

CAIP 2007

The 12th International Conference on
Computer Analysis of Images and Patterns

PROGRAM



August 27th - August 29th, 2007
Vienna University of Technology, Austria



CAIP 2007

August 27th - August 29th, 2007

Vienna, Austria

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Registration

	Onsite Rate:
Member of the IAPR	EUR 390,-
NoN Member of the IAPR	EUR 460,-
Student	EUR 200,-
Additional Conference Dinner	EUR 70,-

CAIP07 AT A GLANCE

Sunday, August 26th, 2007

17:00 Registration
19:00 Get Together

Monday, August 27th, 2007

07:30 Registration
08:45 Opening
09:00 **Session 1:** Motion Detection and Tracking
10:40 Coffee Break
11:10 **Session 2:** Medical Imaging
12:10 **Plenary Poster Presentation 1**
12:40 Lunch Break
13:50 **Session 3:** Biometrics
15:10 Coffee Break
15:40 **Plenary Poster Presentation 2**
16:00 **Poster Session 1**
17:10 **Keynote 1:** Steven Zucker

Tuesday, August 28th, 2007

09:00 **Keynote 2:** Arnold Smeulders
09:50 **Session 4:** Color
10:30 Coffee Break
11:00 **Session 5:** Curves and Surfaces Beyond 2 Dimensions
12:00 **Plenary Poster Presentation 3**
12:30 Lunch Break
13:40 **Session 6:** Reading Characters, Words, Lines...
14:40 **Plenary Poster Presentation 4**
15:00 **Poster Session 2 & Coffee Break**
16:40 **Session 7:** Image Segmentation
19:00 Conference Dinner

Wednesday, August 29th, 2007

09:00 **Session 8:** Shape
10:40 Coffee Break
11:10 **Session 9:** Image Registration and Matching
12:30 Lunch Break
13:40 **Session 10:** Signal Decomposition and Invariants
15:00 Coffee Break
15:30 **Session 11:** Features and Classification
16:10 **Keynote 3:** Zygmunt Pizlo
17:00 Closing
17:15 Farewell
19:00 Heuriger (Optional)

CAIP07 TIME TABLE

	Monday, August 27th, 2007	Tuesday, August 28th, 2007	Wednesday, August 29th, 2007
08:45	Opening		
09:00	Session 1: Motion Detection and Tracking	Keynote 2: Arnold Smeulders	Session 8: Shape
09:30		Session 4: Color	
10:00		Coffee Break	
10:30		Coffee Break	
11:00	Session 2: Medical Imaging	Session 5: Curves and Surfaces Beyond 2 Dimensions	Session 9: Image Registration and Matching
11:30		Plenary Poster Presentation 3	
12:00	Plenary Poster Presentation 1		
12:30	Lunch Break	Lunch Break	Lunch Break
13:00			
13:30	Session 3: Biometrics	Session 6: Reading Characters, Words, Lines, ...	Session 10: Signal Decomposition and Invariants
14:00		Plenary Poster Presentation 4	
14:30		Coffee Break	
15:00	Coffee Break	Coffee Break	Coffee Break
15:30	Plenary Poster Presentation 2	Poster Session 2	Session 11: Features and Classification
16:00	Poster Session 1		Keynote 3: Zygmunt Pizlo
16:30		Session 7: Image Segmentation	Closing
17:00	Keynote 1: Steven Zucker		Farewell
17:30			
19:00	Conference Dinner		

CAIP07 Program in Detail

Monday, August 27th, 2007

07:30 **Registration**

08:45 **Welcome and Opening**
Walter G. Kropatsch, Co-Chair

Session 1: Motion Detection and Tracking

Chair: Martin Kampel

09:00 “Adaptable Model-based Tracking Using Analysis-by-Synthesis Techniques”
Harald Wuest, Folker Wientapper, Didier Stricker

09:20 “Mixture Models Based Background Subtraction for Video Surveillance Applications”
Chris Poppe, Gaetan Martens, Peter Lambert, Rik Van de Walle

09:40 “Applicability of Motion Estimation Algorithms for an Automatic Detection of Spiral Grain in CT Cross-Section Images of Logs”
Karl Entacher, Christian Lenz, Martin Seidel, Andreas Uhl, Rudolf Weiglmaier

10:00 “Deterministic and Stochastic Methods for Gaze Tracking in Real-Time”
Javier Orozco, F. Xavier Roca, Jordi Gonzàlez

10:20 “Integration of Multiple Temporal and Spatial Scales for Robust Optic Flow Estimation in a Biologically Inspired Algorithm”
Cornelia Beck, Thomas Gottbehuet, Heiko Neumann

10:40 **Coffee Break**

Session 2: Medical Imaging

Chair: Petia RadEva

11:10 “Real-Time Active Shape Models for Segmentation of 3D Cardiac Ultrasound”
Jøger Hansegård, Fredrik Orderud, Stein Inge Rabben

11:30 “Effects of Preprocessing Eye Fundus Images on Appearance Based Glaucoma Classification”
Jörg Meier, Rüdiger Bock, László Nyúl, Georg Michelson

11:50 “Flexibility Description of the MET Protein Stalk Based on the Use of Non-Uniform B-Splines”
Magnus Gedda, Stina Svensson

12:10 **Plenary Poster Presentation 1**

One Minute per Poster to get a Quick Overview

Chair: Walter G. Kropatsch

Motion Detection and Tracking

26 “Classification of Optical Flow by Constraints”
Yusuke Kameda, Atsushi Imiya

- 92 "Target Positioning with Dominant Feature Elements"
Zhuan Huang, Zhuhan Jiang
- 111 "Speeding-up Differential Motion Detection Algorithms Using a Change-Driven Data Flow Processing Strategy"
Jose A. Boluda, Fernando Pardo
- 120 "Moving Object and Shadow Detection Based on Conditional Random Field"
Yang Wang
- 139 "n-Grams of Action Primitives for Recognizing Human Behavior"
Christian Thureau, Vaclav Hlavac
- 145 "Human Action Recognition in Table-top Scenarios : An HMM-based Analysis to Optimize the Performace"
Pradeep Reddy Ramana, Daniel Grest, Volker Krueger
- 156 "Grouping of Articulated Objects with Common Axis"
Levente Hajder
- 165 "Decision Level Multiple Cameras Fusion using Dezert-Smarandache Theory"
Esteban García, Leopoldo Altamirano-Robles
- 216 "Occlusion Removal in Video Microscopy"
Brian Eastwood, Russell Taylor
- 218 "A Modular Approach for Automating Video Analysis"
Gayathri Nadarajan, Arnaud Renouf
- 219 "Rectified Reconstruction from Stereo Pairs and Robot Mapping"
Antonio Javier Gallego Sánchez, Rafael Molina Carmona, Patricia Compañ Rosique, Carlos Villagrà Arnedo
- 238 "Estimation Track--Before--Detect Motion Capture Systems State Space Spatial Component"
Przemyslaw Mazurek

Biometrics

- 61 "Lip biometrics for speech recognition"
Isaac-Faraj Maycel, Josef Bigun
- 134 "Wavelet-based fingerprint region selection"
Almudena Lindoso, Luis Entrena, Judith Liu-Jimenez
- 97 "An Embedded Fingerprint Authentication System Integrated With a Hardware-based TRNG"
Murat Erat, Kenan Danisman, Salih Ergun, Alper Kanak, Mehmet Kayaoglu
- 164 "Face Shape Recovery and Recognition Using a Surface Gradient Based Statistical Model"
Mario Castelan, Edwin Hancock
- 104 "A New Manifold Representation for Visual Speech Recognition"
Dahai Yu, Ovidiu Ghita, Alistair Sutherland, Paul Whelan

- 195 "Representation of facial features by Catmull-Rom splines"
Marco Maggini, Stefano Melacci, Lorenzo Sarti
- 105 "Fingerprint Hardening Scheme with Randomly Selected Chaff Minutiae"
Alper Kanak, Ibrahim Sogukpinar
- 223 "Automatic Quantitative Mouth Shape Analysis"
Salazar Augusto, Hernández Jorge, Prieto Flavio

Color

- 15 "Estimating the Color of the Illuminant using Anisotropic Diffusion"
Marc Ebner
- 243 "Real-time elimination of brightness in color images by MS Diagram and mathematical morphology"
Francisco Ortiz
- 147 "Restoration of Color Images Degraded by Space-Variant Motion Blur"
Michal Sorel, Jan Flusser

12:40 **Lunch Break**

Session 3:

Biometrics

Chair: Nicolai Petkov

- 13:50 "Monitoring of Emotion to Create Adaptive Game for Children with Mild Autistic"
Ravindra De Silva, Masatake Higashi, Stephen G. Lambacher, Minatada Osano
- 14:10 "A Simplified Human Vision Model Applied to a Blocking Artifact Metric"
Hantao Liu, Ingrid Heynderickx
- 14:30 "Estimating Reflectance Functions using a Cyberware 3030 Scanner"
Matthew Dickens, Edwin Hancock
- 14:50 "Are Younger People More Difficult to Identify or Just a Peer-to-Peer Effect"
Wai Han Ho, Paul Watters, Dominic Verity

15:10 **Coffee Break**

15:40 **Plenary Poster Presentation 2**

One Minute per Poster to get a Quick Overview

Chair: Xiaoyi Jiang

Medical Imaging

- 9 "Virtual microscopy using JPEG2000"
Gómez Francisco, Romero Eduardo, Romero Eduardo
- 86 "A Statistical-Genetic Algorithm to Select the Most Significant Features in Mammograms"
Gonzalo Vegas, Juan Arribas

- 89 "Biomarker selection system, employing an iterative peak selection method, for identifying biomarkers related to prostate cancer"
Panagiotis Bougioukos, Dionisis Cavouras, Antonis Daskalakis, Ioannis Kalatzis, Spiros Kostopoulos, Pantelis Georgiadis, George Nikiforidis, Anastasios Bezerianos
- 192 "Non-uniform Resolution Recovery using Median Priors in Tomographic Image Reconstruction Methods"
Munir Ahmad, Andrew Todd-Pokropek
- 187 "Delaunay-based Vector Segmentation of Volumetric Medical Images"
Michal Spanel, Premysl Krsek, Miroslav Svub, Vit Stancl, Ondrej Siler
- 159 "Quantification of Bone Remodeling in the Proximity of Implants"
Hamid Sarve, Carina B. Johansson, Joakim Lindblad, Gunilla Borgefors, Victoria Franke Stenport
- 108 "Automatic Segmentation of Femur Bones in Anterior-Posterior Pelvis X-ray Images"
Feng Ding, Wee Kheng Leow, Tet Sen Howe
- 110 "Assessing Artery Motion Compensation in IVUS"
Debora Gil, Petia Radeva, Oriol Rodriguez-Leor, Aura Hernández
- 113 "Assessing Estrogen Receptors' status by texture analysis of breast tissue specimens and pattern recognition methods"
Spiros Kostopoulos, Dionisis Cavouras, Antonis Daskalakis, Ioannis Kalatzis, Panagiotis Bougioukos, George Kagadis, Panagiota Ravazoula, George Nikiforidis
- 154 "Reconstruction of Heart Motion from 4D Echocardiographic Images"
Michal Chlebiej, Krzysztof Nowinski, Piotr Scislo, Piotr Bala
- 142 "Automated 3D segmentation of lung fields in thin slice CT exploiting wavelet preprocessing"
Panayiotis Korfiatis, Skiadopoulos Spyros, Sakellaropoulos Philippos, Kalogeropoulou Christina, Costaridou Lena
- 130 "Multimodal Evaluation for Medical Image Segmentation"
Ruben Cardenes, Meritxell Bach, Ying Chi, Ioannis Marras, Rodrigo de Luis, Peter Cashman, Mats Anderson, Matthieu Bultelle
- 194 "Detection of postmenopausal alteration of bone structure in digitized Xrays"
Constantin Vertan, Ion Stefan, Laura Florea
- 228 "Novel Stability Criteria For Feature Selection Applied To Blood Detection"
David Rotger, Petia Radeva, Eduard Fernández-Nofrerías, Josepa Mauri
- 234 "Eigenmotion-based Detection of Intestinal Contractions"
Laura Igual, Santi Seguí, Jordi Vitria, Fernando Azpiroz, Petia Radeva
- 235 "Brain Tissue Classification with Automated Generation of Training Data Improved by Registration"
Daniel Schwarz, Tomas Kasperek

242 "On Simulating 3D Fluorescent Microscope Images"
*David Svoboda, Marek Kasik, Martin Maska, Jan Hubeny, Stanislav Stejskal,
Michal Zimmermann*

264 "Hierarchical Detection of Organs in CT Images Using Boosted Features"
Samuel Hugueny, Mikael Rousson

16:00 **Poster Session 1**

17:10 **Keynote 1**
"Connection Geometry, Color, and Stereo"
Steven Zucker, Yale University

Tuesday, August 28th, 2007

09:00 **Keynote 2**
 “The notion of an object in computer vision”
 Arnold Smeulders, University of Amsterdam

Session 4: **Color**

Chair: Zygmunt Pizlo

09:50 “Colour Adjacency Histograms for Image Matching”
 Allan Hanbury, Beatriz Marcotegui

10:10 “Detection of Distinct Homogeneous Color”
 Regions in Daniel Mohr, Gabriel Zachmann

10:30 **Coffee Break**

Session 5: **Curves and Surfaces Beyond 2 Dimensions**

Chair: Pedro Real

11:00 “Surface Reconstruction using Polarization and Photometric Stereo”
 Gary Atkinson, Edwin Hancock

11:20 “Curvature estimation in noisy curves”
 Thanh Phuong Nguyen, Isabelle Debled-Rennesson

11:40 “3D+t Reconstruction in the Context of Locally Spheric Shaped Data Observation”
 Wafa Rekik, Dominique Béréziat, Séverine Dubuisson

12:00 **Plenary Poster Presentation 3**
 One Minute per Poster to get a Quick Overview

Chair: Vaclav Hlavac

Curves and Surfaces Beyond 2 Dimensions

98 “Robust Fitting of 3D Objects by Affinely Transformed Superellipsoids Using Normalization”
 Frank Ditrich, Herbert Suesse

157 “Fast and Precise Weak-Perspective Factorization”
 Levente Hajder, Ákos Pernek, Csaba Kazó

188 “A Graph-with-loop Structure for a Topological Representation of 3D Object”
 Belen Medrano, Maria Jose Jimenez, Rocio Gonzalez-Díaz, Pedro Real

Shape

51 “Euclidean Shortest Paths in Simple Cube Curves at a Glance”
 Reinhard Klette, Fajie Li

168 “Decomposing a Simple Polygon into Trapezoids”
 Reinhard Klette, Fajie Li

- 57 "A Fast and Robust Ellipse Detection Algorithm based on Pseudo-Random Sample Consensus"
Ge Song, Hong Wang
- 68 "A Definition for Orientation for Multiple Component Shapes"
Jovisa Zunic, Paul Rosin
- 69 "Definition of a model-based detector of curvilinear regions"
Cedric Lemaitre, Johel Miteran, Jiri Matas
- 91 "A method for interactive shape detection in cattle images using genetic algorithms"
Horacio González Velasco, Carlos J. García-Orellana, Miguel Macías-Macías, Ramón Gallardo-Caballero, Fernando J. Álvarez-Franco
- 102 "A new phase field model of a 'gas of circles' for tree crown extraction from aerial images"
Peter Horvath, Ian Jermyn
- 133 "Shape Signature Matching for Object Identification Invariant to Image Transformations and Occlusion"
Stamatia Giannarou, Tania Stathaki
- 138 "Junction detection and multi-orientation analysis using streamlines"
Lucas van Vliet, Frank Faas
- 200 "Shape Recognition and Retrieval: A Structural Approach Using Velocity Function"
Hamidreza Zaboli, Abdolreza Mirzaei, Mohammad Rahmati
- 201 "Extracting Salient Points and Parts of Shapes Using Modified kd-Trees"
Christian Bauckhage
- 260 "Improved morphological interpolation of elevation contour data with generalised geodesic propagation"
Jacopo Grazzini, Pierre Soille

Features & Classification

- 53 "Improving stability of feature selection methods"
Pavel Krizek, Josef Kittler, Vaclav Hlavac
- 72 "A Movie Classifier Based on Visual Features"
Hui-Yu Huang, Weir-Sheng Shih, Wen-Hsing Hsu
- 141 "An Efficient Method for Filtering Image-Based Spam E-mail"
Nhung Ngo, Phuong Tu
- 149 "SVM-based active feedback in image retrieval using clustering and unlabeled data"
Rujie Liu, Takayuki Baba, Yusuke Uehara, Daiki Masumoto, Shigemi Nagata
- 204 "Hierarchical Classifiers for Detection of Fractures in X-Ray Images"
Joshua Congfu He, Wee Kheng Leow, Tet Sen Howe
- 230 "An Efficient Nearest Neighbor Classifier Using an Adaptive Distance Measure"
Omid Dehzangi, Mansoor J. Zolghadri, Abdollah Dehzangi

41 "Accurate Identification of a Markov-Gibbs Model for Texture Synthesis by Bunch Sampling"
Georgy Gimelfarb, Dongxiao Zhou

88 "Texture Defect Detection"
Michal Haindl, Jiri Grim

12:30 **Lunch Break**

Session 6: Reading Characters, Words, Lines, ...

Chair: Arnold Smeulders

13:40 "Print Process Separation using Interest Regions"
Reinhold Huber-Mörk, Dorothea Heiss-Czedik, Mayer Konrad, Penz Harald, Vrabl Andreas

14:00 "Histogram-Based Lines & Words Decomposition for Arabic Omni Font-Written OCR Systems; Enhancements and Evaluation"
Mohamed Attia, Mohamed El-Mahallawy

14:20 "Semi-Automatic Training Sets Acquisition for Handwriting Recognition"
Jerzy Sas, Urszula Markowska-Kaczmar

14:40 **Plenary Poster Presentation 4**
One Minute per Poster to get a Quick Overview
Chair: Robert Sablatnig

Reading Characters, Words, Lines, ...

63 "Gabor-based Recognizer for Chinese Handwriting from Segmentation-free Strategy"
Tong-Hua Su

100 "Image based recognition of ancient coins"
Maia Zaharieva, Martin Kampel, Sebastian Zambanini

255 "Text Area Detection in Digital Documents Images using Textural Features"
Ilktan Ar, M. Elif Karsligil

Image Segmentation

103 "Model-based Segmentation of Multimodal Images"
Xin Hong, Sally McClean, Bryan Scotney, Philip Morrow

38 "Image Modeling and Segmentation Using Incremental Bayesian Mixture Models"
Constantinopoulos Constantinos, Aristidis Likas

268 "Image Segmentation Based on Height Maps"
Gabriele Peters, Jochen Kerdels

Signal Decomposition and Invariants

- 70 "An Automatic Microarray Image Gridding Technique Based on Continuous Wavelet Transform"
Emmanouil Athanasiadis, Dionisis Cavouras, Panagiota Spyridonos, Ioannis Kalatzis, George Nikiforidis
- 118 "Image Sifting for Micro Array Image Enhancement"
Pooria Jafari Moghadam Fard, Mohammad Hassan Moradi
- 166 "Wavelet Based Local Coherent Tomography with an Application in Terahertz Imaging"
Xiaoxia Yin
- 210 "Nonlinear Approximation of Spatiotemporal Data Using Diffusion Wavelets"
Marie Wild
- 212 "A new wavelet-based texture descriptor for image retrieval"
Esther de Ves, Ana Ruedin, Daniel Acevedo, Xaro Benavent, Leticia Seijas
- 215 "Space-variant restoration with sliding discrete cosine transform"
Vitaly Kober, Jacobo Gomez Agis

Image Registration and Matching

- 83 "A Neural Network String Matcher"
Abdolreza Mirzaei, Reza Safabakhsh
- 115 "Incorporating Spatial Information into 3D-2D Image Registration"
Guoyan Zheng
- 124 "Performance Evaluation and Recent Advances of Fast Block-Matching Motion Estimation Methods for Video Coding"
Berenice Ramirez
- 152 "Spectral Eigenfeatures for Effective DP Matching in Fingerprint Recognition"
Boris Danev, Toshio Kamei
- 261 "Registering Long-Term Image Series"
Detlev Droege, Dietrich Paulus
- 274 "Graph Similarity using Interfering Quantum Walks"
David Emms

15:00 **Coffee Break**

15:00 **Poster Session 2**

Session 7:

Image Segmentation

Chair: Lucas van Vliet

- 16:40 "Optimal threshold selection for tomogram segmentation by reprojection of the reconstructed image"
Kees Joost Batenburg, Jan Sijbers
- 17:00 "A Level Set Bridging Force for the Segmentation of Dendritic Spines"
Karsten Rink, Klaus Tönnies
- 17:20 "Knowledge from Markers in Watershed Segmentation"
Sébastien Lefevre
- 17:40 "Image Segmentation Using Topological Persistence"
David Letscher, Jason Fritts
- 19:00 **Conference Dinner**

Session 8:

Shape

Chair: Reinhard Klette

- 09:00 "Measuring the Orientability of Shapes"
Paul Rosin
- 09:20 "A 3-Subiteration Surface-Thinning Algorithm"
Kalman Palagyi
- 09:40 "Extraction of River Networks from Satellite Images by Combining Morphology and Hydrology"
Pierre Soille, Jacopo Grazzini
- 10:00 "Fractal Active Shape Models"
Polychronis Manousopoulos, Vassileios Drakopoulos, Theoharis Theoharis
- 10:20 "Decomposition for Efficient Eccentricity Transform of Convex Shapes"
Adrian Ion, Samuel Peltier, Yll Haxhimusa, Walter G. Kropatsch
- 10:40 **Coffee Break**

Session 9:

Image Registration and Matching

Chair: Allan Hanbury

- 11:10 "Cylindrical Phase Correlation Method"
Jakub Bican, Jan Flusser
- 11:30 "Extended Global Optimization Strategy for Rigid 2D/3D Image Registration"
Alexander Kubias, Frank Deinzer, Tobias Feldmann, Dietrich Paulus
- 11:50 "A fast B-spline pseudo-inversion algorithm for consistent image registration"
Antonio Tristán, Juan Arribas
- 12:10 "Robust Least-Square Image Matching in the Presence of Outliers"
Patrice Delmas, Georgy Gimelfarb, Al Shorin, John Morris
- 12:30 **Lunch Break**

Session 10:

Signal Decomposition and Invariants

Chair: Gerald Sommer

- 13:40 "Visual Speech Recognition Using Motion Features and Hidden Markov Models"
Wai Chee Yau
- 14:00 "Feature Extraction of Weighted Data for Implicit Variable Selection"
Luis Sánchez, Fernando Martínez, Germán Castellanos, Salazar Augusto
- 14:20 "Analysis of Prediction Mode Decision in Spatial Enhancement Layers in H.264/AVC SVC"
Koen De Wolf, Davy De Schrijver, Wesley De Neve, Saar De Zutter, Peter Lambert, Rik Van de Walle

14:40 "Object Recognition by Implicit Invariants"
Jan Flusser, Jaroslav Kautsky, Filip Sroubek

15:00 **Coffee Break**

Session 11: Features and Classification

Chair: Georgy Gimel'farb

15:30 "Comparative Evaluation of Classical Methods, Optimized Gabor Filters and LBP for Texture Feature Selection and Classification"
Jaime Melendez, Domenec Puig, Miguel Angel Garcia

15:50 "A Multiple Classifier Approach for the Recognition of Screen-Rendered Text"
Steffen Wachenfeld, Stefan Fleischer, Xiaoyi Jiang

16:10 **Keynote 3**
"Human Perception of 3D Shapes"
Zygmunt Pizlo, Purdue University

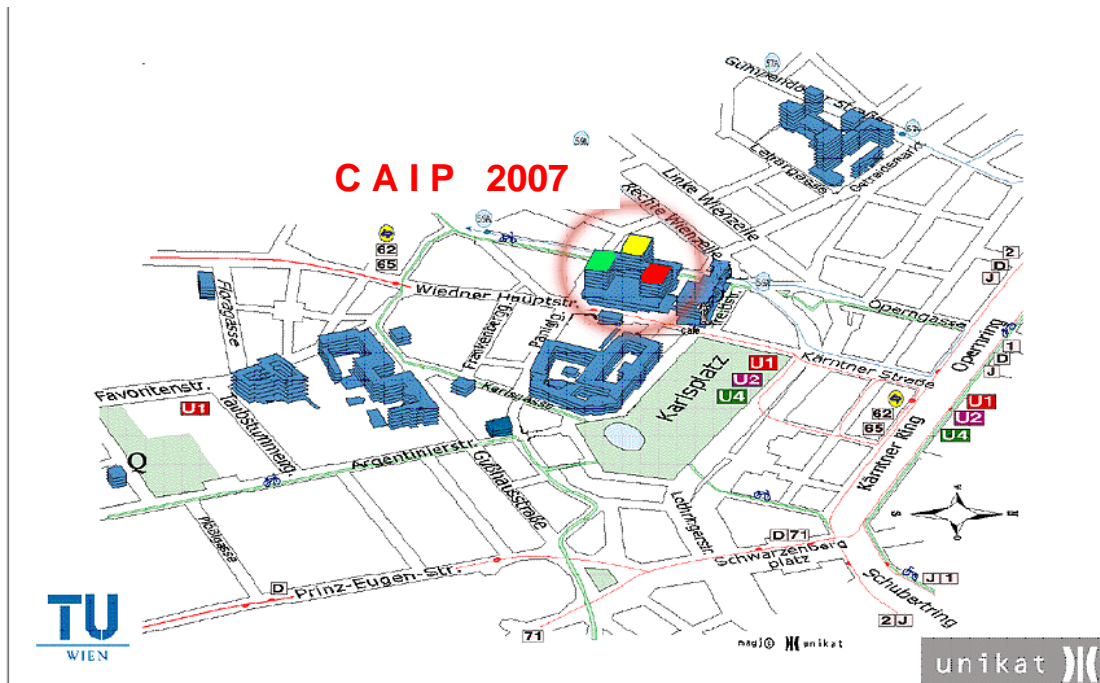
17:00 **Closing**

17:15 **Farewell**

19:00 **Heuriger (Optional)**

Conference Venue

- Lecture Room: Freihaus HS1, red tower, first and second level
Technical University of Vienna, Freihaus, Wiedner Hauptstraße 8 -1, 1040 Vienna
- Registration: Freihaus level 1, red tower, in front of the lecture room
- Get-together: TU Mensa, Freihaus, yellow area, first level
Technical University of Vienna, Freihaus, Wiedner Hauptstraße 8 -1, 1040 Vienna



Conference Dinner

Palais Strudlhof, 9th district, Pasteurgasse 1
Tram D (from Karlsplatz to Bauernfeldplatz)

