9th Workshop "Theoretical Foundations of Computer Vision"

Evaluation and Validation of Computer Vision Algorithms

Chairmen

Robert Haralick (Seattle), Reinhard Klette (Auckland),
H. Siegfried Stiehl (Hamburg), Max Viergever (Utrecht)

Monday morning

9       Opening:             Reinhard Klette, Robert Haralick

9 - 12  GENERAL:            chair: John Barron

Patrick Courtney (Manchester): A perspective from a vision company
Arnold W. M. Smeulders (Amsterdam): Design and performance in vision
Wolfgang Förstner (Bonn): Methodology and experiences with the evaluation
and characterization of CV algorithms
Radek Marik (Praha): Quality in computer vision

Monday afternoon - first sessions of working groups

14      Definition of Working Groups:

Performance analysis, web sites and teaching computer vision: Robert Haralick, Ales Leonardis, ...
Task dependence and ground truth: Max Viergever, Piero Zamperoni, ...
Problem specification: Wolfgang Foerstner, ...
Modular embedding and performance measures: Arnold Smeulders, Maria Petrou, ...
Monday late afternoon

16 - 18  **STATISTICS:**  chair: Georgy Gimel'farb

Robert Haralick (Seattle): Propagating covariance in computer vision
Naoya Ohta (Kiryu): Computer vision problems viewed as statistical inference  
(co-author: Kenichi Kanatani)
Atsushi Imiya (Hamburg): Randomized methods for computer vision: theoretical analysis

Monday evening after dinner

19  **PERSONAL INTRODUCTIONS:**  chair: Max Viergever  
≤ 5 min per person

Tuesday morning

9 - 10.20  **SEGMENTATION / FEATURE DETECTION:**  chair: Vaclav Hlavac

Wiro Niessen (Utrecht): Validation and accuracy of segmentation algorithms
Max Viergever (Utrecht): Model-based evaluation of image segmentation methods (co-authors: ASE Koster, KL Vincken, OC Zander, CN de Graaf)
Murray Loew (Washington, DC): Issues in multi-modality medical image registration: data, algorithms, and metrics

10.30 -12  **DATABASES / TESTBEDS:**  chair: Dov Dori

Patrick Courtney (Manchester): Databases for testing vision algorithms
Daniel Skocaj (Ljubljana): Using the web for testing vision algorithms (co-authors: Ales Leonardis, Franc Solina)
Ishin Phillips (Seattle): Methodology for using UW document databases
Robert Haralick (Seattle): Software validation

Tuesday afternoon - working groups

14-15.30  group meetings

Tuesday late afternoon

16 - 18  **PERFORMANCE EVALUATION:**  chair: Maria Petrou

Dov Dori (Haifa): Object-process methodology as a framework for evaluation
Vaclav Hlavac (Praha): Performance evaluation of view interpretation for 3D scenes

Peter Meer (Piscataway): The use of resampling methods for performance evaluation (co-authors: B. Matei, D. Tyler)

Piero Zamperoni (Braunschweig): Dissimilarity measures between gray-scale images as a tool for operator performance assessment

**Tuesday evening after dinner - discussion**

19.30 **PROGRESS in WORKING GROUPS:** chair: H. Siegfried Stiehl
brief statements of chairs of working groups

**Wednesday morning**

9 - 12 **RECONSTRUCTION and RECOGNITION:** chair: Murray Loew

Maria Petrou (Guildford): Sensitivity analysis of projective geometry

Dov Dori (Haifa): Performance evaluation of graphics recognition

Ihsin Phillips (Seattle): A Benchmark for the performance evaluation of Engineering Drawings (co-author: Atul Chabra)

H. Siegfried Stiehl (Hamburg): Validation of corner/landmark detectors (co-author: Karl Rohr)

Ales Leonardis (Ljubljana): Performance evaluation of eigenimage recognition (co-author: Horst Bischof)

**Wednesday afternoon / evening - working groups / no official program**

**Thursday morning**

9-12 **OPTICAL FLOW / LOW-LEVEL MOTION:** chair: Naoya Ohta

Bernd Jaehne (Heidelberg): Performance characteristics of low-level motion estimators in spatiotemporal images

John Barron (London, Ontario): Using optical flow to measure 2D and 3D corn seeding growth

Stephen S. Beauchemin (Trois Rivières): The evaluation of discontinuous optical flow methods

Luc L.M.J. Florack (Copenhagen-East): Optic flow

Mads Nielsen (Copenhagen-East): Evaluation by characterization of genetic output: example - optic flow
Thursday late afternoon

16-18 **MOTION / TRACKING / VIDEO / STEREO:**
chair: Bernd Jaehne

Chi-Fa Chen (Kaohsiung): Performance evaluation of using motion estimation in video coding
Visvanathan Ramesh (Princeton): Performance characterization in the context of video analysis
Dmitry Chetverikov (Budapest): Performance evaluation of feature point tracking algorithms
Georgy Gimel'farb (Auckland): Pros and cons of using ground control points to validate stereo and multiview terrain reconstruction

Thursday evening after dinner

19.30 **WG PRELIMINARY REPORTS:**
chair: Robert Haralick
round-table discussion

Friday morning

9-10.30 **3D OBJECTS AND SCENES:**
chair: Stephen Beauchemin

Detlef Richter (Wiesbaden): Error analysis of a stereo image based robot control system
Reinhard Klette (Auckland): Multigrid convergence of surface approximations & Evaluation of finite difference-based algorithms in linear shape from shading (co-author: Ryszard Kozera (Perth))
Fridrich Sloboda (Bratislava): On Jordan surface approximation: a topological approach

11-12 **CONCLUDING DISCUSSION:**
chairs: Patrick Courtney, Wolfgang Förstner

proposal for the subject/co-chairs of the 10th workshop "Theoretical Foundations of Computer Vision" in the year 2000
Info: workshop proceedings, Seminar Report

Friday afternoon - WG discussions

Friday evening

19.30 **Survivors evening**