6th International Conference CAIP '95

The CAIP conference is organized biennially with the aim of presenting excellent scientific results and stimulating contacts among researchers. The conference traditionally makes a bridge between the Eastern/Central European research community and the world scientists in the fields of *pattern recognition, image analysis, computer vision*, and related areas.
The scientific program of the conference comprises plenary lectures given by invited speakers and contributed papers presented in conference sessions. The proceedings are published by Springer Verlag in the series Lecture Notes in Computer Science, volume LNCS 970.

Scope of the Conference

Image analysis	Pattern recognition
Computer vision	Pictorial recognition and learning
Human vision modelling	Vision for virtual world
Active and real time vision	Applications

Organizers

Czech Pattern Recognition Society
Czech Society for Cybernetics and Informatics
Czech Technical University
Czech Society for Biomedical Engineering and Medical Informatics

Conference Chairs

Ruzena Bajcsy	University of Pennsylvania, USA
Gerald Sommer	Christian-Albrechts-Universität Kiel, Germany

Program Committee

R. Bajcsy, University of Pennsylvania, USA
I. Bajla, Slovak Academy of Sciences, Slovakia
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W. Skarbek, Polish Academy of Sciences, Poland
J. Sklansky, University of California, USA
F. Solina, University of Ljubljana, Slovenia
G. Sommer, Christian-Albrechts-Universität Kiel, Germany

Additional Referees

J. Arnspang (Denmark), A. Belaid (France), M. O. Berger (France), H. Bischof (Austria), P. Bobet (France), L. Bobrowski (USA), L. Bogoni (USA), B. Boufama (France), R. Boyle (UK), P. Brand (France), W. Burger (Austria), U. Cahn von Seelen (USA), S. Dellepiane (Italy), Y. Demazeau (France), A. Elms (UK), H. Farid (USA), F. Faure (France), J. Flusser (Czech Republic), J. Gee (USA), P. Gros (France), D. Halber (France), R. Horaud (France), T. Inigo (USA), A. Jaklič (Slovenia), J. Jolion (France), T. Joshi (USA), I. A. Kakadiaris (USA), P. Kolář (Czech Republic), J. Košecká (USA), S. Kovačič (Slovenia), M. Kubát (Austria), P. Lechleider (USA), A. Leonardis (Slovenia), J. M. Letang (France), B. C. Madden (USA), J. Matas (UK), J. Maver (Slovenia), J. Novovičová (Czech Republic), J. Parkkinnen (Finland), J. Pauli (Germany), L. Quan (France), R. Šára (Czech Republic), C. Schmid (France), M. Šonka (USA), A. Speis (USA), M. Šrámek (Slovakia), T. Suk (Czech Republic), E. Tao (USA), M. Zerroug (USA).

Many thanks to all the referees for their hard work in the reviewing process.

Local Organizing Committee

V. Hlaváč (chair), J. Flusser, E. Matysková, T. Pajdla, P. Palatka, R. Šára, S. Šimberová, V. Smutný

GENERAL INFORMATION

Conference Secretariat During the Conference

(from September 5 to September 8):

Hotel KRYSTAL
room 180
José Martího 2/407
160 00 Praha 6 - Veleslavín
Czech Republic

Phone to the CAIP secretariat (room 180):

(+42–2) 316 2761 (reception), ask extension **1346**
PLEASE, CALL THIS PHONE IN EMERGENCY
(valid September 5–8, from 7:30 to 22:00)

Fax: (+42–2) 290 159
E-mail: caip95@vision.felk.cvut.cz

Phone to the CAIP organization room in the lecture halls building:
(+42–2) 337 2028
(valid September 5–8, from 9:00 to 17:00)

The registration (and accommodation) desk will be open in the lobby of the Hotel Krystal on

Tuesday, September 5	from 16:00 to 20:00
Wednesday, September 6	from 08:00 to 17:00

Please, contact the conference secretariat (see above) after these hours and on Thursday and Friday.

The updated information about the conference program, organizational matters, etc. is placed on the information noticeboards in the lobby of the hotel and in the foyer of the 'Main Lecture Hall'.

Lecture Halls

Lecture halls (Main and Small) are situated in the:

Faculty of Sport, Charles University
José Martího 31
160 00 Praha 6 - Veleslavín
The building is about 400 m far from the hotel (see the map at the end of the booklet).

Official Language

The official language of the conference is English.

Presentation

The lecture halls are equipped with an overhead projector, a slide projector, and a VHS (VHS/C) PAL video.
For each poster, a couple of 80×100 cm panels is available. Authors are kindly asked to install their posters during the lunch break at the latest.

Internet Access

The participants have an access to the INTERNET computer network during the conference. The information about the location of the computer room is detailed on the *information noticeboards*.

Book Exhibition

Addison-Wesley presents their books during the conference. The exhibition takes place in the foyer of the Main Lecture Hall. The books are available at a reduced cost at the spot.

Meal

The breakfasts and the lunches are available in the Krystal each day at the times indicated in the program. The charge for lunch is included in the registration fee. The breakfasts are included in the accommodation price.

Insurance

The organizers cannot be held responsible for accidents to conference registrants or for damage to or loss of their personal property howsoever caused. Registrants should therefore make their own insurance arrangements.

CONFERENCE PROGRAM OVERVIEW

Tuesday September 5, 1995

20:00–21:30	Icebreaker Party

Wednesday September 6, 1995

08:45–09:00	Opening
09:00–10:00	Invited Talk: Takeo Kanade
10:00–10:20	Coffee Break
10:20–11:40	2 parallel Oral Sessions A1, B1
11:40–13:10	Lunch
13:10–14:20	Poster Session A
14:20–14:40	Coffee Break
14:40–15:40	2 parallel Oral Sessions A2, B2
15:40–16:00	Coffee Break
16:00–17:00	2 parallel Oral Sessions A3, B3
19:00–23:00	Concert, Conference Banquet (departure at 18:15)

Thursday September 7, 1995

09:00–10:00	Invited Talk: Josef Kittler
10:00–10:20	Coffee Break
10:20–11:40	2 parallel Oral Sessions A4, B4
11:40–13:10	Lunch
13:10–14:20	Poster Session B
14:20–14:40	Coffee Break
14:40–15:40	2 parallel Oral Sessions A5, B5
15:40–16:00	Coffee Break
16:00–17:00	2 parallel Oral Sessions A6, B6
18:30	Beer Evening (departure at 17:45)

Friday September 8, 1995

09:00–10:00	Invited Talk: Shimon Ullman
10:00–10:20	Coffee Break
10:20–11:40	2 parallel Oral Sessions A7, B7
11:40–13:10	Lunch
13:10–14:10	2 parallel Oral Sessions A8, B8
14:10–14:30	Coffee break
14:30–15:30	2 parallel Oral Sessions A9, B9
15:30	Conference Closing
17:00	Sightseeing

SCIENTIFIC PROGRAM

Invited Talk

Wednesday September 6, 9:00–10:00 Main Lecture Hall

Takeo Kanade

Session A1: Invariants

Wednesday September 6, 10:20–11:40
Main Lecture Hall
Chair: **Roger Mohr**

Session B1: Segmentation and Grouping

Wednesday September 6, 10:20–11:40
Small Lecture Hall
Chair: **Yehoshua Zeevi**

[1] The number refers to the proceedings page.

Session A2: Optical Flow
Wednesday September 6, 14:40–15:40
Main Lecture Hall
Chair: **Gerard Medioni**

Session B2: Model Recovery and Parameter Estimation
Wednesday September 6, 14:40–15:40
Small Lecture Hall
Chair: **Ruzena Bajcsy**

Session A3: Tracking
Wednesday September 6, 16:00–17:00
Main Lecture Hall
Chair: **Takeo Kanade**

Motion-Based Identification of Deformable Templates
Christoph Schnörr and Wladimir Peckar (p. 122)

Extending the Point Distribution Model Using Polar Coordinates
Tony Heap and David Hogg (p. 130)

Session B3: Scene and Object Representation

Wednesday September 6, 16:00-17:00
Small Lecture Hall
Chair: **Franc Solina**

Intermediate Views for Face Recognition
Michael S. Lew, Alfred C. She, and Thomas S. Huang (p. 138)

Rendering Real-World Objects without 3-D Model
Tomáš Werner, Roger David Hersch, and Václav Hlaváč (p. 146)

Modelling 3-D Rigid Solid Objects Using The View Signature II Representation Scheme
Peter A. R. Cole and M. Shamim Khan (p. 154)

Invited Talk

Thursday September 7, 9:00–10:00 Main Lecture Hall

Spatial and Feature Space Clustering: Applications in Image Analysis
J. Kittler (p. 162)

Session A4: Structure from Motion

Thursday September 7, 10:20–11:40
Main Lecture Hall
Chair: **Andre Gagalowicz**

An Automatic and Robust Algorithm for Determining Motion and Structure from Two Perspective Images
Zhengyou Zhang (p. 174)

3-D Scene Reconstruction from Image Sequences
H. V. Nguyen and M. Hanajík (p. 182)

Triangulation
Richard I. Hartley and Peter Sturm (p. 190)

Session B4: Low Level Vision: Texture, Image Redundancy and Similarity

Thursday September 7, 10:20–11:40
Small Lecture Hall
Chair: **Georgy Gimel'farb**

Session A5: Motion Detection

Thursday September 7, 14:40–15:40
Main Lecture Hall
Chair: **Shimon Ullman**

Session B5: Low Level Vision I

Thursday September 7, 14:40–15:40
Small Lecture Hall
Chair: **Vito Di Gesù**

Session A6: Applications: Motion Detection and Tracking

Thursday September 7, 16:00-17:00
Main Lecture Hall
Chair: **Jan-Olof Eklundh**

Session B6: Low Level Vision II

Thursday September 7, 16:00–17:00
Small Lecture Hall
Chair: **Gerald Sommer**

Estimating the Initial Values of Unobservable Variables in Visual Probabilistic Networks
Chee-Keong Kwoh and Duncan Fyfe Gillies (p. 326)

Invited Talk   Friday September 8, 9:00–10:00   Main Lecture Hall

Object Recognition and Classification
Shimon Ullman

Session A7: Structure and Matching

Friday September 8, 10:20–11:40
Main Lecture Hall

Chair: **Claus-E. Liedtke**

Relational Matching with Active Graphs
Richard C. Wilson and Edwin R. Hancock (p. 334)

Approximate String Matching by Finite Automata
Bořivoj Melichar (p. 342)

Matching Delaunay Triangulations by Probabilistic Relaxation
Andrew M. Finch, Richard C. Wilson, and Edwin R. Hancock (p. 350)

Affine Matching of Intermediate Symbolic Representations
Axel Pinz, Manfred Prantl, and Harald Ganster (p. 359)

Session B7: Applications: Medicine and Biology

Friday September 8, 10:20–11:40
Small Lecture Hall

Chair: **Ivan Bajla**

Automatic Classification of Skin Tumours with High Resolution Surface Profiles
Th. Roß, H. Handels, J. Kreusch, H. Busche, H. H. Wolf, and S. J. Pöppl (p. 368)

4 Dimensional Modelling of the Human Heart
Edilberto Strauss and Peter Burger (p. 376)

Structure Adaptive Anisotropic Filtering for Magnetic Resonance Image Enhancement
G. Z. Yang, P. Burger, D. N. Firmin, and S. R. Underwood (p. 384)

In Situ Determination of Cell Concentration in Bioreactors with a new Depth from Focus Technique
T. Scholz, B. Jähne, H. Suhr, G. Wehnert, P. Geissler, and K. Schneider (p. 392)

Session A8: Active Vision, Shading

Friday September 8, 13:10-14:10
Main Lecture Hall
Chair: **Yannis Aloimonos**

Closing the Loop: Pursuing a Moving Object by a Moving Observer
Peter Nordlund and Tomas Uhlin (p. 400)

An Algorithm for a Linear Shape-from-Shading Problem
Ryszard Kozera (p. 408)

Isophotes: the Key to Tractable Local Shading Analysis
Radim Šára (p. 416)

Session B8: Human Face Recognition and Tracking

Friday September 8, 13:10–14:10
Small Lecture Hall
Chair: **Dmitri Chetverikov**

Efficient High Order Neural Network for Rotation, Translation and Distance Invariant Recognition of Gray Scale Images
Rafał Foltyniewicz (p. 424)

Learning Human Face Detection in Cluttered Scenes
Kah-Kay Sung and Tomaso Poggio (p. 432)

Head Pose Computation for Very Low Bit-Rate Video Coding
Ricardo Lopez and Thomas S. Huang (p. 440)

Session A9: Calibration and Pose Estimation

Friday September 8, 14:30–15:30
Main Lecture Hall
Chair: **Ioannis Pitas**

Self-Calibration of an Affine Camera
Long Quan and Roger Mohr (p. 448)

Session B9: Contour

Friday September 8, 14:30–15:30
Small Lecture Hall
Chair: **Walter G. Kropatsch**

Poster Session A Wednesday September 6, 13:10–14:20

Poster Session B Thursday September 7, 13:10–14:20

SOCIAL PROGRAM

Icebreaker Party	Tuesday	20:00–21:30
Concert, Conference Banquet	Wednesday	19:00–23:00, departure at 18:15
Beer Evening	Thursday	18:30, departure at 17:45
Sightseeing	Friday	17:00

The Concert and the Conference Banquet will take place in the Old City in the Betlémská Chapel. The Beer Evening will take place at the famous Prague's Staropramen Brewery. The participants will be transported to Betlémská Chapel and to Staropramen Brewery by buses *departing from Krystal 45 minutes before the event starts.*

The charge for this program is included in the registration fee.

Accompanying Persons Program

The program for the accompanying persons is organized:

A guided walk through the historical centre of Prague	Wednesday, September 6
Trip to the castles near to Prague	Thursday, September 7

The program enables accompanying persons joining the social events in the evenings.
Please, note that accompanying persons can register for the events at the registration desk.

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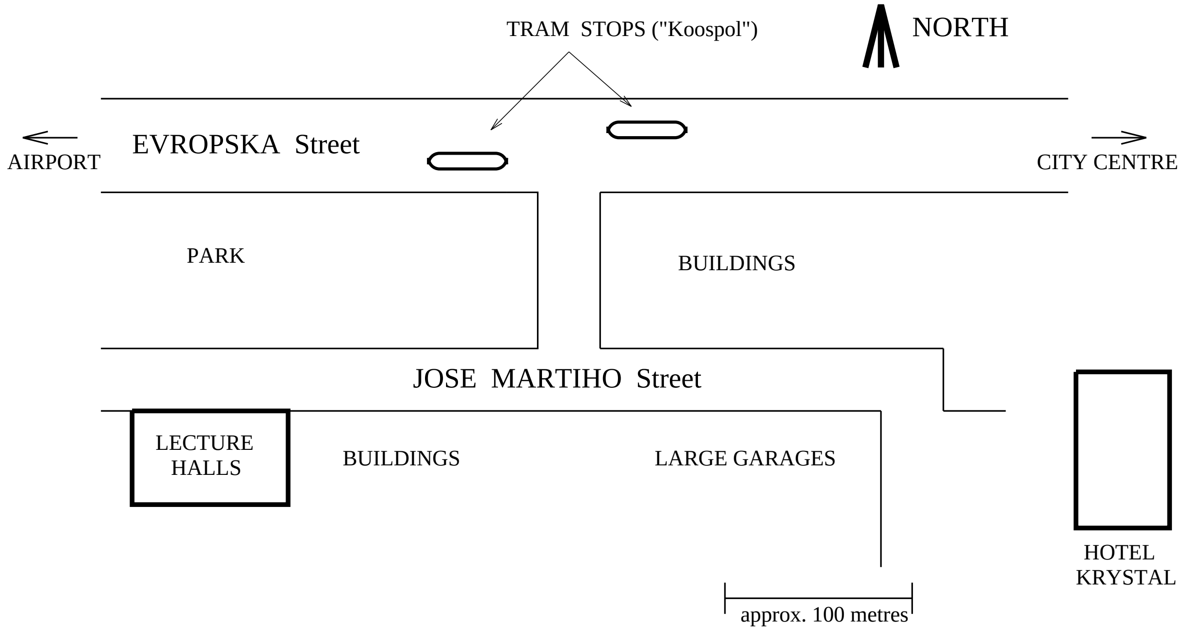
TRAM STOPS ("Koospol")
NORTH
EVROPSKA Street
AIRPORT
CITY CENTRE
PARK
BUILDINGS
JOSE MARTIHO Street
LECTURE HALLS
BUILDINGS
LARGE GARAGES
HOTEL KRYSTAL
approx. 100 metres