
  Jan Andreas Indorf, Thorsten Poddig
Testing the Value-Added of Rebalancing Strategies for Stock-Bond-Portfolios

*Hubert Dicht, Wolfgang Drobetz, Martin Wambach*

Using Some Chosen Methods of Systemic Risk Analysis in Stock Portfolio Stress Testing

*Pawel Rokita*

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**Music Classification Workshop 2**

16:10 – 18:15

Chair: **Claus Weihs**

Location: **IG 454**

- Finding Two-level Structure in Field Recordings of Folk Music
  *Ciril Bohak, Matija Marolt*

- Design of Experiments in Signal Analysis
  *Nadja Bauer, Julia Schiffner, Claus Weihs*

- Applying Multiple Instance Learning to Automatic Music Classification
  *Hanna Lukashevich, Bernd Bischl, Claus Weihs*

- Recognising Cello Performers Using Timbre Models
  *Magdalena Chudy, Simon Dixon*

- Computational Prediction of High-Level Descriptors of Music Personal Categories
  *Günther Rötter, Igor Vatolkin, Claus Weihs*

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**Conference Dinner**

19:30 – open end

Location: **Casino, Festsaal 2**

*see page 8*
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<th>Chair(s)</th>
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<tbody>
<tr>
<td>9:00am</td>
<td>Plenary 4: Richard Samworth</td>
<td>HZ 6</td>
<td>Alfred Ultsch</td>
</tr>
<tr>
<td>10:00am</td>
<td>DAGM 8: Robot vision (09:55-10:45)</td>
<td>HZ 6</td>
<td>Claus Weihs</td>
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<tr>
<td>10:40am</td>
<td>Break: Coffee break</td>
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<tr>
<td>11:10am</td>
<td>DAGM 9: Machine learning (11:05-12:20)</td>
<td>HZ 6</td>
<td>Claus Weihs</td>
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<tr>
<td>11:15am</td>
<td>Lunch break</td>
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<tr>
<td>1:30pm</td>
<td>Closing: DAGM Best Paper Award &amp; Closing</td>
<td>HZ 6</td>
<td>Claus Weihs</td>
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<tr>
<td>1:50pm</td>
<td>Break: Lunch break</td>
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<tr>
<td>3:45pm</td>
<td>Closing: DAGM Best Paper Award &amp; Closing</td>
<td>HZ 6</td>
<td>Claus Weihs</td>
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</table>
3.8 Friday – DAGM

**Invited Talk**

09:00 – 09:55

*Chair: Alfred Ultsch*

*Location: HZ 6*

**Optimal Weighted Nearest Neighbour Classifiers**

**Richard Samworth**, University of Cambridge, UK

*see page 61*

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**Robot Vision**

09:55 – 10:45

*Chair: Joachim Denzler*

*Location: HZ 6*

- Probabilistic Object Models for Pose Estimation in 2D Images
  *Damien Teney, Justus Piater* 09:55

- Fusion of Audio- and Visual Cues for Real-Life Emotional Human Robot Interaction
  *Ahmad Rabie, Uwe Handmann* 10:20

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**Coffee Break**

10:45 – 11:05

*Location: HZ Foyer E3 & IG 457*

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**Machine Learning**

11:05 – 12:20

*Chair: Volker Roth*

*Location: HZ 6*

- Training of Sparsely Connected MLPs
  *Markus Thom, Roland Schweiger, Günther Palm* 11:05

- Minimizing Calibration Time for Brain Reading
  *Jan Hendrik Metzen, Su Kyoun Kim, Elsa Andrea Kirchner* 11:30

- Agnostic Domain Adaptation
  *Alexander Vezhnevets, Joachim Buhmann* 11:55

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**Lunch Break**

12:20 – 13:50
Program committee meeting in HZ 12 (for DAGM PC members only)

**Motion**

Chair: **Michael Black**

<table>
<thead>
<tr>
<th>Time</th>
<th>Title</th>
<th>Authors</th>
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<tr>
<td>13:50</td>
<td>Will the pedestrian cross? Probabilistic Path Prediction based on Learned Motion Features</td>
<td>Christoph Keller, Christoph Hermes, Dariu Gavrila</td>
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<tr>
<td>14:15</td>
<td>Simultaneous Reconstruction and Tracking of non-planar Templates</td>
<td>Sebastian Lieberknecht, Selim Benhimane, Slobodan Ilic</td>
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<tr>
<td>14:40</td>
<td>Multi-target Tracking in Crowded Scenes</td>
<td>Jie Yu, Dirk Farin, Bernt Schiele</td>
</tr>
<tr>
<td>15:05</td>
<td>Efficient and Robust Shape Matching for Model Based Human Motion Capture</td>
<td>Gerard Pons-Moll, Laura Leal-Taixé, Tri Truong, Bodo Rosenhahn</td>
</tr>
</tbody>
</table>

**DAGM Best Paper Awards & Closing**

15:45 – 16:00
Optimal Weighted Nearest Neighbour Classifiers
Richard Samworth, University of Cambridge, UK

Classifiers based on nearest neighbours are perhaps the simplest and most intuitively appealing of all nonparametric classifiers. Arguably the most obvious defect with the k-nearest neighbour classifier is that it places equal weight on the class labels of each of the k nearest neighbours to the point being classified. Intuitively, one would expect improvements in terms of the misclassification rate to be possible by putting decreasing weights on the class labels of the successively more distant neighbours. In this talk, we determine the optimal weighting scheme, and quantify the benefits attainable. Notably, the improvements depend only on the dimension of the data, not on the underlying population densities. We also show how the bagged nearest neighbour classifier can be regarded as a weighted nearest neighbor classifier, and compare its performance with both the unweighted and optimally weighted nearest neighbour classifiers.

Multivariate Outlier Detection and robust clustering
Andrea Cerioli, University of Parma, Italy

Solving Clustering Problems by the Hyperbolic Smoothing Approach
Adilson Elias Xavier, Centro de Tecnologia, Rio de Janeiro
Coffee Break  
10:40 – 11:10  
Location: HZ Foyer E3 & IG 457

Clustering and Unsupervised Learning 5  
11:10 – 13:15  
Chair: Angela Montanari  
Location: HZ 7

- Clustering by Moving Centroids using Simulated Annealing  
  Mario Villalobos-Arias, Eduardo Piza-Volio, Javier Trejos

- Comparison of Spectral Clustering and Cluster Ensembles Stability  
  Dorota Rozmus

- Model Based Clustering for Three-way Data  
  Cinzia Viroli

- Some Novel Upper Bounds for the Number of Modes of Mixture Densities  
  Grigory Alexandrovich

Bioinformatics and Biostatistics 2  
11:10 – 13:15  
Chair: Hans Kestler  
Location: HZ 8

- Complexity Selection and Cross-validation in Lasso and Sparse PLS with High-dimensional Data  
  Anne-Laure Boulesteix, Adrian Richter, Christoph Bernau

- Active Learning for Automated Identification of Components in 3D Ultramicroscopy Images  
  Bernd Bischl, Laura Schlieker, Ulrich Leischner, Hans-Ulrich Dodt, Claus Weihs

- Classifier Ensemble Diversity in a Repeated Measurements Setup  
  Werner Adler, Sergej Potapov

- Prediction of Sub-cellular Protein Localization for Specialized Compartments using Time Series Kernels  
  Marco Mernberger, Eyke Huellermeier

- Using Regression Trees for Raw Effluents Quality Prediction  
  Orlando Belo, Antonio Sanfins
### Social Networks and Clustering 11:10 – 13:15

**Chair:** Hans-Joachim Mucha  
**Location:** HZ 9

- Blockmodeling of Co-authorship Networks  
  *Luka Kronneger, Anuška Ferligoj, Patrick Doreian*

- Modified Randomized Modularity Clustering: Adapting the Resolution Limit  
  *Andreas Geyer-Schulz, Michael Ovelgönne*

- Similarity Learning with a Collection of Matrices and Tensors  
  *Clément Grimal, Gilles Bisson*

- Cluster it! Semiautomatic splitting and naming of classification concepts.  
  *Dominik Stork, Kai Eckert, Heiner Stuckenschmidt*

### Statistical Data Analysis, Models and Applications 11:10 – 13:15

**Chair:** Patrice Bertrand  
**Location:** IG 251

- One-mode Three-way Analysis Based on Result of One-mode Two-way Analysis  
  *Satoru Yokoyama, Akinori Okada*

- Interactive Principal Components Analysis: a new technological resource in the classroom  
  *Carmen Villar-Patiño, Miguel Angel Mendez-Mendez, Carlos Cuevas-Covarrubias*

- Knowledge Creation in Research and Development Entities in Poland and the Other European Union Member States  
  *Krystyna Romaniuk*

- On Dynamic Weighted Majority algorithm based on Genetic Algorithm  
  *Dhouha Mejri, Mohamed Limam, Claus Weihs*

- Principal Components for Gaussian Mixtures  
  *Carlos Cuevas-Covarrubias*

### Banking and Finance 3 11:10 – 13:15

**Chair:** Anna Rutkowska-Ziarko  
**Location:** IG 254
- Comparison of Some Chosen Tests of Independence of Value-at-Risk Violations  
  *Krzysztof Piontek*

- Dynamic Principal Component Analysis: a banking Customer Satisfaction evaluation  
  *Paolo Mariani, Caterina Liberati*

- Integrated Risk Management in Practice: How reliable is it?  
  *Peter Grundke*

- The Classification of Mutual Funds Based on the Management Style – Quantile Regression Approach  
  *Agnieszka Orwat-Acedanska, Grazyna Trzpiot*

**Multivariate Statistical Methods 3**  
**11:10 – 13:15**  
**Chair:** Paul H. C. Eilers  
**Location:** IG 454

- Clustering Covariates Regression  
  *Eva Vande Gaer, Eva Ceulemans, Iven Van Mechelen*

- Model Estimation and Clustering through Schoenberg Transformations  
  *François Bavaud, Aris Xanthos*

- Principal Covariates Regression: How to Weight and Rotate?  
  *Marlies Vervloet, Eva Ceulemans, Katrijn Van Deun, Wim Van den Noortgate*

- The Influence of the Size of the Scale in a Statistical Model  
  *Daniela Nappo*

- Sensitivity of Divergence Measures as Structure Similarity Measurements  
  *Ewa Wędrowska*

**Lunch Break**  
**13:15 – 13:50**

**Closing of GfKL/IFCS Tracks 2011 and Presentation GfKL 2012**  
**13:30 – 13:50**  
**Chair:** Claus Weihs, Lars Schmidt-Thieme  
**Location:** HZ 7
DAGM-ÖAGM 2012, Graz, Austria

28.-31. August 2012
http://www.dagm2012.org/

General Chair: Horst Bischof
Program Co-Chairs: Axel Pinz
                        Thomas Pock
Honorary Chair: Franz Leberl

Important Dates:
15.04.2012: Paper submission
18.06.2012: Notification
28.06.2012: Camera ready paper

Invited Speakers:
Francis Bach, INRIA
Jiri Matas, Czech Technical University, Prague
Antonio Torralba, Massachusetts Institute of Technology