

ECCV 2004

ECCV 2004

PROGRAMME

Conference

Tutorials

Workshops

8th European Conference on Computer Vision

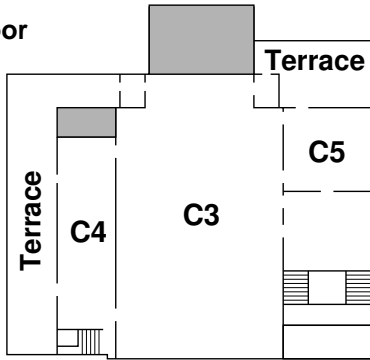
Prague, Czech Republic

10–14 May – Zofin Palace

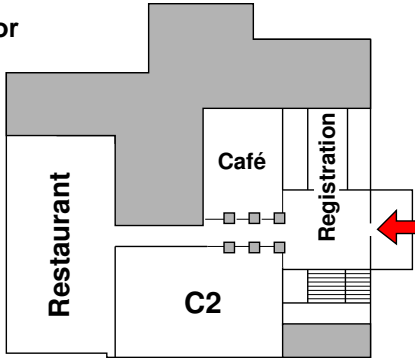
15–16 May – CTU Prague

Žofín Palace Floorplan

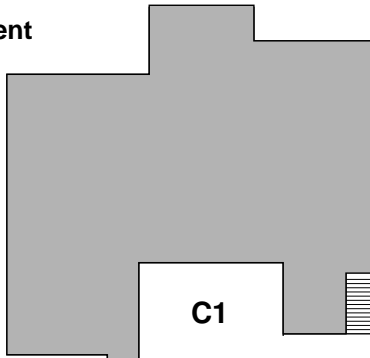
2nd Floor



1st Floor



Basement



Legend

- C1 Internet, Demos, T4, T5
- C2 Posters, T1, T2
- C3 Orals, Dinner, T3
- C4 Posters
- C5 Coffee, W10

Sponsors



BUSINESS INFORMATION GROUP



CENTRE OF EXCELLENCE



ECCV 2004 Overview

	9:00--13:00	13:00--14:00	14:00--18:00	after 18:00
May 10 Mon	Tutorials (coffee break 10:30-11:00) T2 Machine Learning Techniques for Computer Vision C. M. Bishop T5 Camera-Based Techniques for Building Large-Area Multi-Projector Displays A. Majumder, M. S. Brown	Lunch Break	Tutorials (coffee break 16:00-16:30) T1 Statistics in Projective Geometry W. Förstner T3 Discrete Optimization Methods in Computer Vision Y. Boykov, P. Torr, R. Zabih T4 Face Recognition and Modelling W.-Y. Zhao, T. Vetter, S. Romdhani	Welcome party
	Workshop (coffee breaks 10:30--11:00 and 16:00--16:30) w10 PETS Performance Evaluation of Tracking and Surveillance			
May 11 Tue	9:00--10:30	10:50--12:00	12:00--13:30	13:30--16:00
	Tracking I	Object detection and Recognition I	Lunch Break	Poster Session
May 12 Wen	Geometry	Object detection and Recognition II	Lunch Break ECCV Board Meeting	Poster Session, Demo
May 13 Thu	Learning and Recognition	Tracking II	Lunch Break	Poster Session
May 14 Fri	Scale space, flow, restoration	Coffee Break		
		2D shape detection and recognition		
	Workshops (some workshops may be half-day)			
May 15 Sat	w1 SLCV Statistical Learning in Computer Vision w2 BIOAW Biometric Authentication Workshop w4 SCVMA Spatial Coherence for Visual Motion Analysis w6 WAPCV Attention and Performance in Computational Vision w7 CVAMIA Computer Vision Approaches to Medical Image Analysis			
May 16 Sun	Workshops (some workshops may be half-day)			
	w3 OMNIVIS Omnidirectional Vision, Camera Networks and Non-Classical Cameras w5 ACV Applications of Computer Vision submission w8 HCI International Workshop on Human-Computer Interaction submission w9 SMVP Statistical Methods in Video Processing			
			Illumination, reflectance and reflection	after 18:00
			Texture	Reception IJCV Editorial Board Meeting ECCV Board & AC Dinner
			Information-based image processing	Conference Dinner
			3D shape representation and reconstruction	

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Monday, May 10, Tutorials, Žofín Palace

8:00 Registraton

T2: Machine Learning Techniques for Computer Vision

Monday, May 10, 9:00–13:00, Žofín Palace C2

Christopher M. Bishop

- Probabilistic graphical models; inference and learning.
- Mixture distributions; the EM algorithm; variational methods.
- Continuous latent variables; generative models of images.
- Discriminative techniques for classification; neural networks; support vector machines; boosting; object recognition.
- Example applications and case studies in computer vision.

T5: Camera-Based Techniques for Building Large-Area Multi-Projector Displays

Monday, May 10, 9:00–13:00, Žofín Palace C1

Aditi Majumder, Michael S. Brown

- Scalable camera-based geometric registration for planar display surfaces and non-planar display surfaces.
- Camera-based photometric seamlessness of multi-projector displays.
- User interaction with the displays using camera-projector feedback.
- Open problems and potential research directions.

13:00–14:00 Lunch Break

T1: Statistics in Projective Geometry

Monday, May 10, 14:00–18:00, Žofín Palace C2

Wolfgang Förstner

- Representation of basic geometric transformations in projective geometry.
- Explicit representation and interpretation of Jacobians of multi-linear relations.

- Uncertainty, distributions and covariance matrices.
- Singular covariance matrices and the interpretation of their null space.
- Euclidean and spherical representation and the interpretation of their uncertainty.
- Uncertainty of constructed geometric entities.
- Statistical tests of geometric relations, especially identity, incidence, parallelity, orthogonality.
- Direct estimation of geometric entities.
- Optimal estimation of geometric entities and their uncertainty.
- Evaluation of estimation results.
- Examples from grouping and orientation.

T3: Discrete Optimization Methods in Computer Vision

Monday, May 10, 14:00–18:00, Žofín Palace C3

Yuri Boykov, Phil Torr, Ramin Zabih

- Basic concepts: running time, NP hardness, reducibility.
- Discrete optimization techniques: dynamic programming, graph algorithms.
- Sampling methods: MCMC, loopy belief propagation.
- General-purpose techniques (“weak methods”): simulated annealing, genetic algorithms.
- Example problems: stereo, motion, structure from motion, matching.

T4: Face Recognition and Modeling

Monday, May 10, 14:00–18:00, Žofín Palace C1

Wen-Yi Zhao, Thomas Vetter, Sami Romdhani

- Most comprehensive survey of image- and video-based face recognition.
- Recent advances in 3D face recognition.
- Recent advances in neuroimaging-based study.
- Illumination and pose problems.
- Performance evaluation: FR Vendor Test 2002.
- Construction of 3D face models.
- Analysis-by-synthesis framework for improved recognition on a large dataset.
- Future research directions.

W10: Workshop on Performance Evaluation for Tracking and Surveillance (PETS 2004)

Monday, May 10, 9:00–18:00, Žofín Palace C5

9:00–9:10 Opening.

9:10–9:30 PETS 2004 Surveillance Ground Truth Data Set

Robert B. Fisher

9:30–10:30 Metrics

1. New Performance Evaluation Metrics for Object Detection Algorithms
Jacinto Nascimento, Jorge S. Marques
2. Trajectory Distance Metric using Hidden Markov Model based Representation
Fatih Porikli

10:30–11:00 Coffee Break

11:00–12:30 Automatic Regulation

1. Robust Visual Tracking from Dynamic Control of Processing
Alban Caporossi, Daniela Hall, Patrick Reignier, James L. Crowley
2. Automatic Tracking and Labeling of Human Activities in a Video Sequence
Fengjun Lv, Jinman Kang, Ram Nevatia, Isaac Cohen, Gerard Medioni
3. Joint Appearance and Trajectory based Data Association for Multi-Object Tracking
Arvind Lakshmikummar, Michael Burl

12:30–14:00 Lunch Break

14:00–15:30 Semantics

1. Is it Interesting? Comparing Human and Machine Judgements on the PETS Dataset
Hannah Dee, David Hogg
2. Ontology-Guided Training of Bayesian Networks for High Level Analysis in Visual Surveillance
Christopher Town
3. On-line Tracking Groups of Pedestrians with Bayesian Networks
Pedro M. Jorge, Jorge S. Marques, Arnaldo J. Abrantes

15:30–16:00 Coffee Break

16:00–17:00 Tracking Groups

1. A Probabilistic Model for an EM-like Object Tracking Algorithm using Color Histograms
Z. Zivkovic, Ben Krose

2. Tracking Pedestrians in a Multiple Camera System with Trajectory Prediction and Occlusion Modeling

Jorge P. Batista

17:00 Discussion: Tracking Algorithms and Performance Metrics

19:00–21:00 Welcome party, Žofín Palace

Tuesday, May 11, ECCV 2004, Žofín Palace

8:00 Registration

9:00–18:00 Technical programme

9:00–9:10 C3 Opening

9:10–9:20 A tribute to Christopher Longuet-Higgins (11/04/23–27/03/04)
Olivier Faugeras

9:20–10:30 C3 Tracking I

Chair: *Roberto Cipolla*

1. A Unified Algebraic Approach to 2-D and 3-D Motion Segmentation
René Vidal, Yi Ma
2. Enhancing Particle Filters using Local Likelihood Sampling
Péter Torma, Csaba Szepesvári
3. A Boosted Particle Filter: Multitarget Detection and Tracking
Kenji Okuma, Ali Taleghani, Nando de Freitas, James J. Little, David G. Lowe

10:30–10:50 Coffee Break

10:50–12:00 C3 Feature-based Object Detection and Recognition I

Chairs: *Stefan Carlsson, David Lowe*

1. Simultaneous Object Recognition and Segmentation by Image Exploration
Vittorio Ferrari, Tinne Tuytelaars, Luc Van Gool
2. Recognition by Probabilistic Hypothesis Construction
Pierre Moreels, Michael Maire, Pietro Perona
3. Human Detection Based on a Probabilistic Assembly of Robust Part Detectors
K. Mikolajczyk, C. Schmid, A. Zisserman

12:00–13:30 Lunch Break

13:30–16:00 C4 (No. 1–11) & C2 (No. 12–37) Posters I

1. Model Selection for Range Segmentation of Curved Objects
Alireza Bab-Hadiashar, Niloofar Gheissari
2. High-Contrast Color-Stripe Pattern for Rapid Structured-Light Range Imaging
Changsoo Je, Sang Wook Lee, Rae-Hong Park
3. Using Inter-Feature-Line Consistencies for Sequence-Based Object Recognition
Jiun-Hung Chen, Chu-Song Chen

4. Discriminant Analysis on Embedded Manifold
Shuicheng Yan, Hongjiang Zhang, Yuxiao Hu, Benyu Zhang, Qiansheng Cheng
5. Multiscale Inverse Compositional Alignment for Subdivision Surface Maps
Igor Guskov
6. A Fourier Theory for Cast Shadows
Ravi Ramamoorthi, Melissa Koudelka, Peter Belhumeur
7. Surface Reconstruction by Propagating 3D Stereo Data in Multiple 2D Images
Gang Zeng, Sylvain Paris, Long Quan, Maxime Lhuillier
8. A Correlation-Based Approach to Robust Point Set Registration
Yanghai Tsing, Takeo Kanade
9. Camera Calibration from the Quasi-Affine Invariance of Two Parallel Circles
Yihong Wu, Haijiang Zhu, Zhanyi Hu, Fuchao Wu
10. Texton Correlation for Recognition
Thomas Leung
11. Multiple View Feature Descriptors from Image Sequences via Kernel Principal Component Analysis
Jason Meltzer, Ming-Hsuan Yang, Rakesh Gupta, Stefano Soatto
12. An Affine Invariant Salient Region Detector
Timor Kadir, Andrew Zisserman, Michael Brady
13. A Visual Category Filter for Google Images
R. Fergus, P. Perona, A. Zisserman
14. Scene and Motion Reconstruction from Defocused and Motion-Blurred Images via Anisotropic Diffusion
Paolo Favaro, Martin Burger, Stefano Soatto
15. Semantics Discovery for Image Indexing
Joo-Hwee Lim, Jesse S. Jin
16. Hand Gesture Recognition within a Linguistics-Based Framework
Konstantinos G. Derpanis, Richard P. Wildes, John K. Tsotsos
17. Line Geometry for 3D Shape Understanding and Reconstruction
Helmut Pottmann, Michael Hofer, Boris Odehnl, Johannes Wallner
18. Extending Interrupted Feature Point Tracking for 3-D Affine Reconstruction
Yasuyuki Sugaya, Kenichi Kanatani
19. Many-to-Many Feature Matching Using Spherical Coding of Directed Graphs
M. Fatih Demirci, Ali Shokoufandeh, Sven Dickinson, Yakov Keselman, Lars Bretzner

20. Coupled-Contour Tracking through Non-orthogonal Projections and Fusion for Echocardiography
Xiang Sean Zhou, Dorin Comaniciu, Sriram Krishnan
21. A Statistical Model for General Contextual Object Recognition
Peter Carbonetto, Nando de Freitas, Kobus Barnard
22. Reconstruction from Projections using Grassmann Tensors
Richard I. Hartley, Fred Schaffalitzky
23. Co-operative Multi-Target Tracking and Classification
Pankaj Kumar, Surendra Ranganath, Kuntal Sengupta, Huang Weimin
24. A Linguistic Feature Vector for the Visual Interpretation of Sign Language
Richard Bowden, David Windridge, Timor Kadir, Andrew Zisserman, Michael Brady
25. Fast Object Detection with Occlusions
Yen-Yu Lin, Tying-Luh Liu, Chiou-Shann Fuh
26. Pose Estimation of Free-form Objects
Bodo Rosenhahn, Gerald Sommer
27. Interactive Image Segmentation using an Adaptive GMMRF Model
A. Blake, C. Rother, M. Brown, P. Perez, P. Torr
28. Can We Consider Central Catadioptric Cameras and Fisheye Cameras within a Unified Imaging Model
Xianghua Ying, Zhanji Hu
29. Image Clustering with Metric, Local Linear Structure and Affine Symmetry
Jongwoo Lim, Jeffrey Ho, Ming-Hsuan Yang, Kuang-chih Lee, David Kriegman
30. Face Recognition with Local Binary Patterns
Timo Ahonen, Abdenour Hadid, Matti Pietikäinen
31. Steering in Scale Space to Optimally Detect Image Structures
Jeffrey Ng, Anil A. Bharath
32. Hand Motion from 3D Point Trajectories and a Smooth Surface Model
Guillaume Dewaele, Frédéric Devernay, Radu Horaud
33. A Robust Probabilistic Estimation Framework for Parametric Image Models
Maneesh Singh, Himanshu Arora, Narendra Ahuja
34. Keyframe Selection for Camera Motion and Structure Estimation from Multiple Views
Thorsten Thormählen, Hellward Broszio, Axel Weissenfeld
35. Omnidirectional Vision: Unified Model Using Conformal Geometry
Eduardo Bayro-Corrochano, Carlos López-Franco

36. A Robust Algorithm for Characterizing Anisotropic Local Structures
Kazunori Okada, Dorin Comaniciu, Navneet Dalal, Arun Krishnan
37. Dimensionality Reduction by Canonical Contextual Correlation Projections
Marco Loog, Bram van Ginneken, Robert P. W. Duin

16:00–16:30 Coffee Break

16:30–18:00 C3 Illumination, Reflectance, and Reflection

Chairs: *Steven Seitz, Peter Sturm*

1. Accuracy of Spherical Harmonic Approximations for Images of Lambertian Objects Under Far and Near Lighting
Darya Frolova, Denis Simakov, Ronen Basri
2. Characterization of Human Faces under Illumination Variations using Rank, Integrability, and Symmetry Constraints
S. Kevin Zhou, Rama Chellappa, David W. Jacobs
3. User Assisted Separation of Reflections from a Single Image using a Sparsity Prior
Anat Levin, Yair Weiss
4. The Quality of Catadioptric Imaging – Application to Omnidirectional Stereo
W. Stürzl, H.-J. Dahmen, H. A. Mallot

18:00 IJCV Editorial Board Meeting, Žofín Palace

19:00 Concert & Reception, Betlehem Chapel

See map on the back cover.

Wednesday, May 12, ECCV 2004, Žofín Palace,

9:00–18:00 Technical programme

9:00–10:30 C3 Geometry

Chairs: *Anders Heyden, Bill Triggs*

1. A Generic Concept for Camera Calibration
Peter Sturm, Srikumar Ramalingam
2. General Linear Cameras
Jingyi Yu, Leonard McMillan
3. A Framework For Pencil-of-Points Structure-From-Motion
Adrien Bartoli, Mathieu Coquerelle, Peter Sturm
4. What Do Four Points in Two Calibrated Images Tell Us About the Epipoles?
David Nistér, Frederik Schaffalitzky

10:30–10:50 Coffee Break

10:50–12:00 C3 Feature-based Object Detection and Recognition II

Chairs: *Gerard Medioni, Cordelia Schmid*

1. Dynamic Visual Search Using Inner-Scene Similarity: Algorithms and Inherent Limitations
Tamar Avraham, Michael Lindenbaum
2. Weak Hypotheses and Boosting for Generic Object Detection and Recognition
A. Opelt, M. Fussenegger, A. Pinz, P. Auer
3. Object Level Grouping for Video Shots
Josef Sivic, Frederik Schaffalitzky, Andrew Zisserman

12:00–13:30 Lunch Break,

12:00–13:30 ECCV Board Meeting, Žofín Palace

13:30–16:00 C4 (No. 1–11) & C2 (No. 12–38) Posters II

1. Statistical Symmetric Shape from Shading for 3D Structure Recovery of Faces
Roman Dougard, Ronen Basri
2. Region-based Segmentation on Evolving Surfaces with Application to 3D Reconstruction of Shape and Piecewise Constant Radiance
Hailin Jin, Anthony J. Yezzi, Stefano Soatto
3. Human Upper Body Pose Estimation in Static Images
Mun Wai Lee, Isaac Cohen

4. Automated Optic Disc Localization and Contour Detection Using Ellipse Fitting and Wavelet Transform
P M D S Pallawala, Wynne Hsu, Mong Li Lee, Kah-Guan Au Eong
5. View-Invariant Recognition Using Corresponding Object Fragments
Evgeniy Bart, Evgeny Byvatov, Shimon Ullman
6. Variational Pairing of Image Segmentation and Blind Restoration
Leah Bar, Nir Sochen, Nahum Kiryati
7. Towards Intelligent Mission Profiles of Micro Air Vehicles: Multiscale Viterbi Classification
Sinisa Todorovic, Michael C. Nechyba
8. Stitching and Reconstruction of Linear-Pushbroom Panoramic Images for Planar Scenes
Chu-Song Chen, Yu-Ting Chen, Fay Huang
9. Audio-video Integration for Background Modelling
Marco Cristani, Manuele Bicego, Vittorio Murino
10. A Combined PDE and Texture Synthesis Approach to Inpainting
Harald Grossauer
11. Face Recognition from Facial Surface Metric
Alexander M. Bronstein, Michael M. Bronstein, Alon Spira, Ron Kimmel
12. Image and Video Segmentation by Anisotropic Kernel Mean Shift
Jue Wang, Bo Thiesson, Yingqing Xu, Michael Cohen
13. Colour Texture Segmentation by Region-Boundary Cooperation
Jordi Freixenet, Xavier Muñoz, Joan Martí, Xavier Lladó
14. Spectral Solution of Large-scale Extrinsic Camera Calibration as a Graph Embedding Problem
Matthew Brand, Matthew Antone, Seth Teller
15. Estimating Intrinsic Images from Image Sequences with Biased Illumination
Yasuyuki Matsushita, Stephen Lin, Sing Bing Kang, Heung-Yeung Shum
16. Structure and Motion from Images of Smooth Textureless Objects
Yasutaka Furukawa, Amit Sethi, Jean Ponce, David Kriegman
17. Automatic Non-Rigid 3D Modeling from Video
Lorenzo Torresani, Aaron Hertzmann
18. From a 2D Shape to a String Structure using the Symmetry Set
Arjan Kuijper, Ole Fogh Olsen, Peter Giblin, Philip Bille, Mads Nielsen

19. Extrinsic Camera Parameter Recovery from Multiple Image Sequences Captured by an Omni-directional Multi-camera System
Tomokazu Sato, Sei Ikeda, Naokazu Yokoya
20. Evaluation of Robust Fitting Based Detection
Sio-Song Ieng, Jean-Philippe Tarel, Pierre Charbonnier
21. Local Orientation Smoothness Prior for Vascular Segmentation of Angiography
Wilbur C. K. Wong, Albert C. S. Chung, Simon C. H. Yu
22. Weighted Minimal Hypersurfaces and Their Applications in Computer Vision
Bastian Goldlücke, Marcus Magnor
23. Interpolating Novel Views from Image Sequences by Probabilistic Depth Carving
Annie Yao, Andrew Calway
24. Sparse Finite Elements for Geodesic Contours with Level-Sets
Martin Weber, Andrew Blake, Roberto Cipolla
25. Hierarchical Implicit Surface Joint Limits to Constrain Video-Based Motion Capture
Lorna Herda, Raquel Urtasun, Pascal Fua
26. Separating Specular, Diffuse, and Subsurface Scattering Reflectances from Photometric Images
Tai-Pang Wu, Chi-Keung Tang
27. Temporal Factorization Vs. Spatial Factorization
Lihi Zelnik-Manor, Michal Irani
28. Tracking aspects of the foreground against the background
Hieu T. Nguyen, Arnold Smeulders
29. Example-Based Stereo with General BRDFs
Adrien Treuille, Aaron Hertzmann, Steven M. Seitz
30. Adaptive Probabilistic Visual Tracking with Incremental Subspace Update
David Ross, Jongwoo Lim, Ming-Hsuan Yang
31. On Refractive Optical Flow
Sameer Agarwal, Satya P. Mallick, David Kriegman, Serge Belongie
32. Matching Tensors for Automatic Correspondence and Registration
Ajmal S. Mian, Mohammed Bennamoun, Robyn Owens
33. A Biologically Motivated and Computationally Tractable Model of Low and Mid-Level Vision Tasks
Iasonas Kokkinos, Rachid Deriche, Petros Maragos, Olivier Faugeras

34. Appearance Based Qualitative Image Description for Object Class Recognition
Johan Thureson, Stefan Carlsson
35. Consistency Conditions on the Medial Axis
Anthony Pollitt, Peter Giblin, Benjamin Kimia
36. Normalized Cross-Correlation for Spherical Images
Lorenzo Sorgi, Kostas Daniilidis
37. Bias in the Localization of Curved Edges
Paulo R. S. Mendonça, Dirk Padfield, James Miller, Matt Turek
38. Tensor Field Segmentation Using Region Based Active Contour Model
Zhizhou Wang, Baba C. Vemuri

13:30–16:00 C1 Demos

1. *i2i*: Three-dimensional Visual Communication
A. Criminisi, G. Cross, A. Blake, G. Smyth, C. Rother
2. Personalized 3D Face Model Reconstruction from Single Image
Yuxiao Hu, Shuicheng Yan, Dalong Jiang, Yi Zhou, Rong Xiao
3. Use Your Face for Interface — Real-time image processing can make your face an input device
Shinji Kawato, Akiro Utsumi and Kazuhiro Kuwabara
4. ScaleSpaceViz: Visualizing alpha-Scale Spaces
F.M.W. Kanters, L.M.J. Florack, R. Duits, and B. Platel
5. Rapid detection of salient regions in bimodal 3D data with a computational attention system
Simone Frintrop, Erich Rome
6. A Component-based Approach to Activity Interpretation
Markus Vincze, Wolfgang Ponweiser, Michael Zillich, Minu Ayromlou, Václav Hlaváč, Jiří Matas, Štěpán Obdržálek, Jan Paleček, Hilary Buxton, Jon Howell, Kingsley Sage, Stelios Orphanoudakis, Antonis Argyros, Cedric Groyer, Manolis Lourakis, Christof Eberst, Gerald Umgeher
7. Real-time infrared tracking system
M. Foursa and M. Kolesnik

Demos shown at poster sessions

1. Tue, May 11, poster No. 27
GRABCUT: Interactive Foreground Extraction with Iterated Graph Cuts
Carsten Rother, Vladimir Kolmogorov and Andrew Blake

2. Wed, May 12, poster No. 10
Where's my mobile phone gone — fully automatic image retouching
Harald Grossauer
3. Thu, May 13, poster No. 10
Mining News Video Archives Using Identical Shot Relation
Shin'ichi Satoh, Fuminori Yamagishi and Masao Sakauchi

16:00–16:30 Coffee Break**16:30–18:00 C3 Texture**

Chairs: *Luc Van Gool, Ramim Zabih*

1. Texture Boundary Detection for Real-Time Tracking
Ali Shahrokni, Tom Drummond, Pascal Fua
2. A TV Flow Based Local Scale Measure for Texture Discrimination
Thomas Brox, Joachim Weickert
3. Spatially Homogeneous Dynamic Textures
Gianfranco Doretto, Eagle Jones, Stefano Soatto
4. Synthesizing Dynamic Texture with Closed-loop Linear Dynamic System
Lu Yuan, Fang Wen, Ce Liu, Heung-Yeung Shum

20:00 ECCV Board & AC Dinner, Nebozízek

Thursday, May 13, ECCV 2004, Žofín Palace

9:00–17:15 Technical programme

9:00–10:30 C3 Learning and Recognition

Chairs: *Josef Kittler, Andrew Zisserman*

1. A Constrained Semi-Supervised Learning Approach to Data Association
Hendrik Kück, Peter Carbonetto, Nando de Freitas
2. Learning Mixtures of Weighted Tree-Unions by Minimizing Description Length
Andrea Torsello, Edwin R. Hancock
3. Decision Theoretic Modeling of Human Facial Displays
Jesse Hoey, James J. Little
4. Kernel Feature Selection with Side Data using a Spectral Approach
Amnon Shashua, Lior Wolf

10:30–10:50 Coffee Break

10:50–12:00 C3 Tracking II

Chairs: *Andrew Blake, Amnon Shashua*

1. Tracking Articulated Motion using a Mixture of Autoregressive Models
Ankur Agarwal, Bill Triggs
2. Novel Skeletal Representation For Articulated Creatures
Gabriel J. Brostow, Irfan Essa, Drew Steedly, Vivek Kwatra
3. An Accuracy Certified Augmented Reality System for Therapy Guidance
S. Nicolau, X. Pennec, L. Soler, N. Ayache

12:00–13:30 Lunch Break

13:30–16:00 C4 (No. 1–11) & C2 (No. 12–38) Posters III

1. 3D Human Body Tracking using Deterministic Temporal Motion Models
Raquel Urtasun, Pascal Fua
2. Robust Fitting by Adaptive-Scale Residual Consensus
Hanzi Wang, David Suter
3. Causal Camera Motion Estimation by Condensation and Robust Statistics Distance Measures
Tal Nir, Alfred M. Bruckstein
4. An Adaptive Window Approach for Image Smoothing and Structures Preserving
Charles Kerivan

5. Extraction of Semantic Dynamic Content from Videos with Probabilistic Motion Models
Gwenaëlle Piriou, Patrick Bouthemy, Jian-Feng Yao
6. Are Iterations and Curvature Useful for Tensor Voting?
Sylvain Fischer, Pierre Bayerl, Heiko Neumann, Gabriel Cristóbal, Rafael Redondo
7. A Feature-based Approach for Determining Dense Long Range Correspondences
Josh Wills, Serge Belongie
8. Combining Geometric- and View-Based Approaches for Articulated Pose Estimation
David Demirdjian
9. Shape Matching and Recognition—Using Generative Models and Informative Features
Zhuowen Tu, Alan L. Yuille
10. Generalized Histogram: Empirical Optimization of Low Dimensional Features for Image Matching
Shin'ichi Satoh
11. Recognizing Objects in Range Data Using Regional Point Descriptors
Andrea Frome, Daniel Huber, Ravi Kolluri, Thomas Bülow, Jitendra Malik
12. Shape Reconstruction from 3D and 2D Data Using PDE-Based Deformable Surfaces
Ye Duan, Liu Yang, Hong Qin, Dimitris Samaras
13. Structure and Motion Problems for Multiple Rigidly Moving Cameras
Henrik Stewenius, Kalle Åström
14. Detection and Tracking Scheme for Line Scratch Removal in an Image Sequence
Bernard Besserer, Cedric Thiré
15. Color Constancy Using Local Color Shifts
Marc Ebner
16. Image Anisotropic Diffusion Based on Gradient Vector Flow Fields
Yu Hongchuan, Chua Chin-Seng
17. Optimal Importance Sampling for Tracking in Image Sequences: Application to Point Tracking
Elise Arnaud, Etienne Mémin
18. Learning to Segment
Eran Borenstein, Shimon Ullman

19. MCMC-based Multiview Reconstruction of Piecewise Smooth Subdivision Curves with a Variable Number of Control Points
Michael Kaess, Rafal Zboinski, Frank Dellaert
20. Bayesian Correction of Image Intensity with Spatial Consideration
Jiaya Jia, Jian Sun, Chi-Keung Tang, Heung-Yeung Shum
21. Stretching Bayesian Learning in the Relevance Feedback of Image Retrieval
Ruofei Zhang, Zhongfei (Mark) Zhang
22. Real-time Tracking of Multiple Skin-colored Objects with a Possibly Moving Camera
Antonis A. Argyros, I. A. Lourakis
23. Evaluation of Image Fusion Performance with Visible Differences
Vladimir Petrović, Costas Xydeas
24. An Information-based Measure for Grouping Quality
Erik A. Engbers, Michael Lindenbaum, Arnold W. M. Smeulders
25. Bias in Shape Estimation
Hui Ji, Cornelia Fermüller
26. Contrast Marginalised Gradient Template Matching
Saleh Basalamah, Anil Bharath, Donald McRobbie
27. The Kullback-Leibler Kernel as a Framework for Discriminant and Localized Representations for Visual Recognition
Nuno Vasconcelos, Purdy Ho, Pedro Moreno
28. Partial Object Matching with Shapeme Histograms
Y. Shan, H. S. Sawhney, B. Matei, R. Kumar
29. Modeling and Synthesis of Facial Motion Driven by Speech
Payam Saisan, Alessandro Bissacco, Alessandro Chiuso, Stefano Soatto
30. Recovering Local Shape of a Mirror Surface from Reflection of a Regular Grid
Silvio Savarese, Min Chen, Pietro Perona
31. Structure of Applicable Surfaces from Single Views
Nail Gumerov, Ali Zandifar, Ramani Duraiswami, Larry S. Davis
32. Joint Bayes Filter: A Hybrid Tracker for Non-rigid Hand Motion Recognition
Huang Fei, Ian Reid
33. Iso-disparity Surfaces for General Stereo Configurations
Marc Pollefeys, SUDIPTA Sinha
34. Camera Calibration with Two Arbitrary Coplanar Circles
Qian Chen, Haiyuan Wu, Toshikazu Wada

35. Reconstruction of 3-D Symmetric Curves from Perspective Images without Discrete Features
Wei Hong, Yi Ma, Yizhou Yu
36. A Topology Preserving Non-Rigid Registration Method Using a Symmetric Similarity Function – Application to 3-D Brain Images
Vincent Noblet, Christian Heinrich, Fabrice Heitz, Jean-Paul Armspach
37. Visibility Analysis and Sensor Planning in Dynamic Environments
Anurag Mittal, Larry S. Davis
38. Hierarchical Organization of Shapes for Efficient Retrieval
Shantanu Joshi, Anuj Srivastava, Washington Mio, Xiuwen Liu

16:00–16:30 Coffee Break

16:30–17:15 C3 Information-based Image Processing

Chair: *Michal Irani*

1. Intrinsic Images by Entropy Minimization
Graham D. Finlayson, Mark S. Drew, Cheng Lu
2. Image Similarity Using Mutual Information of Regions
Daniel B. Russakoff, Carlo Tomasi, Torsten Rohlfing, Calvin R. Maurer, Jr.

20:00 Conference Dinner, Žofín Palace

Friday, May 14, ECCV 2004, Žofín Palace

9:00–18:00 Technical programme

9:00–10:30 C3 Scale Space, Flow, Restoration

Chairs: *Rachid Deriche, Mads Nielsen*

1. A l^1 -unified Variational Framework for Image Restoration
Julien Bect, Laure Blanc-Féraud, Gilles Aubert, Antonin Chambolle
2. Support Blob Machines – The Sparsification of Linear Scale Space
Marco Loog
3. High Accuracy Optical Flow Estimation Based on a Theory for Warping
Thomas Brox, Andrés Bruhn, Nils Papenberg, Joachim Weickert
4. Model-based Approach to Tomographic Reconstruction Including Projection Deblurring. Sensitivity of Parameter Model to Noise on Data
Jean Michel Lagrange, Isabelle Abraham

10:30–10:50 Coffee Break

10:50–12:00 C3 2D Shape Detection and Recognition

Chairs: *Tim Cootes, Ales Leonardis*

1. Unlevel-Sets: Geometry and Prior-based Segmentation
Tammy Riklin-Raviv, Nahum Kiryati, Nir Sochen
2. Learning and Bayesian Shape Extraction for Object Recognition
Washington Mio, Anuj Srivastava, Xiuwen Liu
3. Multiphase Dynamic Labeling for Variational Recognition-driven Image Segmentation
Daniel Cremers, Nir Sochen, Christoph Schnörr

12:00–13:30 Lunch Break

13:30–16:00 C4 (No. 1–11) & C2 (No. 1–36) Posters IV

1. Integral Invariant Signatures
Siddharth Manay, Byung-Woo Hong, Anthony J. Yezzi, Stefano Soatto
2. Detecting Keypoints with Stable Position, Orientation and Scale under Illumination Changes
Bill Triggs
3. Spectral Simplification of Graphs
Huaijun Qiu, Edwin R. Hancock
4. Inferring White Matter Geometry from Diffusion Tensor MRI: Application to Connectivity Mapping
Christophe Lenglet, Rachid Deriche, Olivier Faugeras

5. Unifying Approaches and Removing Unrealistic Assumptions in Shape From Shading: Mathematics Can Help
Emmanuel Prados, Olivier Faugeras
6. Morphological Operations on Matrix-Valued Images
Bernhard Burgeth, Martin Welk, Christian Feddern, Joachim Weickert
7. Constraints on Coplanar Moving Points
Sujit Kuthirummal, C. V. Jawahar, P. J. Narayanan
8. A PDE Solution of Brownian Warping
Mads Nielsen, P. Johansen
9. Stereovision-Based Head Tracking Using Color and Ellipse Fitting in a Particle Filter
Bogdan Kwolek
10. Parallel Variational Motion Estimation by Domain Decomposition and Cluster Computing
Timo Kohlberger, Christoph Schnörr, Andrés Bruhn, Joachim Weickert
11. Whitening for Photometric Comparison of Smooth Surfaces under Varying Illumination
Margarita Osadchy, Michael Lindenbaum, David Jacobs
12. Structure from Motion of Parallel Lines
Patrick Baker, Yiannis Aloimonos
13. A Bayesian Framework for Multi-cue 3D Object Tracking
J. Giebel, D. M. Gavrilu, C. Schnörr
14. On the Significance of Real-World Conditions for Material Classification
Eric Hayman, Barbara Caputo, Mario Fritz, Jan-Olof Eklundh
15. Toward Accurate Segmentation of the LV Myocardium and Chamber for Volumes Estimation in Gated SPECT Sequences
Diane Lingrand, Arnaud Charnoz, Pierre Malick Koulibaly, Jacques Darcourt, Johan Montagnat
16. An MCMC-based Particle Filter for Tracking Multiple Interacting Targets
Zia Khan, Tucker Balch, Frank Dellaert
17. Human Pose Estimation using Learnt Probabilistic Region Similarities and Partial Configurations
Timothy J. Roberts, Stephen J. McKenna, Ian W. Ricketts
18. Groupwise Diffeomorphic Non-rigid Registration for Automatic Model Building
T. F. Cootes, S. Marsland, C. J. Twining, K. Smith, C. J. Taylor

19. Separating Transparent Layers through Layer Information Exchange
Bernard Sarel, Michal Irani
20. Multiple Classifier System Approach to Model Pruning in Object Recognition
Josef Kittler, Ali R Ahmadyfard
21. Coaxial Omnidirectional Stereopsis
Libor Spacek
22. Classifying Materials from their Reflectance Properties
Peter Nillius, Jan-Olof Eklundh
23. Seamless Image Stitching in the Gradient Domain
Anat Levin, Assaf Zomet, Shmuel Peleg, Yair Weiss
24. Spectral Clustering for Robust Motion Segmentation
JinHyeong Park, Hongyuan Zha, Rangachar Kasturi
25. Learning Outdoor Color Classification from Just One Training Image
Roberto Manduchi
26. A Polynomial-Time Metric for Attributed Trees
Andrea Torsello, Džena Hidović, Marcello Pelillo
27. Probabilistic Multi-view Correspondence in a Distributed Setting with No Central Server
Shai Avidan, Yael Moses, Yoram Moses
28. Monocular 3D Reconstruction of Human Motion in Long Action Sequences
Gareth Loy, Martin Eriksson, Josephine Sullivan, Stefan Carlsson
29. Fusion of Infrared and Visible Images for Face Recognition
Aglika Gyaourova, George Bebis, Ioannis Pavlidis
30. Reliable Fiducial Detection in Natural Scenes
David Claus, Andrew W. Fitzgibbon
31. Light Field Appearance Manifolds
Chris Mario Christoudias, Louis-Philippe Morency, Trevor Darrell
32. Galilean Differential Geometry of Moving Images
Daniel Fagerström
33. Tracking People with a Sparse Network of Bearing Sensors
A. Rahimi, B. Dunagan, T. Darrell
34. Transformation-Invariant Embedding for Image Analysis
Ali Ghodsi, Jiayuan Huang, Dale Schuurmans
35. The Least-Squares Error for Structure from Infinitesimal Motion
John Oliensis

36. Stereo Based 3D Tracking and Scene Learning, employing Particle Filtering within EM

Trausti Kristjansson, Hagai Attias, John Hershey

16:00–16:30 Coffee Break

16:30–18:00 C3 3D Shape Representation and Reconstruction

Chairs: *Long Quan, Jean Ponce*

1. The Isophotic Metric and its Application to Feature Sensitive Morphology on Surfaces
Helmut Pottmann, Tibor Steiner, Michael Hofer, Christoph Haider, Allan Hanbury
2. A Closed-Form Solution to Non-Rigid Shape and Motion Recovery
Jing Xiao, Jin-xiang Chai, Takeo Kanade
3. Stereo using Monocular Cues within the Tensor Voting Framework
Philippos Mordohai, Gérard Medioni
4. Shape and View Independent Reflectance Map from Multiple Views
Tianli Yu, Ning Xu, Narendra Ahuja

Saturday, May 15, Workshops, CTU

W1: Workshop on Statistical Learning in Computer Vision (SLCV)

Saturday, May 15, 9:00–18:00, CTU W1

9:00–9:10 Opening

9:10–10:10 Invited talk

Unsupervised Learning in Vision: Computational Principles,
Biological Evidence
Shimon Edelman

10:10–10:50 Coffee Break

10:50–12:30 Categorization and Recognition

1. Combined Object Categorization and Segmentation with an Implicit Shape Model
Bastian Leibe, Ales Leonardis, Bernt Schiele
2. Statistical Strategy for Object Class Recognition Using Part Detectors
Thang V. Pham, Arnold W. M. Smeulders
3. Location Recognition and Global Localization Based on Scale-Invariant Keypoints
Jana Kosecka, Xialong Yang
4. Visual Categorization with Bags of Keypoints
Gabriella Csurka, Christopher R. Dance, Cedric Bray, Lixin Fan

12:30–14:00 Lunch Break

14:00–15:00 Invited Talk

Statistical Learning of Motion: Challenges for the Future
David Hogg

15:00–16:15 Learning Methods

1. Towards Component-based Car Detection
Stanley M. Bileschi, Brian Leung, Ryan M. Rifkin
2. Boosting Based Incremental Learning for Face Detection Using a Very Large Size of Training Data
Jiyoung Park, Juneho Yi
3. Brownian Images: A Generic Background Model
Kim S. Pedersen, Martin Lillholm

16:15–16:45 Coffee Break

16:45–18:00 Statistical Methods

1. Clustering with Normalized Cuts is Clustering with a Hyperplane
Ali Rahimi, Ben Recht
2. Kernel Hebbian Algorithm for Single-Frame Super-Resolution
Kwang In Kim, Matthias O. Franz, Bernhard Schölkopf
3. Applications of Stochastic Algorithms for Optimal Linear Representations
Xiwen Liu, Anuj Srivastava

W2: Workshop on Biometric Authentication (BioAW)

Saturday, May 15, 8:45–18:00, CTU W2

8:45–9:00 Opening

9:00–10:00 Face Recognition

1. Face Recognition Based on Locally Salient ICA Information
Jongsun Kim, Longmoo Choi, Juneho Yi
2. Pose Invariant Face Recognition under Arbitrary Unknown Lighting using Spherical Harmonics
Lei Zhang, Dimitris Samaras
3. Biometric Face Authentication using Pixel-based Weak Classifiers
Yann Rodriguez, Sebastien Marcel

10:00–10:30 Coffee Break

10:30–11:30 Fingerprint Recognition

1. Registration and Modeling of Elastic Deformations of Fingerprints
Sergey Novikov, Oleg Ushmaev
2. Benchmarking of Fingerprint Sensors
Wei-Yun Yau, Tai Pang Chen, Peter Morquet
3. A Wavelet Based Approach to Detecting Liveness in Fingerprint Scanners
Stephanie Schuckers, Aditya Abhyankar

11:30–12:10 Template Protection and Security

1. Capacity and Examples of Template-Protecting Biometric Authentication Systems
Pim Tuyls, Jasper Goseling
2. Toward Ubiquitous Acceptance of Biometric Authentication: Template Protection Techniques
Madalina Baltatu, Rosalia D'Alessandro, Roberta D'Amico

12:10–12:30 Invited Talk

Presentation of the BIOSEC European Project
Orestes Sanchez

12:30–14:00 Lunch Break

14:00–15:30 Posters

1. Null Space Approach of Fisher Discriminant Analysis for Face Recognition
Wei Liu, Stan Z. Li, Yunhong Wang, Tieniu Tan
2. Statistical Learning of Evaluation Function for ASM/AAM Image Alignment
Xiangsheng Huang, Stan Z. Li, Yangsheng Wang

3. Towards a Robust Face Detector
Loris Nanni, Annalisa Franco, Raffaele Cappelli
4. Automatic Detection of the Optimal Acceptance Threshold in a Face Verification System
Raquel Montes Diez, Cristina Conde, Enrique Cabello
5. Fingerprint Distortion Measurement
Henning Lorch, Peter Morguet, Hartmut Schröder
6. Study of the Distinctiveness of Level 2 and Level 3 Features in Fragmentary Fingerprint Comparison
Krzysztof M. Kryszczuk, Patrice Morier, Andrzej Drygajlo
7. Biometric Sensor Interoperability: A Case Study In Fingerprints
Anil K. Jain, Arun A. Ross
8. Efficient Fingerprint Image Enhancement for Mobile Embedded Systems
J. S. Chen, Y. S. Moon, K. F. Fong
9. Approximate Confidence Intervals for Estimation of Matching Error Rates of Biometric Identification Devices
Travis J. Atkinson, Michael E. Schuckers
10. Architectures for Biometric Match-on-Token Solutions
Raul Sanchez-Reillo, Judith Liu-Jimenez, Luis Entrena
11. A Secure Protocol for Data Hiding in Compressed Fingerprint Images
Nalini K. Ratha, Miguel A. Figueroa-Villanueva, Jonathan H. Connell, Ruud M. Bolle
12. Integrating Faces, Fingerprints, and Soft Biometric Traits for User Recognition
Anil K. Jain, Karthik Nandakumar, Xiaoguang Lu, Unsang Park
13. Robust Encoding of Local Ordinal Measures: A General Framework of Iris Recognition
Zhenan Sun, Tieniu Tan, Yunhong Wang
14. A Novel Digitizing Pen for the Analysis of Pen Pressure and Inclination in Handwriting Biometrics
Christian Hook, Juergen Kempf, Georg Scharfenberg
15. An Off-line Signature Verification System Based on Fusion of Local and Global Information
J. Fierrez-Aguilar, N. Alonso-Hermira, G. Moreno-Marquez, J. Ortega-Garcia
16. A New Approach on Multimodal Biometrics Based on Combining Neural Networks Using AdaBoost
K. Maghooli, M. S. Moin

15:30–16:00 Coffee Break

16:00–17:20 Other Biometrics

1. Palmprint Authentication System for Civil Applications
David Zhang, Guangming Lu, Adams Wai-Kin Kong, Michael Wong
2. Writer Identification Using Finger-Bend in Writing Signature
Seiichiro Hangai, Takeshi Higuchi
3. 3D Finger Biometrics
Damon L. Woodard, Patrick J. Flynn
4. Eye Movements in Biometrics
Pawel Kasprowski, Józef Ober

17:20–18:00 Fusion and Multimodal Biometrics

1. Fingerprint Verification by Decision-Level Fusion of Optical and Capacitive Sensors
Gian Luca Marcialis, Fabio Roli
2. Fusion of HMM's Likelihood and Viterbi Path for On-line Signature Verification
Bao Ly Van, Sonia Garcia-Salicetti, Bernadette Dorizzi

W4: Workshop on Spatial Coherence for Visual Motion Analysis (SCVMA)

Saturday, May 15, 8:50–17:20, CTU W4

8:50–9:00 Opening

9:00–10:00 Invited Talk

2D Motion Description and Contextual Motion Analysis: Issues and New Models

Patrick Bouthemy

10:00–10:20 Coffee Break

10:20–11:50 Tracking

1. Structure from Periodic Motion

Serge Belongie, Josh Wills

2. 3D SSD Tracking from Uncalibrated Video

Dana Cobzas, Martin Jägersand

3. Comparison of Edge-Driven Algorithms for Model-Based Motion Estimation

Hendrik Dahlkamp, Artur Ottlik, Hans-Hellmut Nagel

11:50–13:30 Lunch Break

13:30–15:00 Segmentation

1. On the Relationship between Image and Motion Segmentation

Adrian Barbu, Song-Chun Zhu

2. Motion Detection Using Wavelet Analysis and Hierarchical Markov Models

Cédric Demonceaux, Djemâa Kachi-Akkouche

3. Segregation of Moving Objects Using Elastic Matching

Vishal Jain, Benjamin B. Kimia, Joseph L. Mundy

15:00–15:20 Coffee Break

15:20–17:20 Models

1. Local Descriptors for Spatio-Temporal Recognition

Ivan Laptev, Tony Lindeberg

2. A Generative Model of Dense Optical Flow in Layers

Anitha Kannan, Brendan Frey, Nebojsa Jojic

3. Analysis and Interpretation of Multiple Motions through Surface Saliency

Mircea Nicolescu, Changki Min, Gérard Medioni

4. Dense Optic Flow with a Bayesian Occlusion Model

Kevin Köser, Christian B. Perwass, Gerald Sommer

W6: 2nd International Workshop on Attention and Performance in Computational Vision (WAPCV)

Saturday, May 15, 8:50–18:05, CTU W6

8:50–9:00 Opening

9:00–9:45 Invited Talk

Distributed Saliency Computations Solve the Feature Binding Problem
John K. Tsotsos

9:45–10:45 Attention in Object and Scene Recognition

1. Visual Attention Using Hierarchical Object Detection
Ola Ramstrom, Henrik I. Christensen
2. Inherent Limitations of Visual Search and the Role of Inner-Scene Similarity
Tamar Avraham, Michael Lindenbaum

10:45–11:00 Coffee Break

11:00–12:15 Architectures for Sequential Attention

1. Selective Attention for Identification Model (SAIM): Simulating Different Types of Visual Neglect
Dietmar Heinke, Glyn W. Humphreys
2. A Model of Object-Based Attention That Guides Active Visual Search to Behaviourally Relevant Locations
Linda J. Lanyon, Susan L. Denham
3. Learning of Position and Attention-Shift Invariant Recognition Across Attention Shifts
Muhua Li, James J. Clark

12:15–13:45 Lunch Break

13:45–14:30 Invited Talk

The Computational Neuroscience of Visual Cognition: Attention, Memory and Reward
Gustavo Deco

14:30–15:20 Biologically Plausible Models for Attention

1. Modeling Attention: From Computational Neuroscience to Computer Vision
Fred H. Hamker
2. Towards a Biologically Plausible Active Visual Search Model
Andrei Zaharescu, Albert L. Rothenstein, John K. Tsotsos

15:20–15:50 Coffee Break & Posters

15:50–17:05 Applications of Attentive Vision

1. Visual Attention for Object Recognition in Spatial 3D Data
Simone Frintrop, Andreas Nüchter, Hartmut Surmann
2. AttentiRobot: A Visual Attention-based Landmark Selection Approach for Mobile Robot Navigation
Nabil Ouerhani, Heinz Hügli
3. Detection of Frequent Change in Focus of Human Attention from Videos
Nan Hu, Weimin Huang, Surendra Ranganath

17:05–18:05 Poster session

1. On the Usefulness of Attention for Object Recognition
Dirk Walther, Ueli Rutishauser, Christof Koch, Pietro Perona
2. Combining Conspicuity Maps for hROIs Prediction
Claudio M. Privitera, Orazio Gallo, Giorgio Grimoldi, Toyomi Fujita, Lawrence W. Stark
3. A General Purpose Neural Network Simulator for Visual Attention Modeling
Albert L. Rothenstein, Andrei Zaharescu, John K. Tsotsos
4. Biologically Motivated Selective Attention for Face Localization
Minho Lee, Sang-Woo Ban
5. Accumulative Computation Method for Motion Features Extraction in Dynamic Selective Visual Attention
Antonio Fernandez-Caballero, María T. López, Miguel A. Fernández, José Mira, Ana E. Delgado, José M. López-Valles
6. Attentive Object Detection using an Information Theoretic Saliency Measure
Gerald Fritz, Christin Seifert, Lucas Paletta, Horst Bischof

W7: Computer Vision Approaches to Medical Image Analysis (CVAMIA) and Mathematical Methods in Biomedical Image Analysis (MMBIA)

Saturday, May 15, 9:00–18:00, CTU W7

9:00–9:05 Opening

9:05–9:45 Keynote Lecture

Progress in Quantitative Cardiovascular Imaging

Hans Reiber

9:45–10:25 Acquisition Techniques and Mathematical Methods I

1. Ultrasound Stimulated Vibroacoustography
James Greenleaf, Mostafa Fatemi, Marek Belohlavek
2. Extraction of Myocardial Contractility Patterns from Short-Axes MR Images using Independent Component Analysis
Avan Suinesiaputra, A. F. Frangi, M. Üzümcü, J. H. C. Reiber, B. P. F. Lelieveldt

10:25–10:40 Coffee Break

10:40–11:40 Acquisition Techniques and Mathematical Methods II

1. Principal Geodesic Analysis on Symmetric Spaces: Statistics of Diffusion Tensors
P. Thomas Fletcher, Sarang Joshi
2. Statistical Imaging for Modeling and Identification of Bacterial Types
Sigal Trattner, Hayit Greenspan, Gabi Tepper, Shimon Abboud
3. CT from an Unmodified Standard Fluoroscopy Machine using a Non-Reproducible Path
Chris Baker, Chris Debrunner, Mohamed Mahfouz, William Hoff, Jamon Bowen

11:40–13:00 Lunch Break

13:00–13:40 Invited Lecture

Wavelets, Fractals and Medical Image Analysis

Michael Unser

13:40–15:00 Reconstruction, Visualisation and CAD Tools

1. Assessment of Intrathoracic Airway Trees: Methods and In Vivo Validation
Kalman Palagyi, Juerg Tschirren, Eric A. Hoffman, Milan Sonka
2. Cone-beam Image Reconstruction by Moving Frames
Xiaochun Yang, Berthold K.P. Horn

3. Three-dimensional Object Reconstruction from Compton Scattered Gamma-ray Data
Mai K. Nguyen, Tuong T. Truong, Jean-Luc Delarbre, Nikolai Kitanine
4. AQUATICS Reconstruction Software: the Design of a Diagnostic Tool based on Computer Vision Algorithms
Andrea Giachetti, Gianluigi Zanetti

15:00–15:20 Coffee Break**15:20–15:50 Invited Lecture**

Inverse Consistent Medical Image Registration
Gary Christensen

15:50–17:10 Medical Image Segmentation

1. Segmentation of Medical Images with a Shape and Motion Model: a Bayesian Perspective
Julien S en egas, Thomas Netsch, Chris A. Cocosco, Gunnar Lund, Alexander Stork
2. A Multi-Scale Geometric Flow for Segmenting Vasculature in MRI
Maxime Descoteaux, Louis Collins, Kaleem Siddiqi
3. A 2D Fourier Approach to Deformable Model Segmentation of 3D Medical Images
Eric Berg, Mohamed Mahfouz, Christian Debrunner, William Hoff
4. Automatic Rib Segmentation in CT Data
Jo es Staal, Bram van Ginneken, Max A. Viergever

17:10–18:00 Poster session

1. Computer-Aided Measurement of Solid Breast Tumor Features on Ultrasound Images
Miguel Alem an-Flores, Patricia Alem an-Flores, Luis  lvarez-Le on, Jos e M. Santana-Montesdeoca, Rafael Fuentes-Pav on, Agust ın Trujillo-Pino
2. Efficient Initialization for Constrained Active Surfaces, Applications in 3D Medical Images
Roberto Ardon, Laurent D. Cohen
3. Symmetric Geodesic Shape Averaging and Shape Interpolation
Brian Avants, James Gee
4. TIGER – A New Model For Spatio-temporal Realignment of fMRI Data
Peter R. Bannister, J. Michael Brady, Mark Jenkinson
5. Robust Registration of 3-D Ultrasound Images Based on Gabor Filter and Mean-Shift Method
Feng Cen, Yifeng Jiang, Zhijun Zhang, H. T. Tswi, T. K. Lau, Hongning Xie

6. An Information Fusion Method for the Automatic Delineation of the Bone-soft Tissues Interface in Ultrasound Images
Vincent Daanen, Jerome Tonetti, Jocelyne Troccaz
7. Smoothing Impulsive Noise Using Nonlinear Diffusion Filtering
Omer Demirkaya
8. Multi-Label Image Segmentation for Medical Applications Based on Graph-Theoretic Electrical Potentials
Leo Grady, Gareth Funka-Lea
9. Robust Extraction of the Optic Nerve Head in Optical Coherence Tomography
Artemas Herzog, Kim L. Boyer, Cynthia Roberts
10. Hierarchical Analysis of Low-Contrast Temporal Images with Linear Scale Space
Tomoki Sakai, Atsushi Imiya
11. Can a Continuity Heuristic be Used to Resolve the Inclination Ambiguity of Polarized Light Imaging?
Luiza Larsen, Lewis D. Griffin
12. The Beltrami Flow over Triangulated Manifolds
Lucero Lopez-Perez, Rachid Deriche, Nir Sochen
13. Towards Automatic Selection of the Regularization Parameters in Emission Tomography by Fourier Synthesis
Pierre Maréchal, D. Mariano-Goulart, L. Giraud, S. Gratton
14. Applications of Image Registration in Human Genome Research
Petr Matula, Michal Kozubek, Pavel Matula
15. Fast Marching 3D Reconstruction of Interphase Chromosomes
Pavel Matula, Jan Hubený, Michal Kozubek
16. Scale-Space Diagnostic Criterion for Microscopic Image Analysis
Igor Gurevich, Dmitry Murashov
17. Segmentation of Abdominal Aortic Aneurysms with a Non-parametric Appearance Model
S.D. Olabarriaga, M. Breeuwer, W.J. Niessen
18. Deformable Image Registration by Adaptive Gaussian Forces
Vladimir Pekar, Evgeny Gladilin
19. Level Set and Region Based Surface Propagation for Diffusion Tensor MRI Segmentation
Mikaël Rousson, Christophe Lenglet, Rachid Deriche
20. Image Registration Neural System for the Analysis of Fundus Topology
V. K. Salakhutdinov, Yu. G. Smetanin, D. M. Murashov, V. A. Gandurin

21. Probabilistic Spatial-Temporal Segmentation of Multiple Sclerosis Lesions
Allon Shahar, Hayit Greenspan
22. Three-Dimensional Mass Reconstruction in Mammography
Ling Shao, Michael Brady
23. Robust Identification of Object Elasticity
Huafeng Liu, Pengcheng Shi
24. Segmenting Cell Images: a Deterministic Relaxation Approach
Chee Sun Won, Jae Yeal Nam, Yoonsik Choe

Sunday, May 16, Workshops, CTU

W3: OMNIVIS Workshop on Omnidirectional Vision, Camera Networks and Non-Classical Cameras

CTU W3, Sunday, May 16, 8:50–18:00

8:50–9:00 Opening

9:00–10:20 Camera Networks

1. Wide Area Multiple Camera Calibration and Estimation of Radial Distortion
João Barreto, Kostas Daniilidis
2. Cinematographic Rules Applied to a Camera Network
Petr Douthek, Indra Geys, Tomáš Svoboda, Luc Van Gool
3. Optimal Placement of Cameras in Floorplans to Satisfy Task Requirements and Cost Constraints
U. Murat Erdem, Stan Sclaroff
4. Towards Calibrating a Pan-Tilt-Zoom Cameras Network
Sudipta N. Sinha, Marc Pollefeys

10:20–10:40 Coffee Break

10:40–12:00 Various Topics

1. Visual Servoing from 3D Straight Lines with Central Catadioptric Cameras
Youcef Mezouar, Hicham Hadj Abdelkater, Phillipe Martinet, François Chaumette
2. Diverging Viewing-Lines in Binocular Vision: A Method for Estimating Ego Motion by Mounted Active Cameras
Akihiro Sugimoto, Tomohiko Ikeda
3. Gait Volume: Spatio-Temporal Analysis of Walking
Yu Ohara, Ryusuke Sagawa, Tomio Echigo, Yasushi Yagi
4. Designing Mirrors for Catadioptric Systems that Minimize Image Errors
Rahul Swaminathan, Shree Nayar, Michael Grossberg

12:00–13:30 Lunch Break

13:30–14:30 Feature Extraction

1. Construction and Detection of Straight Lines, Distances, and Circles in Log-Polar Images
Konrad Schindler
2. Scale-Space Features in 1D Omnidirectional Images
Amy Briggs, Carrick Detweiler, Peter Mullen, Daniel Scharstein

3. Non-Linear Voting in the Space Variant Hough Transform
Nick Barnes

14:30–14:50 Coffee Break**14:50–16:10 Projection Models, Calibration, Structure and Motion Estimation**

1. Cylindrical Sensor Calibration using Lines
Laurent Smadja, Ryad Benosman, Jean Devars
2. Unifying Image Plane Liftings for Central Catadioptric and Dioptric Systems
João Barreto, Kostas Daniilidis
3. Euclid Meets Fourier: Applying Harmonic Analysis to Essential Matrix Estimation in Omnidirectional Cameras
Christopher Geyer, Shankar Sastry
4. A Generic Structure-from-Motion Algorithm for Cross-Camera Scenarios
Srikumar Ramalingam, Suresh K. Lodha, Peter Sturm

16:10 Open Discussion

W5: Workshop on Applications of Computer Vision (ACV)

Sunday, May 16, 9:00–17:00, CTU W5

9:00–9:05 Opening

9:05–9:45 Invited Talk

Photoshop Healing Brush: a Tool for Seamless Cloning

Todor Georgiev

9:45–11:00 Image Processing Methods

1. Ultrasound Image Segmentation Using Texture and Shape Priors
Jun Xie, Hung-tat Tsui
2. Image Fusion Schemes Using Local Spectral Methods
Salvador Gabarda, Gabriel Cristóbal, Filip Šroubek
3. Surface Reconstruction from Multiple SEM Images
Guy Le Besnerais, Fabien Vignon, Jean-Louis Pouchou, Denis Boivin, Pierre Beauchene

11:00–11:20 Coffee Break

11:20–12:35 3D Vision Methods

1. 3D Motion-Compensated Interpolation of Multispectral Cloud Image Sequences
Lin Zhou, Chandra Kambhamettu
2. Camera Based Calibration Techniques for Seamless Flexible Multi-Projector Displays
Ruigang Yang, Aditi Majumder, Michael S. Brown
3. New, Fast Algorithm of 3D Multiview Polyhedron Representation Generation on View Sphere with Perspective
M. Frydler, W. S. Mokrzycki

12:35–13:30 Lunch & Poster session

1. PAPVISION: Paper and Board Printability Tests by Machine Vision in the Paper Making and Printing Industry
Heikki Kalviainen, Albert Sadovnikov, Petja Salmela, Alexander Drobchenko, Joni-Kristian Kamarainen, Lasse Lensu, Pasi Saarinen, Jarkko Vartiainen
2. Design of an Experimental Setup for Performance Evaluation of 3-D Reconstruction Techniques from Sequence of Images
Ahmed Eid, Aly Farag

13:30–14:10 Invited Talk

Inx OptiGrader Edger Optimizer: True-Color Knot/Defect and Geometric Scanning Maximizes Value Recovery in Board Edging

Risto Pettinen

14:10–15:25 Quality Inspection

1. Comparison Between SVM and Boosting Classification Applied to Real-time Flaw Detection Using Artificial Vision

J. Miteran, M. Paindavoine, J. Dubois, S. Bouillant

2. A Structured Light Vision System for Out-of-Plane Vibrations Estimation of a Moving Web

Christophe Doignon, Dominique Knittel

3. Machine Vision for Sorting Reusable Plastic Containers

Axel Groehling, Gerd Stanke

15:25–15:45 Coffee Break**15:45–17:00 Motion**

1. The ADVISOR Visual Surveillance System

Nils T. Siebel, Stephen J. Maybank

2. Probabilistic Tracking of Soccer Players and Ball

Kyuhyoung Choi, Yongdeuk Seo, Sang Wook Lee

3. A Cognitive Vision System for Space Robotics

Faisal Zubair Qureshi, Demetri Terzopoulos

W8: International Workshop on Human Computer Interaction (HCI'04)

Sunday, May 16, 8:30–17:50, CTU W8

8:30–9:30 Keynote Address

Practical Interface Experiments with Implant Technology
Kevin Warwick, University of Reading, UK

9:30–10:30 Human-Robot Interaction

1. Motivational System for Human-Robot Interaction
Xiao Huang, Juyang Weng
2. Real-time Person Tracking and Pointing Gesture Recognition for Human-Robot Interaction
Kai Nickel, Rainer Stiefelhagen
3. A Vision-Based Gestural Guidance Interface for Mobile Robotic Platforms
Vincent Paquin, Paul Cohen

10:30–10:45 Coffee Break

10:45–12:45 Gesture Recognition & Body Tracking

1. Virtual Touch Screen for Mixed Reality
Martin Tosas, Bai Li
2. Typical Sequences Extraction and Recognition
Ma Gengyu, Lin Xueyin
3. Arm-Pointer: 3D Pointing Interface for Real-World Interaction
Eiichi Hosoya, Hidenori Sato, Miki Kitabata, Ikuo Harada, Hisao Nojima, Akira Onozawa
4. Hand Gesture Recognition in Camera-Projector System
Attila Licsar, Tamas Sziranyi
5. Authentic Emotion Detection in Real-Time Video
Yafei Sun, Nicu Sebe, Michael S. Lew, Theo Gevers
6. Hand Pose Estimation using Hierarchical Detection
Bjorn Stenger, Arasanathan Thayananthan, Philip H. S. Torr, Roberto Cipolla

12:45–14:00 Lunch Break

14:00–16:00 Systems

1. Exploring Interactions Specific to Mixed Reality 3D Modeling Systems
Lucian Andrei Gheorghe, Yoshihiro Ban, Kuniaki Uehara
2. 3D Digitization of Hand-held Object with a Wearable Vision Sensor
Sotaro Tsukizawa, Kazuhiko Sumi, Takashi Matsuyama

3. Location-based Information Support System Using Multiple Cameras and LED Light Sources with the Compact Battery-less Information Terminal (CoBIT)
Ikuko Shimizu Okatani, Nishimura Takuichi
4. Djinn: Interaction Framework for Home Environment using Speech and Vision
Jan Kleindienst, Tomas Macek, Ladislav Seredi, Jan Sedivy
5. A Novel Wearable System for Capturing User View Images
Hirotake Yamazoe, Akira Utsumi, Nobuji Tetsutani, Masahiko Yachida
6. An AR Human Computer Interface for Object Localization in a Cognitive Vision Framework
H. Siegl, G. Schweighofer, A. Pinz

16:00–16:30 Coffee Break**16:30–17:50 Face & Head**

1. EM Enhancement of 3D Head Pose Estimated by Perspective Invariance
Jian-Gang Wang, Eric Sung, Ronda Venkateswarlu
2. Multi-View Face Image Synthesis using Factorization Model
Yangzhou Du, Xueyin Lin
3. Pose Invariant Face Recognition using Linear Pose Transformation in Feature Space
Hyung-Soo Lee, Daijin Kim
4. Model-based Head and Facial Motion Tracking
Fadi Dornaika, Jorgen Ahlberg

W9: Statistical Methods in Video Processing (SMVP)

Sunday, May 16, 8:50–16:40, CTU W9

8:50–9:00 Opening

9:00–10:20 3D Geometry

1. Towards Complete Free-Form Reconstruction of Complex 3D Scenes from an Unordered Set of Uncalibrated Images
H. Cornelius, R. Sara, D. Martinec, T. Pajdla, O. Chum, J. Matas
2. Geometric Structure of Degeneracy for Multi-Body Motion Segmentation
Y. Sugaya, K. Kanatani
3. Virtual Visual Hulls: Example-Based 3D Shape Inference From Silhouettes
Kristen Grauman, Gregory Shakhnarovich, Trevor Darrell
4. Unbiased Errors-In-Variables Estimation using Generalized Eigensystem Analysis
Matthias Mühlich, Rudolf Mester

10:20–10:40 Coffee Break

10:40–12:20 Tracking

1. Probabilistic Tracking of the Soccer Ball
Yongduek Seo, Kyu Hyoung Choi
2. Multi-Model Component-Based Tracking using Robust Information Fusion
Bogdan Georgescu, Dorin Comaniciu, Tony X. Han, Xiang Sean Zhou
3. A Probabilistic Approach to Large Displacement Optical Flow and Occlusion Detection
C. Strecha, R. Fransens, L. Van Gool
4. Mean Shift Blob Tracking with Kernel-color Distribution Estimation and Adaptive Model Update Criterion
Peng Ningsong, Yang Jie
5. Tracking Complex Structures by Naive Combinations of Simple Models
Leonid Taycher, John W. Fisher III, Trevor Darrell

12:20–13:40 Lunch Break

13:40–15:00 Background Modeling

1. Online Adaptive Gaussian Mixture Learning for Video Applications
Dar-Shyang Lee
2. Novelty Detection in Image Sequences with Dynamic Background
Fredrik Kahl, Richard Hartley, Volker Hilsenstein

3. A General Framework for Foreground Detection in Complex Environments
Junxian Wang, How-Lung Eng, Alvin H. Kam, Wei-Yun Yau
4. A Background Maintenance Model in the Spatial-Range Domain
Daniel Kottow, Mario Köppen, Javier Ruiz-del-Solar

15:00–15:20 Coffee Break

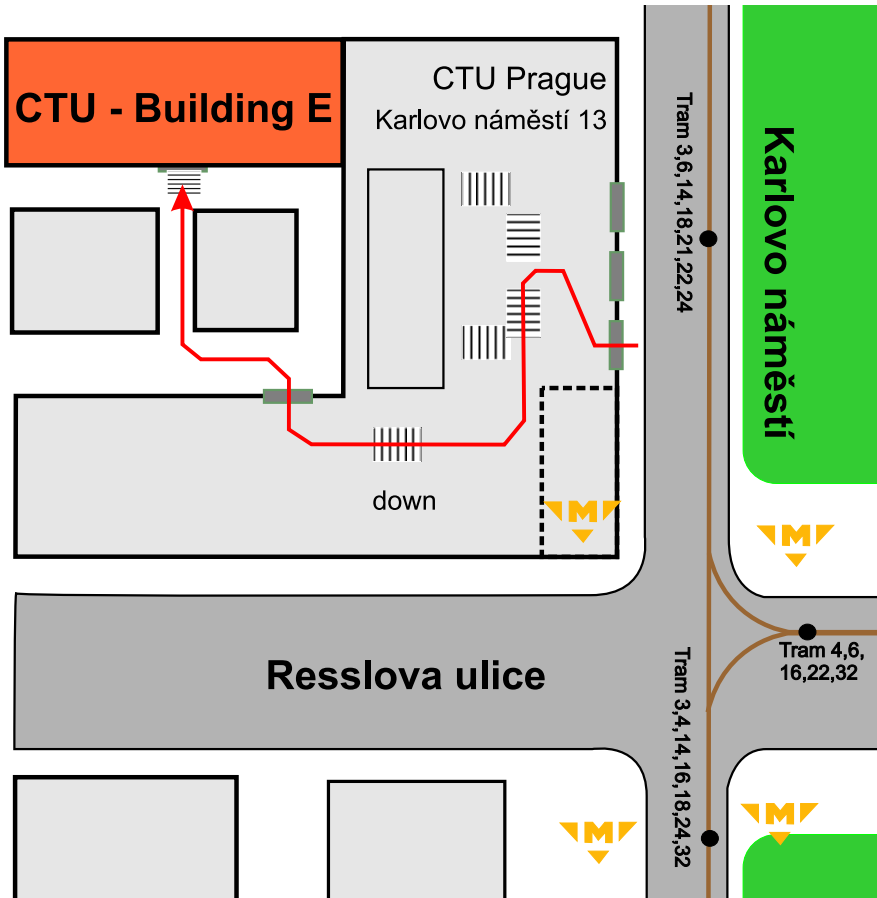
15:20–16:40 Image/Video Analysis

1. A New Robust Technique for Stabilizing Brightness Fluctuations in Image Sequences
Francois Pitie, Rozenn Dahyot, Francis Kelly, Anil. C. Kokaram
2. Statistical Structure of Natural 4x4 Image Patches
K. Koroutchev, J. Dorronsoro
3. Parametric and Non-parametric Methods for Linear Extraction
B. Bascle, X. Gao, V. Ramesh
4. Crowd Segmentation through Emergent Labeling
Peter H. Tu, Jens Rittscher

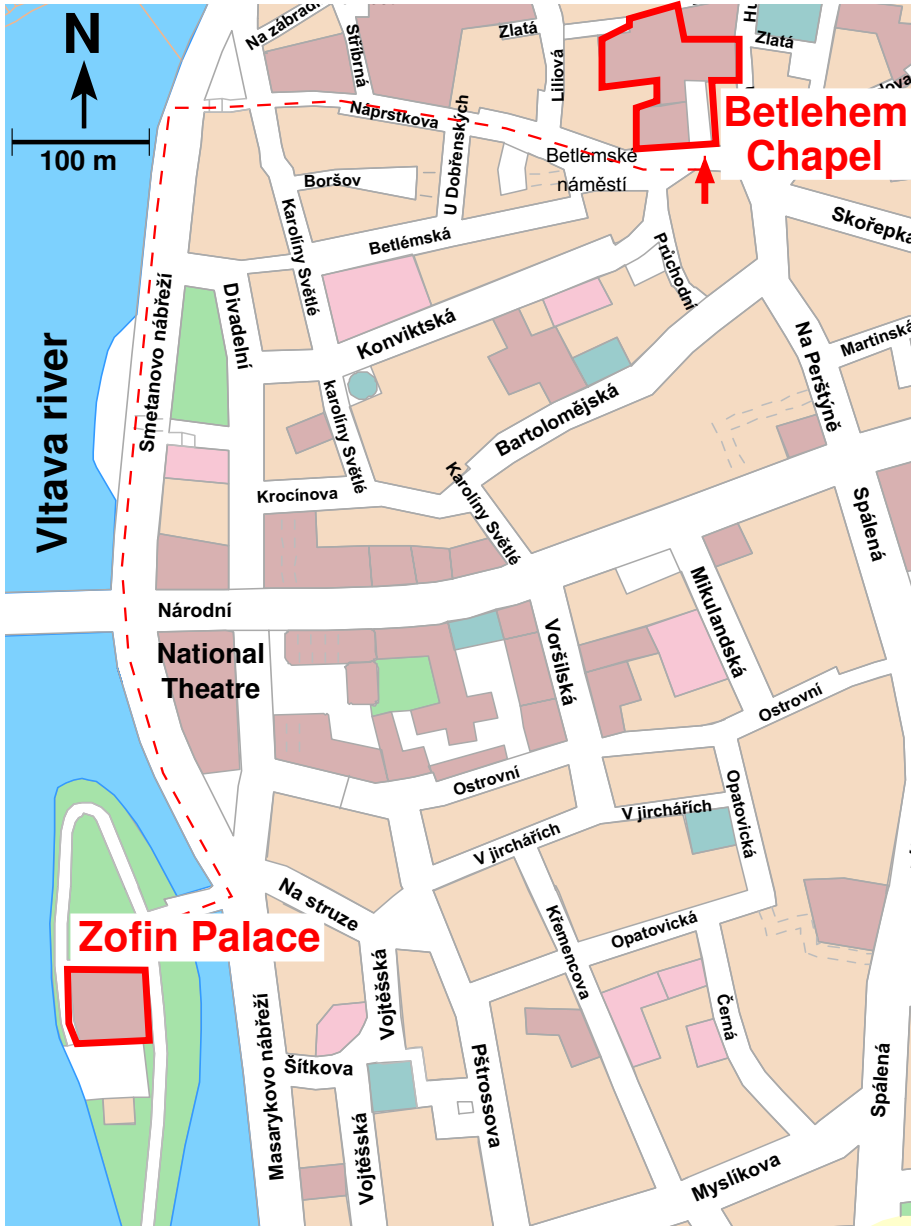
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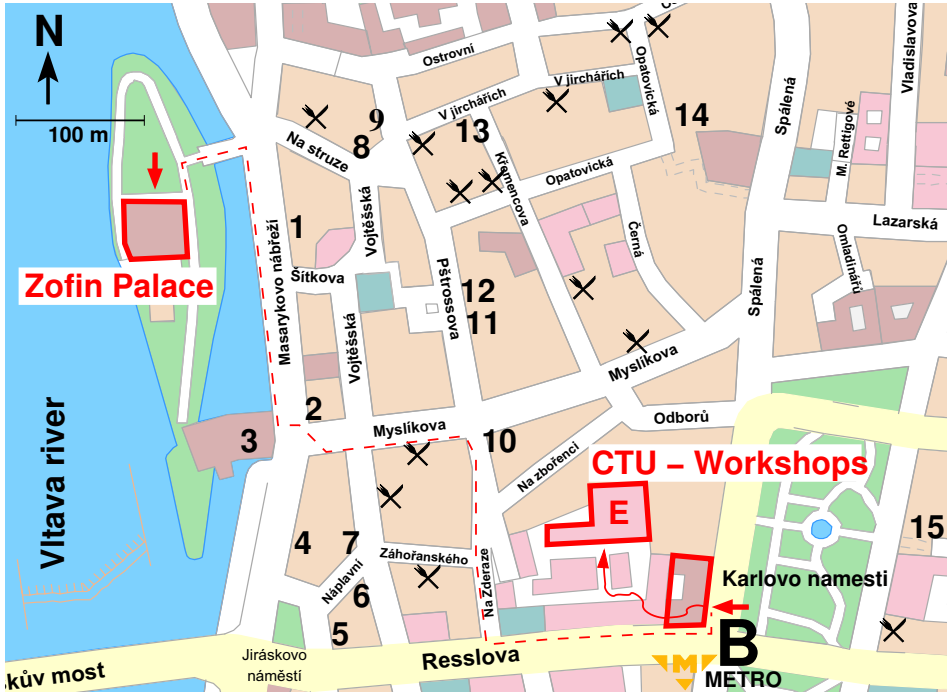
Czech Technical University Map



Bethlehem Chapel Map – Reception



Conference, Tutorials, Workshops



1. Conference, Tutorials & W10


Žofín Palace

Slovanský ostrov, Prague 1,
Czech Republic

2. Workshops W1–W9

Czech Technical University

Prague (CTU)
Faculty of Electrical Eng.
Department of Cybernetics
Karlovo náměstí 13
121 35 Prague 2
Czech Republic

 Metro (subway) line B,
station Karlovo náměstí,
exit Karlovo náměstí.

Restaurants

1. **Suterén** (international)
 2. **Bolero** (international)
 3. **Mánes** (Czech, low cost)
 4. **Pohoda** (international, Czech)
 5. **Potrefená Husa** (international)
 6. **Al Camino** (pizza, pasta)
 7. **Kandahár** (Czech, low cost)
 8. **U zpěváků** (pizza)
 9. **Dynamo** (international)
 10. **Lemon leaf** (international, Thai)
 11. **Globe** (café, internet)
 12. **Vas-Y** (French)
 13. **Universal** (international)
 14. **Velryba** (vegetarian)
 15. **Di Carlo** (pizza, pasta)
- ✕ Other restaurants