



Statistical and Geometrical Approaches for Visual Motion Analysis

14th Workshop "Theoretical Foundations of Computer Vision"

Schloß Dagstuhl, Wadern, Germany
July 13 – July 18, 2008

Chairmen

Daniel Cremers (Germany), **Bodo Rosenhahn** (Germany),
and **Alan Yuille** (USA)

Monday morning

08:45-09:00	Bodo Rosenhahn Opening and Introduction
09:00 – 12:00	<u>SESSION 1: Motion Analysis</u> chair: Alan Yuille
09:00-09:30	<i>Christoph Garbe</i> Highly accurate approaches to motion estimation – quantifying fluid dynamical transport phenomena
09:30-10:00	<i>Christoph Schnoerr</i> On Variational Representations and Estimation of Motion Patterns
10:00-10:30	BREAK
10:30-11:00	<i>Thomas Pock</i> Fast and Accurate Optical Flow Estimation: Primal-Dual Schemes and Second Order Priors
11:00-11:30	<i>Tal Nir</i> Over-parameterized Variational Optical Flow
11:30-12:00	<i>Thomas Schoenemann</i> Motion Layer Decomposition

Monday afternoon - definition of working groups

14:00 – 14:30 **Definition of Working Groups**

chair: Bodo Rosenhahn

Monday afternoon - first sessions of working groups

14:30 – 16:00 **Working Groups**

NN (chair: NN) – Main Lecture Hall

NN (chair: NN) – Room N 033

NN (chair: NN) – Billiard room S 105

NN (chair: NN) – Wappensaal S 111

Monday late afternoon

16 - 18 **SESSION 2: Shape and Motion**

chair: Reinhard Klette

16:00-17:00 *Yuri Boykov*

Graph cuts for dynamic applications

16:30-17:00 *Gianfranco Doretto*

Modeling dynamic scenes: Combining appearance, shape, and motion

17:00-17:30 *Daniel Cremers*

Dynamical Shape Priors for Implicit Shape Representations

17:30-18:00 *Timo Kohlberger*

Ventricle segmentation in 3D medical imaging sequences by using 4D shape priors and temporal coherence

Monday evening after dinner

19 **PERSONAL INTRODUCTIONS:** chair: Alan Yuille

Location: White Hall (Room S 101)

Tuesday morning

9 - 12

SESSION 3: Learning

chair: Daniel Cremers

- 09:00-09:30 *David Hogg*
Learning object categories from motion patterns
- 09:30-10:00 *Martin Giese*
Representation of body motion by learning of primitives in
brains and machines
- 10:00-10:30 BREAK
- 10:30-11:00 *Vasek Hlavac*
Pose primitive based human action recognition in videos or
still images
- 11:00-11:30 *Volker Krüger*
Action recognition and synthesis using parametric Hidden
Markov Models
- 11:30-12:00 *Hanspeter Mallot*
Vision-based egomotion detection and cognitive mapping

Tuesday afternoon - working groups

14-15.30 Group meetings

Tuesday late afternoon

16 – 18

SESSION 4: 2D and 3D Analysis

chair: John Barron

- 16:00-16:30 *Martin Rumpf*
A Rudin Osher Fatemi Approach to Optical Flow
- 16:30-17:00 *Hanno Scharr*
An affine optical flow model for dynamic surface
reconstruction
- 17:00-17:30 Norberto Grzywacz
Human Measurement of Optic-flow Parameters:
Psychophysics and Bayesian Modeling
- 17:30-18:00 *Alan Yuille*
Motion

Wednesday morning

9 - 12 **SESSION 5: Human Tracking**

chair: Hans-Peter Mallot

- 09:00-09:30 *Vittorio Ferrari*
2D human pose estimation in TV shows
- 09:30-10:00 *Thomas Brox*
Kernel density estimation for human motion tracking
- 10:00-10:30 **BREAK**
- 10:30-11:00 *Andrew Glennerster*
Human representation of space in an expanding virtual room
- 11:00-11:30 *Christian Schmaltz*
Handling Occlusions in Region Based Pose Tracking by
Using Several Regions
- 11.30-12:00 *Bodo Rosenhahn*
Modeling and Tracking of Constricted Kinematic Chains

Wednesday afternoon / evening - no official program

- 13.15 Group photo (stairs to the chapel)
- 13.30 Bus tour to NN ...

Thursday morning

9-12 **SESSION 6: Image processing**

chair: Volker Krüger

- 08:45-09:15 *Benjamin Berkels*
A Variational Framework for Simultaneous Motion
Estimation and Restoration of Motion-Blurred Video
- 09:15-09:45 *Andres Bruhn*
Deinterlacing with Motion-Compensated Anisotropic
Diffusion
- 09:45-10:15 *Vladimir Kolmogorov*
Feature correspondence via graph matching and global
optimization
- 10:15-10:30 **BREAK**

- 10:30-11:00 *Stefan Roth*
Discrete-Continuous Optimization for Optical Flow Estimation
- 11:00-11:30 *S.S. Beauchemin and J.L. Barron*
Statistical and Numerical Analysis of Image Noise Amplification
- 11:30-12:00 *Rudolf Mester*
Motion beyond Yosemite:
Aspects of Modelling, Evaluation and Industrial Relevance in Motion Analysis.

Thursday afternoon - working groups

- 14:00-15:30 group meetings

Thursday late afternoon

16-18 **SESSION 7: Driver Assistance**

chair: Vasek Hlavac

- 16:00-16:30 *Reinhard Klette*
Stereo image sequence analysis in the context of driver assistance
- 16:30-17:00 *Andreas Wedel*
The "Warp Cut" approach for obstacle / vehicle foreground / background segmentation
- 17:00-17:30 *Tobi Vaudrey*
Efficient Dense Scene Flow from Sparse or Dense Stereo Data
- 17:30-18:00 *Norbert Krüger*
Extracting semantic maps using motion information

Thursday evening after dinner

19.30 **Round-table discussion**

Chair: *Martin Giese*: What can the modeling of motion recognition in biological systems and technical approaches for motion recognition and modeling learn from each other ?

Friday morning

9-12

SESSION 8: Computer Vision

chair: Yuri Boykov

- 08:45-09:15 *Atsushi Imiya*
Statistical vs. Geometrical methods in Robot Vision
- 09:15-09:45 *Yiannis Aloimonos*
A grammar of the visual world
- 09:45-10:15 *Christophe Avenel*
Tracking closed curves with non-linear stochastic filters
- 10:15-10:30 BREAK
- 10:30-11:00 *Christoph Guetter*
Statistical Intensity Priors for Multi-Modal Image
Registration: Applications in Computer Vision and Medical
Imaging
- 11:00-11:30 *Lennart Wietzke*
The Conformal Monogenic Signal of Image Sequences
- 11:30-12:00
Reports of Chairs of Working Groups

**Participants: please send submission for the edited book (LNCS Springer)
by end of September 2008 to dcremers@cs.uni-bonn.de
(pdf format, min. 15 pages, max 25 pages, LNCS tex style)**

**Reviewing will be in October/November, and camera-ready manuscripts
(all tex sources) are due by end of December 2008**