Graduiertenkolleg / PhD Program
Computer and Information Science

Summer School 2009

Photo by Böhringer

Our DFG-sponsored PhD program at the University of Konstanz conducts a weeklong

- ▶ Summerschool "Explorative Analysis and Visualization of Large Information Spaces"
- ▶ 14. September - 18. September 2009
- ▶ Gaschurn, Montafon, Austria

The summerschool contains tutorials and workshops on

- ▶ data mining
- ▶ image processing

and poster/oral presentations of all participating students. The general language is English. About 25 of our doctoral students and some advisors will participate.
This year the summerschool is also open for interested female computer science students from all other universities, see below.

View some images

date

- ▶ 14. September - 18. September 2009
- ▶ For **information on the travel to Gaschurn** see Monday, Sep 14, on our time schedule.

location

- ▶ Gaschurn, Austria
- ▶ Sporthotel Silvretta Nova

special opportunity only for female advanced students in computer science

This year our funding agency, the DFG, supports our program with funding specifically for advanced female master or diploma students in computer science, in order to encourage young women to consider a career in engineering by entering a PhD program like ours. Our funds will cover

- ▶ travel costs,
- ▶ accommodation,
- ▶ food (full board)

for about 20 such participants.

Therefore we invite the best and interested female students, that are advanced or have a completed CS master degree of 2009, to apply for participation at our summerschool this year. If you like to participate, please send us your application as a PDF to gksekr[at]uni-konstanz.de covering the following topics:

▶ Your bachelor/prediploma degree certificates <u>OR</u> your master/diploma degree certificates and the transcripts reflecting courses taken and grades achieved,
▶ your curriculum vitae,
▶ an abstract of your master thesis including name of your advisor <u>OR</u> your field of interest for planned master thesis.

Dates:

▶ Applications are accepted until no places are left.

The following students took advantage of this opportunity:

from left to right: Denise Hippler, Marina Litvinova, Anna Zubenko, Dina R. Khattab, Joselene Marques, Emitza Guzman, Stefanie Mayer, Katarina Kanevceva, Gissel Velarde, and in the middle Prof. Dr. Deussen
not on the picture: Angelika Garz, Britta Weber

flyer "Invitation to summer school"

Flyer containg an overview of the informations as <u>PDF</u>.

tutorials

▶ Kernel Methods for Classification: From Theory to Practice
    ▶ Prof. Dr. Michael Berthold
    ▶ Prof. Dr. Ulrik Brandes
    ▶ Martin Mader
    ▶ Uwe Nagel
▶ 3D Scan and Image Processing Techniques
    ▶ Prof. Dr. Robert Sablatnig
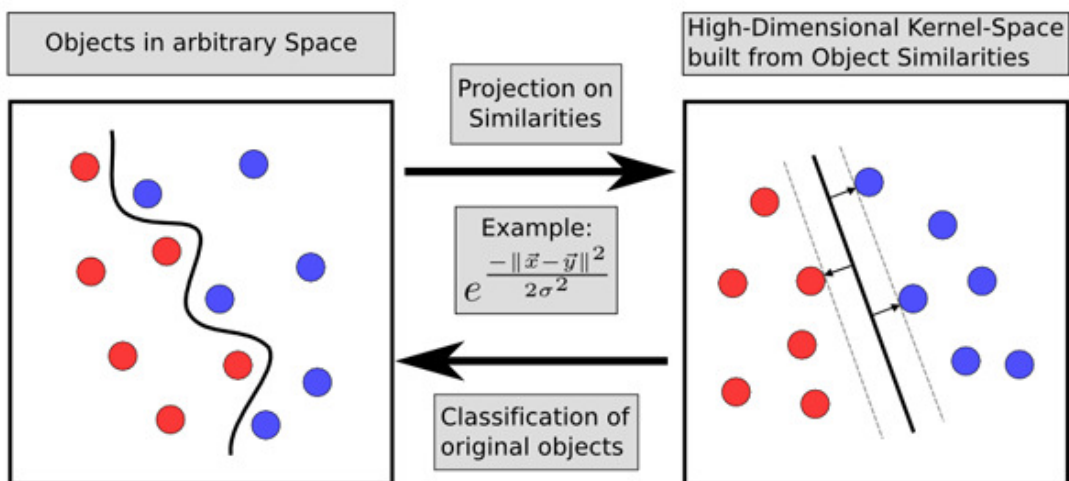   ▶ Dr. Martin Kampel

tutorial descriptions

Kernel Methods for Classification: From Theory to Practice
by Prof. Dr. Michael Berthold, Prof. Dr. Ulrik Brandes, Martin Mader, Uwe Nagel

We will introduce the well-known kernel methods for classification tasks. With this method linear classification methods are extended to separate input data with non-linear separators based on nearly arbitrary object similarities. In a first part we give a short introduction to kernel theory and its use in

classification problem. This theoretical knowledge will then be consolidated by direct application in the second part. In a hands-on session we will experiment with different types of kernels for a number of classification problems (in a state of the art data-mining environment). Interested attendees will have the opportunity to develop their own kernel(s) in a competition on a given classification task.

Winners of the Competition

from left to right: Andreas Stoffel, Denise Hippler, Roman Byshko

3D Scan and Image Processing Techniques
by Prof. Dr. Robert Sablatnig, Dr. Martin Kampel

This tutorial shows how image processing algorithms are used for practical, industrial applications. Basic algorithms and techniques are discussed and some of the major tasks of are shown. Image processing operations can be roughly divided into three major categories, Image Compression, Image Enhancement and Restoration, and Measurement Extraction.

The second major topic of this tutorial is called 3d machine vision. 3D scanners and image acquisition systems are rapidly becoming more affordable and allow to build highly accurate models of real 3D objects in a cost- and time-effective manner. This tutorial will present the potential of this technology, review the state of the art in model acquisition methods, and will discuss the 3D acquisition pipeline from physical acquisition until the final digital model. First, different optical scanning techniques (e.g. structured light triangulation, time-of-flight approaches) will briefly be presented. In the area of registration, we will consider both the problems of initially aligning individual scans, and of refining this alignment with variations of the Iterative Closest Point method. We will then look at various ways in which surface properties such as color and reflectance can be extracted from acquired imagery. Finally, we will examine techniques for the efficient management and rendering of very large, attribute-rich meshes, algorithms to represent the 3d-world in the computer are presented.

Furthermore for every image processing and 3d-acquisition strategy an industrial application is shown. The tutorial covers the development from the automatisation plan to the concrete system, from image acquisition to control structures and performance evaluation.
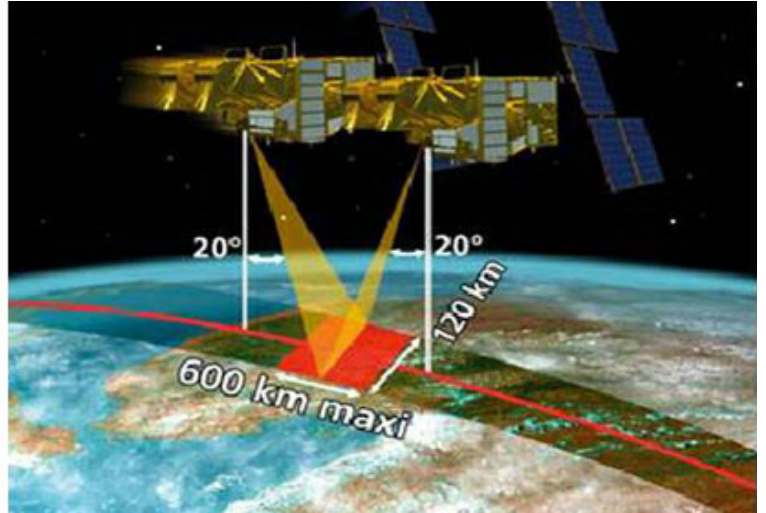
postersession by invited students

Texture based document layout analysis of glagolitic manuscripts
    Angelika Garz, TU Vienna, Austria

Virtual News Presenter
    Denise Hippler, State University of Campinas, Brazil, and WSI/GRIS University of Tübingen, Germany

High-Resolution mapping of the structural core of human cerebral cortex
    Katarina Kanevceva, University Ss. Cyril and Methodius, Macedonia

Geometry compression of polygon mesh models
    Dina R. Khattab, Ain Shams University, Egypt

Integrated network systems in a town
    Marina Litvinova, Kharkov National University of Radioelectronic, Ukraine

Dimensionality reduction and relevance feedback: Powerful techniques on CBIR systems
    Joselene Marques, University of Sao Paulo, Brazil

Anaglyph stereo for the realtime synthesis of images
    Stefanie Mayer, Eberhard-Karls-Universität Tübingen, Germany

Enabling physical reasoning through 3D simulation
    Emitza Guzman Ortega, TU Munich, Germany

Segmentation of microtubules from electron tomograms
    Britta Weber, Free University Berlin, Germany

Database parameter optimization for welding machines
    Gissel Velarde, Electrical R&D Department, Miebach GmbH

Application of tabu search to solving problems of non-linear programming
    Anna Zubenko, Kyiv School of Economics, Ukraine

    best poster awards
        Denise Hippler, Britta Weber, Joselene Marques

presentations

Assessment of observation importance in large scale estimation problem
    by Vladimir Bondarenko
Mathematical models for race-bike time trials
    by Thorsten Dahmen
Blended library
    by Mathias Heilig
Multi display environment
    by Mahsa Jenabi
PDScan - "Photo Data Scan" density-based clustering algorithm and its applications
    by Slava Kisilévich
Dynamic visualization of evolving document collections
    by Miloš Krstajić
Frequency-based stippling
    by Sören Pirk

Content based document structure analysis
>by Andreas Stoffel

Document cards: A top trump visualization for documents
>by Hendrik Strobelt

Quasi-semantic properties and their usage in document analysis
>by Daniela Oelke

Connecting insect brain imaging to data mining tools - a neuroimage ectension for the KNIME platform
>by Martin Strauch

Visualization of a tag cloud
>by Iris Adä

Sparse color salient points for object retrieval and categorization
>by Julian Stöttinger

Integrating data mining & data warehousing/databases
>by Nafees Rehman

best presentation
Daniela Oelke

Last modified July 13, 2010 by *webmaster.*