Geometric Properties from Incomplete Data

Schloß Dagstuhl. Wadern, Germany
March 21 – March 26, 2004

Chairmen

Reinhard Klette (New Zealand), Ryszard Kozera (Australia),
Lyle Noakes (Australia) and Joachim Weickert (Germany)

Monday morning

09.00 Opening: Reinhard Klette

09:10 - 12

SESSION 1: SHAPE
chair: Peter Gritzmann

09:10-10:00 Christoph Schnörr , Universität Mannheim
Estimation of Volumes from Incomplete Projection Data

10:00-10:25 S. Collings , Univ. of Western Australia - Nedlands
Shape Recovery of a Strictly Convex Solid from N-Views

10:25-10:40 BREAK

10:40-11:30 Ulrich Eckhardt , Universität Hamburg
Shape from incomplete boundary data

11:30-12:00 Otmar Scherzer , Universität Innsbruck
Some Methods for Shape Recovery in Inverse Problems

Monday afternoon - definition of working groups

14:00 – 14:15 Definition of Working Groups
chairs: Lyle Noakes, Joachim Weickert

Monday afternoon - first sessions of working groups
14:15 – 15:00 **Definition of Working Groups**

NN (chair: NN) – Room S 003  
NN (chair: NN) – Room N 033  
NN (chair: NN) – Room S 025  
NN (chair: NN) – Lecture Hall

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**Monday late afternoon**

16 - 18 **SESSION 2: SURFACES**

chair: Kenichi Kanatani

16:00-16:45  Leo Dorst , University of Amsterdam  
Combining Orientation Estimates Optimally

16:45-17:10  Edwin Hancook , University of York  
Graph Spectral Methods for Surface Reconstruction from Gauss Maps

17:10-17:35  Yukiko Kenmochi , Okayama University  
Surface Curvatures in a Digital Space

17:35-18:00  Knut M. Morken , University of Oslo  
On High Order Approximation of Parametric Surfaces

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**Monday evening after dinner**

19 **PERSONAL INTRODUCTIONS:**  chair: Ryszard Kozera

location: White Hall  (Room S 101)

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**Tuesday morning**

9 - -12 **SESSION 3: CURVES**

chair: Nahum Kiryati

09:00-09:30  Lyle Noakes , Univ. of Western Australia - Nedlands  
Either Interpolation in Curved Spaces or Digitization

09:30-10:00  Rida T. Farouki , Univ. of California at Davis  
Algorithms for Spatial Pythagorean-Hodograph Curves

10:00-10:20  BREAK

10:20-10:50  Valentin E. Brimkov , State University of New York - Fredonia  
Linearization of digital Curves and Surfaces
10:50-11:20 Atsushi Imiya, Chiba University
Vectorization of 2 and 3D Digital Curves by Nonlinear Optimization

11:20-12.00 Ryszard Kozera, Univ. of Western Australia - Nedlands
On Complexity of Length Estimation from Data

Tuesday afternoon - working groups

14-15.30 group meetings, including the following talks
(or: talks may also be moved into NN slots)

Mohamed Tajine, University of Strasbourg
to be announced

Nahum Kiryati, Tel Aviv University
(to be announced)

Isabelle Debled-Rennesson, LORIA - Nancy
(to be announced)

Tuesday late afternoon

16 – 18 SESSION 4: MOTION
chair: Gerald Sommer

16:00-16:30 Joachim Weickert, Universität Saarbrücken
Confidence Measures for Variational Optic Flow Methods

16:30-17:00 Richard Hartley, Australian National University - Canberra
Affine structure & motion from incomplete Data via Powerfactorization

17:00-17:30 Kenichi Kanatani, Okayama University
Multibody Motion Segmentation of a Video Image Sequence

17:30-18:00 Leo Dorst, University of Amsterdam
Representation of Rigid Body Motion using Geometric Algebra

Tuesday evening after dinner

19.30 someone has a Slide Show? (NN)
Wednesday morning

9 - 12  **SESSION 5: GEOMETRIC COMPUTING**  
chair: Leo Dorst

09:00-09:30  Gerald Sommer, Universität Kiel  
Regression of Data under Geometric Constraints

09:30-10:00  Michael Hofer, TU Wien  
A Feature Sensitive Metric with Applications in Geometric Computing

10:00-10:15  BREAK

10:15-10:40  Wayne M. Lawton, National University of Singapore  
Approximation subject to nonlinear constraints

10:40-11:10  Harry McLaughlin, Rensselaer Polytechnic
Interpolating Data in Cellular Arrays

11:10-11:35  Reinhard Klette, University of Auckland  
Multigrid Convergence of Property Estimators in Picture Analysis

11:35-12:00  Ingela Nystroem, University of Uppsala  
Measuring 2D Boundary using A Fuzzy Approach

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Wednesday afternoon / evening - no official program

Bus tour to Idar-Oberstein, followed by a winery visit, wine tasting and dinner

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Thursday morning

9-12  **SESSION 6: APPLIED GEOMETRY**  
chair: Christoph Schnörr

09:00-09:45  Alfred M. Bruckstein, Technion - Haifa  
Applied Geometry

09:45-10:10  Vojtech Franc, Czech Technical University  
Greedy Kernel Principal Component Analysis

10:10-10:25  BREAK

10:25-11:35  Wladislaw Skarbek, Warsaw Univ. of Technology  
Face Detection and Normalization using Gradient Images
11:10-11:35 Ron Kimmel, Technion - Haifa
3D Face Recognition without 3D Reconstruction of the Face

11:35-12:00 Michael Felsberg, Linköping University and
Norbert Krüger, Aalborg University Esbjerg
Symbol-based and Signal-based Representations

Thursday afternoon - working groups

14-15.30 group meetings, including the following talks
(or: talks may also be moved into NN slots)

Helene Dörksen, Universität Hamburg
Convex and Concave Parts of Digital Curves

Andrés Bruhn, Universität Saarbrücken
Fast Algorithms for Nonlinear Variational optic flow computation

Nir Sochen, Tel Aviv University
(to be announced)

Gabriele Steidl, Universität Mannheim
(to be announced)

Charles A. Micchelli, National University of Singapore
(to be announced)

Klaus Höllig, Universität Stuttgart
(to be announced)

Hrushikesh N. Mhaskar, California State Univ. - Los Angeles
(to be announced)

Thursday late afternoon

16-18 SESSION 7: DIGITAL TOMOGRAPHY & NUMBER THEORY
chair: Valentin Brimkov

16:00-16:30 Peter Gritzmann, TU München
(to be announced)

16:30-17:00 Alain Daurat, University of Strasbourg
Reconstruction of Binary Images from Noisy X-Rays

17:00-17:30 Jovisa Zunic, University of Exeter
(to be announced)
Thursday evening after dinner

19.30 **WG PRELIMINARY REPORTS:**
chairs: Lyle Noakes, Joachim Weickert

**round-table discussion**
chairs of working groups present their reports

Friday morning

9-12 **SESSION 8: GEOMETRIC COMPUTING**
chair: Alfred M. Bruckstein

09:00-09:30 Thomas Bülow, Philips - Hamburg
Extraction of the Coranary Artery Tree from Cardiac Multi-Slice CT Data

09:30-10:00 Seng Luan Lee, National University of Singapore
Asymptotic Normality of Refinable Functions

10:00-10:15 BREAK

10:15-10:45 NN

10:45-11:15 NN

11:15-12:00 NN