

8th International Symposium on Visual Computing (ISVC'12)

July 16-18, 2012, Rethymnon, Crete, Greece



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Final Program

8th International Symposium on Visual Computing (ISVC'12)

Symposium Overview

	Monday 16 th	Tuesday 17 th	Wednesday 18 th
8:30 am – 9:30 am	Keynote		
9:40 am – 10:40 am	Parallel Sessions		
10:40 am – 11:10 am	<i>Coffee Break</i>		
11:10 am – 12:10 am	Parallel Sessions		
12:10 pm – 1:30 pm	<i>Lunch Break (on your own)</i>		
1:30 pm – 2:30 pm	Keynote		
2:40 pm – 3:40 pm	Parallel Sessions Poster Session (July 17 th : 2:30pm-4:00pm)		
3:40 pm – 4:10 pm	<i>Coffee Break (July 17th: 4:00pm -4:30pm)</i>		
4:10 pm – 5:10 pm	Parallel Sessions (July 17 th : 4:30pm -6:30pm)		

Registration Desk hours: Sunday, July 15th: 5:00pm - 8:00pm
Monday, July 16th – Wednesday, July 18th: 8:00am – 5:30pm

Banquet Dinner: Tuesday, July 17th: 7:30pm – 10.30pm (“Mournies” Tavern)

Monday, July 16th

8:30-9:30	Keynote: Petros Faloutsos , York University, Canada (Megas Alexandros)		
Parallel Sessions			
9:40-12:10	ST: Computational Bioimaging I Chair: Rahul Singh (Megas Alexandros)	Computer Graphics I Chair: Bin Dong (Achilles)	
	9:40	Simulation of the Abdominal Wall and its Arteries after Pneumoperitoneum for Guidance of Port Positioning in Laparoscopic Surgery <i>J. Bano, A. Hostettler, S.A. Nicolau, C. Doignon, H.S. Wu, M.H. Huang, L. Soler and J. Marescaux</i>	Multigrid Narrow Band Surface Reconstruction via Level Set Functions <i>J. Ye, I. Yanovsky, B. Dong, R. Gandlin, A. Brandt and S. Osher</i>
	10:00	Appearance Similarity Flow for Quantification of Anatomical Landmark Uncertainty in Medical Images <i>Y. Masutani, M. Nemoto, S. Hanaoka, N. Hayashi and K. Ohtomo</i>	Real-time Simulation of Ship Motions in Waves <i>X. Chen, G. Wang, Y. Zhu and G.S. Owen</i>
	10:20	Segmentation of Brain Tumors in CT Images Using Level Sets <i>Z. Wei, C. Zhang, X. Yang and X. Zhang</i>	Adaptive Spectral Mapping for Real-Time Dispersive Refraction <i>D. Blanchette and E. Agu</i>
10:40-11:10	<i>Coffee Break</i>		
	11:10	Focal Liver Lesion Tracking in CEUS for Characterisation based on Dynamic Behaviour <i>S. Bakas, A. Hoppe, K. Chatzimichail, V. Galiotiotis, G. Hunter and D. Makris</i>	A Dual Method for Constructing Multi-Material Solids from Ray-Reps <i>P. Feng and J. Warren</i>
	11:30	Segmentation of the Hippocampus for Detection of Alzheimer's Disease <i>M. Hajiesmaeili, B. Bagherinakhjavanlo, J. Dehmeshki and T. Ellis</i>	User driven 3D reconstruction environment <i>D. Sedlacek and J. Zara</i>
	11:50	Segmentation of Parasites for High-Content Screening using Phase Congruency and Grayscale Morphology <i>D. Asarnow and R. Singh</i>	Methods for Approximating Loop Subdivision Using Tessellation Enabled GPUs <i>A. Amresh, . Femiani and C. Funzig</i>
9:40-12:10	Calibration / 3D Chair: George Kamberov (Poseidon)	ST: Object Recognition Chair: Vijayan Asari (Odysseas)	
	9:40	Bundle Adjustment Constrained Smoothing For Multi-View Point Cloud Data <i>K. Liu and R. Zayer</i>	Keypoint Detection Based on the Unimodality Test of HOGs <i>M.A. Catano and J. Climent</i>
	10:00	Guided Sampling in Multiple View Robust Motion Estimation using Regression Diagnostics <i>H. Rastgar, E. Dubois and L. Zhang</i>	Neural Network based Methodology for Automatic Detection of Whale Blows in Infrared Video <i>V. Santhaseelan, S. Arigela and V. K. Asari</i>
	10:20	Hand Shape and 3D Pose Estimation using Depth Data from a Single Cluttered Frame <i>P. Doliotis, V. Athitsos, D. Kosmopoulos, and S.Perantonis</i>	Large Scale Sketch Based Image Retrieval Using Patch Hashing <i>K. Bozas and E. Izquierdo</i>
10:40-11:10	<i>Coffee Break</i>		
	11:10	Fusing Low-Resolution Depth Maps into High-Resolution Stereo Matching <i>B.R. Fortenbury and G. Guerra-Filho</i>	Efficient Scale and Rotation Invariant Object Detection based on HOGs and Evolutionary Optimization Techniques <i>S. Stefanou and A. Argyros</i>
	11:30	Auto-calibration of Pan-Tilt Cameras including Radial Distortion and Zoom <i>R. Galego, A. Bernardino and J. Gaspar</i>	
	11:50	Robust 2D/3D Calibration using RANSAC Registration <i>B.R. Fortenbury and G. Guerra-Filho</i>	
12:10-1:30	<i>Lunch (on your own)</i>		

1:30-2:30	<i>Keynote: Sabine Coquillart, INRIA, France (Megas Alexandros)</i>	
Parallel Sessions		
2:40-5:10	Illumination, Modeling, and Segmentation Chair: Karolina Nurzyńska (Megas Alexandros)	Visualization I Chairs: Randy Goebel (Achilles)
	2:40 Gaussian Mixture Background Modelling Optimisation for Micro-controllers <i>C. Salvadori, D. Makris, M. Petracca, J.M. del Rincon, and S. Velastin</i>	Polynomiography via Ishikawa and Mann Iterations <i>W. Kotarski, K. Gdawiec and A. Lisowska</i>
	3:00 Automatic Segmentation of Wood Logs by Combining Detection and Segmentation <i>E. Gutzeit and J. Voskamp</i>	Clustered Deep Shadow Maps for Integrated Polyhedral and Volume Rendering <i>A. Bornik, W. Knecht, M. Hadwiger and D. Schmalstieg</i>
	3:20 Object Detection from Multiple Images Based on the Graph Cuts <i>M. Holusa and E. Sojka</i>	Bundle Visualization Strategies for HARDI Characteristics <i>D. Rottger, D. Dudai, D. Merhof and S. Muller</i>
3:40-4:10	<i>Coffee Break</i>	
	4:10 Real-Time Semantic Clothing Segmentation <i>G. Cushen and M. Nixon</i>	Context-Preserving Volumetric Data Set Exploration Using a 3D Painting Metaphor <i>L. Faynshteyn and T. McInerney</i>
	4:30 Detection and Normalization of Blown-out Illumination Areas in Grey-Scale Images <i>K. Nurzynska and R. Haraszczuk</i>	FmFinder: Search and Filter your Favorite Songs <i>T.N. Dang, A. Anand and L. Wilkinson</i>
	4:50 A Synthesis-and-Analysis Approach to Image Based Lighting <i>V. Galigekere and G. Guerra-Filho</i>	
2:40-5:10	ST: 3D Mapping, Modeling and Surface Reconstruction Chair: Ioannis Patras (Poseidon)	
	2:40 3D Texture Mapping in Multi-view Reconstruction <i>Z. Chen, J. Zhou, Y. Chen and G. Wang</i>	
	3:00 A Novel Locally Adaptive Dynamic Programming Approach for Color Structured Light System <i>R. Zou, Y. Zhou, Y. Yu and S. Du</i>	
	3:20 Advanced Coincidence Processing of 3D Laser Radar Data <i>A. Vasile, L. Skelly, M. O'Brien, D. Fouche, R. Marino, R. Knowlton, M. Khan and R. Heinrichs</i>	
3:40-4:10	<i>Coffee Break</i>	
	4:10 Using Synthetic Data for Planning, Development and Evaluation of Shape-from-Silhouette Based Human Motion Capture Methods <i>R.H. Bakken</i>	
	4:30 Off-road Terrain Mapping Based on Dense Hierarchical Real-Time Stereo Vision <i>T. Kadiofsky, J. Weichselbaum and C. Zinner</i>	
	4:50	

Tuesday, July 17th

8:30-9:30	<i>Keynote: Randy Goebel, University of Alberta, Canada (Megas Alexandros)</i>	
	Parallel Sessions	
9:40-12:10	Motion and Tracking Chairs: Xenophon Zabulis (Megas Alexandros)	Computer Graphics II Chair: Tim Suess (Achilles)
	9:40 TV-L1 Optical Flow Estimation With Image Details Recovering Based on Modified Census Transform <i>M. Mohamed and B. Mertsching</i>	Automatic Reference Selection for Parametric Color Correction Schemes for Panoramic Video Stitching <i>M.T. Ibrahim, R. Hafiz, M.M. Khan, Y. Cho and J. Cha</i>
	10:00 Tracking Technical Objects in Outdoor Environment based on CAD Models <i>S. Reinke, E. Gutzeit, B. Mesing and M. Vahl</i>	Asynchronous Occlusion Culling on Heterogeneous PC Clusters for Distributed 3D Scenes <i>T. Suess, C. Koch, C. Jahn, M. Fischer, and F. Meyer auf der Heide</i>
	10:20 Motion Compensated Frame Interpolation with a Symmetric Optical Flow Constraint <i>L. Rakét, L. Roholm, A. Bruhn, and J. Weickert</i>	A novel color transfer algorithm for impressionistic paintings <i>H. Lee, T. Lee and K. Yoon</i>
10:40-11:10	<i>Coffee Break</i>	
	11:10 Ego-motion estimation using rectified stereo and bilateral transfer function <i>G. Panin and N. Oumer</i>	Gaze-dependent Ambient Occlusion <i>R. Mantiuk and S. Janus</i>
	11:30 Generative 2D and 3D Human Pose Estimation with Vote Distributions <i>J. Brauer, W. Hubner and M. Arens</i>	Profile-based Feature Representation based on Guide Curve Approximation Using Line and Arc Segments <i>J. Li and S. Han</i>
	11:50	Real-Time Illumination for Two-Level Volume Rendering <i>A. Corcoran and J. Dingliana</i>
9:40-12:10	ST: Optimization for Vision, Graphics and Medical Imaging Chair: Andreas Maier (Poseidon)	
	9:40 Spatial Colour Gamut Mapping by Orthogonal Projection of Gradients onto Constant Hue Lines <i>A. Alsam and I. Farup</i>	
	10:00 Accelerated Centre-of-Gravity Calculation for Massive Numbers of Image Patches <i>A. Maier</i>	
	10:20 An Optimization Based Framework for Human Pose Estimation in Monocular Videos <i>P. Agarwaly, S. Kumary, J. Rydez, J. Corsoz and V. Krovij</i>	
10:40-11:10	<i>Coffee Break</i>	
	11:10 Solving MRF minimization by Mirror Descent <i>D. Luong, P. Parpas, D. Rueckert and B. Rustem</i>	
	11:30 Similarity Registration for Shapes based on Signed Distance Functions <i>S. Mahmoodi, M. Al-Huseiny and M. Nixon</i>	
	11:50	
12:10-1:30	<p><i>Lunch (on your own)</i></p> <p>(poster setup: 12:00pm to 1:30pm – Megas Alexandros)</p>	

1:30-2:30	Keynote: Cordelia Schmid , INRIA, France (Megas Alexandros)	
2:30-4:00	Poster Session (Megas Alexandros)	
4:00-4:30	Coffee Break	
	Parallel Sessions	
4:30-6:10	HCI and Recognition Chair: Yoshinori Kuno (Megas Alexandros)	Visualization II Chair: Harald Obermaier (Achilles)
4:30	Protrusion Fields for 3D Model Search and Retrieval based on Range Image Queries <i>K. Moustakas, G. Stavropoulos and D. Tzovaras</i>	Comprehensible and Interactive Visualizations of GIS Data in Augmented Reality <i>S. Zollmann, G. Schall, S. Junghanns and G. Reitmayr</i>
4:50	Object Recognition for Service Robots through Verbal Interaction about Multiple Attribute Information <i>H. Fukuda and S. Mori, Y. Kobayashi and Y. Kuno</i>	Sketch-Line Interactions for 3D Image Visualization and Analysis <i>T. McInerney and Y.S. Shih</i>
5:10	TCAS: A multiclass object detector for robot and computer vision applications <i>R. Verschae and J. Ruiz-del-Solar</i>	Fast Illustrative Visualization of Fiber Tracts <i>J.D. Garcia and P-P. Vazquez</i>
5:30	Augmented multitouch interaction upon a 2-DOF rotating disk <i>X. Zabulis, P. Koutlemanis and D. Grammenos</i>	Practical Volume Rendering in mobile devices <i>M.B. Rodriguez and P.P.V Alcocer</i>
5:50	On Making Projector both a Display Device and a 3D Sensor <i>J. Dai and R. Chung</i>	Real-time Visualization of a Sparse Parametric Mixture Model for BTF Rendering <i>N. Silva, L.P. Santos and D. Fussell</i>
4:30-6:30	ST: Unconstrained Biometrics: Advances and Trends Chair: Muhammad Hussain (Poseidon)	
4:30	Iris Recognition in Image Domain: Quality-metric based Comparators <i>H. Hofbauer, C. Rathgeb, A. Uhl, and P. Wild</i>	
4:50	Gait Recognition Based on Normalized Walk Cycles <i>J. Sedmidubsky, J. Valcik, M. Balazia and P. Zezula</i>	
5:10	Illumination Normalization for SIFT based Finger Vein Authentication <i>H-G. Kim, E.J. Lee, G.J. Yoon, S-D. Yang, E.C. Lee and S.M. Yoon</i>	
5:30	Higher Rank Support Tensor Machines <i>I. Kotsia, W. Guo and I. Patras</i>	
5:50	Multi-scale Integral Modified Census Transform for Eye Detection <i>I. Choi and D. Kim</i>	
6:10	A Comparative Analysis of Thermal and Visual Modalities for Automated Facial Expression Recognition <i>A. Wesley, P. Buddharaju, R. Pienta and I. Pavlidis</i>	
7:30-10:30	Banquet Dinner & Best Paper Award ("Mournies" Tavern)	

Wednesday, July 18th

8:30-9:30	<i>Keynote:</i> Daniel Cremers , Technical University of Munich, Germany (Megas Alexandros)	
	Parallel Sessions	
9:40-12:10	ST: Computational Bioimaging II Chair: Yoshitaka Masutani (Megas Alexandros)	ST: Intelligent Environments: Algorithms and Applications Chair: Maja Pantic (Achilles)
	9:40 Vertebrae Tracking in Lumbar Spinal Video-Fluoroscopy Using Particle Filters with Semi-Automatic Initialisation <i>H. Nait-Charif , A. Breen and P.Thompson</i>	SCAR: Dynamic adaptation for person detection and persistence analysis in unconstrained videos <i>G. Kamberov, M. Burlick, L. Karydas and O. Koteoglou</i>
	10:00 Mutual information for multi-modal, discontinuity-preserving image registration <i>G. Panin</i>	Motion History of Skeletal Volumes for Human Action Recognition <i>A. Karali and M. ElHelw</i>
	10:20 Detection in Digital Mammograms Using Optimized Gabor Filter Bank <i>M. Hussain, S. Khan, G. Muhammad and G. Bebis</i>	Compressive Matting <i>S.M. Yoon and G-J. Yoon</i>
10:40-11:10	<i>Coffee Break</i>	
	11:10 Comparing 3D descriptors for local search of craniofacial landmarks <i>F. Sukno, J. Waddington and P. Whelan</i>	A Template-Based Completion Framework for Videos with Dynamic Backgrounds <i>T. Yatagawa and Y. Yamaguchi</i>
	11:30 Vision-Based Tracking of Complex Macroparasites for High-Content Phenotypic Drug Screening <i>U. Saha and R. Singh</i>	3D Action Classification Using Sparse Spatio-Temporal Feature Representations <i>S. Azary and A. Savakis</i>
	11:50 Cell nuclei detection using globally optimal active contours with shape prior <i>J. De Vylder, J. Aelterman, M. Vandewoestyne, T. Lepez, D.Deforce and W. Philips</i>	Non-Rigid and Partial 3D Model Retrieval Using Hybrid Shape Descriptor and Meta Similarity <i>Bo Li, Afzal Godil and Henry Johan</i>
9:40-12:10	Applications Chair: Dimitrios Makris (Poseidon)	
	9:40 Exploiting 3D Digital Representations of Ancient Inscriptions to Identify their Writer <i>G. Galanopoulos, C. Papaodysseus, D. Arabadjis and M. Exarhos</i>	
	10:00 What the eye did not see(a fusion approach to image coding <i>A. Alsam, H.J. Rivertz and P. Sharma</i>	
	10:20 Knot detection in X-ray CT images of wood <i>A. Krahenbuh, B. Kerautret, I. Debled-Rennesson, F. Longuetaud and F.Mothe</i>	
10:40-11:10	<i>Coffee Break</i>	
	11:10 Diffusion-Based Image Compression in Steganography <i>M. Mainberger, C. Schmaltz, M. Berg, J. Weickert and M. Backes</i>	
	11:30 Video Analysis Algorithms for Automated Categorization of Fly Behaviors <i>Md. A. Reza, J. Marker, S. Mhatre, A.Saunders, D. Marenda and D. Breen</i>	
	11:50 Panorama Image Construction Using Multiple-Photos Stitching from Biological Data <i>J. Rosenkranz, Y. Xu, X. Zhang, L. Yin and W. Stein</i>	
12:10-1:30	<i>Lunch (on your own)</i>	

1:30-2:30	Keynote: Vijayan Asari , University of Dayton, USA (Megas Alexandros)	
Parallel Sessions		
2:40-5:10	Visualization III Chair: Anders Brun (Megas Alexandros)	Virtual Reality Chairs: Timothy McInerney (Achilles)
	2:40	Function Field Analysis for the Visualization of Flow Similarity in Time-Varying Vector Fields <i>H. Obermaier and K.I. Joy</i>
		Practical Implementation of a Graphics Turing Test <i>M. Borg, S.S. Johansen, D.L. Thomsen and M. Kraus</i>
	3:00	A Novel Algorithm for Computing Riemannian Geodesic Distance in Rectangular 2D Grids <i>O. Nilsson, M. Reimers, K. Museth and A. Brun</i>
		The hybrid algorithm for procedural generation of virtual scene components <i>T. Zawadzki and D. Kujawa</i>
	3:20	Visualization of Taxi Drivers' Income and Mobility Intelligence <i>Y. Gao, P. Xu, L. Lu, H. Liu, S. Liu and H. Qu</i>
		Initialization of Model-Based Camera Tracking with Analysis-by-Synthesis <i>M. Schumann, S. Kowalczyk and S. Muller</i>
3:40-4:10	<i>Coffee Break</i>	
	4:10	Frame Cache Management for Multi-frame Rate Systems <i>S. Hauswiesner, P. Grasmug, D. Kalkofen and D. Schmalstieg</i>
		Real-Time Rendering of Teeth with No Preprocessing <i>C.T. Larsen, J.R. Frisvad, P. Jensen and J.A. Baerentzen</i>
	4:30	Detecting Periodicity in Serial Data Through Visualization <i>E. N. Argyriou and A. Symvonis</i>
		An Evaluation of Open Source Physics Engines for Use in Virtual Reality Assembly Simulations <i>J. Hummel, R. Wolff, T. Stein, A. Gerndt and T. Kuhlen</i>
	4:50	A Framework for User Tests in a Virtual Environment <i>R. Neugebauer, F. Pürzel, M. Lorenz, and E. Wittstock</i>
2:40-5:10	ST: Face Processing and Recognition Chair: Andreas Savakis (Poseidon)	
	2:40	Continuous Pain Intensity Estimation From Facial Expressions <i>S. Kaltwang, O. Rudovic and M. Pantic</i>
	3:00	Local Alignment of Gradient Features for Face Sketch Recognition <i>A.T. Alex, V.K. Asari and A. Mathew</i>
	3:20	Towards the Usage of Optical Flow Temporal Features for Facial Expression Classification <i>R. Ptucha and A. Savakis</i>
3:40-4:10	<i>Coffee Break</i>	
	4:10	Using Detailed Independent 3D Sub-Models to Improve Facial Feature Localisation and Pose Estimation <i>A. Counce, C. Taylor and T. Cootes</i>
	4:30	Gender Recognition from Face Images with Dyadic Wavelet Transform and Local Binary Pattern <i>I. Ullah, M. Hussain, H. Aboalsamh, G. Muhammad, A.M. Mirza and G. Bebis</i>

Poster Session

Tuesday, July 17th (2:30pm – 4:00pm)
(poster setup: 12:00pm to 1:30pm – Megas Alexandros)

Architectural Style Classification of Domes <i>G. Shalunts, Y. Haxhimusa and R. Sablatnig</i>
Contour Detection by Image Analogies <i>S. Larabi and N. M. Robertson</i>
Rotation Invariant Texture Recognition using Discriminant Feature Transform <i>N. Jundang and S. Srisuk</i>
An unsupervised evaluation measure of image segmentation: application to flower image segmentation <i>A. Najjar and E. Zagrouba</i>
Robust Hand Tracking with Hough Forest and Multi-cue Flocks of Features <i>H. Liu, W. Cui and R. Ding</i>
The Impact of Unfocused Vickers Indentation Images on the Segmentation Performance <i>M. Gadermayr, A. Maier and A. Uhl</i>
GPU-based Multi-Resolution Image Analysis for Synthesis of Tileable Textures <i>G. Eibner, A. Fuhrmann and W. Purgathofer</i>
Edge Detection and Smoothing-Filter of Volumetric Data <i>M. Narita, A. Imiya and H. Itoh</i>
Human Body Orientation Estimation in Multiview Scenarios <i>L. Chen, G. Panin and A. Knoll</i>
Characterization of Similar Areas of Two 2D Point Clouds <i>S. Mavromatis, C. Palmann and J. Sequeira</i>
Building an Effective Visual Codebook: Is K-Means Clustering Useful? <i>A. Chavez and D. Gustafson</i>
Wide Field of View Kinect Undistortion for Social Navigation Implementation <i>R. Tomari, Y. Kobayashi and Y. Kuno</i>
Automatic Human Body Parts Detection in a 2D Anthropometric System <i>T. Kohlschütter and P. Herout</i>
Implementation and Analysis of JPEG2000 System on a Chip <i>J. M. McNichols, E.J. Balster, W.F. Turri and K. L. Hill</i>
Perceiving ribs in single-view wireframe sketches of polyhedral shapes <i>P. Company, P.A.C. Varley, R. Plumed and R. Martin</i>
A Design Framework for an Integrated Sensor Orientation Simulator <i>S. Tanathong and I. Lee</i>
Automatic Improvement of Graph Based Image Segmentation <i>H. Vu and R. Olsson</i>
Analysis of deformation of mining chains based on motion tracking <i>M. Michalak, K. Nurzynska, A. Pytlík and K. Paczesniowski</i>

Poster Session (cont'd)

Tuesday, July 17th (2:30pm – 4:00pm)
(poster setup: 12:00pm to 1:30pm – Megas Alexandros)

A Spatial-Based Approach for Groups of Objects <i>L. Cao, Y. Kobayashi and Y. Kuno</i>
Adaptive Exemplar-based Particle Filter for 2D Human Pose Estimation <i>C-M. Oh, Y-C. Lee and C-W. Lee</i>
Estimation of Camera Extrinsic Parameters of Indoor Omni-directional Images Acquired by a Rotating Line Camera <i>S. Oh and I. Lee</i>
Spatter Tracking in Laser Machining <i>T. Viitanen, J. Kolehmainen, R. Piche and Y. Okamoto</i>
Car License Plate Detection under Large Variations using Covariance and HOG Descriptors <i>J. Yoon, B. Kang and D. Kim</i>
Fast Intra mode decision using the angle of the pixel differences along the horizontal and vertical direction for H.264/AVC <i>T. Kim and J. Jeong</i>
Interpolation of Reference Images in Sparse Dictionary for Global Image Registration <i>H. Itoh, S. Lu, T. Sakai and A. Imiya</i>
Customizable Time-Oriented Visualizations <i>M.A. Kuhail, K. Pandazo and S. Lauesen</i>
A Visual Cross-Database Comparison of Metabolic Networks <i>M. Rohrschneider, P. F. Stadler and G. Scheuermann</i>
Visual Rating for Given Deployments of Graphical User Interface Elements Using Shadows Algorithm <i>D. Skiera, M. Hoenig, J. Hoetzel, S. Nikiel and P. Dabrowski</i>
Hierarchical Visualization of BGP Routing Changes Using Entropy Measures <i>S. Papadopoulos, K. Moustakas and D. Tzovaras</i>
InShape: In-Situ Shape-based Interactive Multiple-View Exploration of Diffusion MRI Visualizations <i>H. Cai, J. Chen, A. P. Auchus, S. Correia and D.H. Laidlaw</i>
Surface Construction with Fewer Patches <i>W. Li, Y. Zhou, L. Zhong, X. Li and C. Zhang</i>
Interactive Control of Mesh Topology in Quadrilateral Mesh Generation Based on 2D Tensor Fields <i>C. Bi, D. Sakurai, S. Takahashi and K. Ono</i>
A new visibility walk algorithm for point location in planar triangulation <i>R. Soukal, M. Malkova and I. Kolingerova</i>
Real-Time Algorithms Optimization Based on a Gaze-Point Position <i>A. Tomaszewska</i>
Depth Auto-Calibration for Range Cameras based on 3D Geometry Reconstruction <i>B. Langmann, K. Hartmann and O. Loffeld</i>

KEYNOTE TALK
Monday, July 16, 2012
8:30AM – 9:30 AM / MEGAS ALEXANDROS

ISVC 2012: 8th International Symposium on Visual Computing
Crete, Greece, July 16 - 18, 2012

Developing and Objectively Evaluating Crowd Simulations

Dr. Petros Faloutsos
York University, Canada

Abstract

Crowds of virtual humans are an essential part of important interactive applications such as computer games, and urban simulations. In the first part of this talk, I will discuss why steering agents in a crowd simulation is still a challenging problem, the shortcuts that computer games employ for efficiency reasons, and how modern approaches attempt to address these shortcuts in order to improve the quality and complexity of the simulation. In particular, I will describe an approach that plans a short horizon of physics-based foot steps to steer each agent towards his or her goal. In the second part of the talk, I will describe SteerSuite a framework that encompasses our many years of research efforts towards developing and evaluating steering approaches for simulated crowds. Two unique aspects of SteerSuite are (a) its ability to automatically detect behaviors of interest during a simulation, and (b) a comprehensive approach for objectively evaluating and comparing the quality of different steering approaches.



Speaker Bio-Sketch: Petros Faloutsos is an assistant professor at the Department of Computer Science and Engineering at York University. Before joining York, he was a faculty member at the Computer Science Department at the University of California at Los Angeles, where in 2002 he founded the first computer graphics lab at UCLA, called M.A.Gix. He served as the lab's director until 2011. Faloutsos received his PhD degree (2002) and his MSc degree in Computer Science from the University of Toronto, Canada and his BEng degree in Electrical Engineering from the National Technical University of Athens, Greece. Faloutsos research interest focus on digital media, computer graphics, virtual humans, hardware accelerators for graphics, health informatics and surgical robotics. Faloutsos has received the Okawa Foundation Research Grant in 2002, and a 2001 BEST PAPER award for his paper "The Virtual Stuntman: Dynamic Characters with a Repertoire of Autonomous Motor Skills" published in *Computers & Graphics* by Elsevier. He has also co-authored a highly cited paper on the topology of the Internet, which received an ACM SIGCOMM Test of Time Award in 2010. Faloutsos is a member of the Editorial Board of the *Journal of The Visual Computer* and has served as a Program Co-Chair for the ACM SIGGRAPH/Eurographics Symposium on Computer Animation 2005, and for the Motion In Games Conference 2011. He is a member of the ACM and the Technical Chamber of Greece.

KEYNOTE TALK
Monday, July 16, 2012
1:30PM – 2:30 PM / MEGAS ALEXANDROS

ISVC 2012: 8th International Symposium on Visual Computing
Crete, Greece, July 16 - 18, 2012

Multimodal Virtual Environment: from Research to Applications

Dr. Sabine Coquillart
INRIA, France

Abstract

Most research work in virtual reality has been devoted to providing a virtual stimulus to a single sensory modality (visual, audio, haptic, or, less frequently, smell and taste). Less work has been done on the integration of all these single-sense display types into a seamless system. This talk describes a first-person visuo-haptic integrated solution and shows how such integrated solutions open the doors to new, more realistic, applications.



Speaker Bio-Sketch: Sabine Coquillart is Research Director at INRIA where she is conducting researches in Virtual Reality and 3D user Interfaces. She received a doctorate in Computer Science from the University of Grenoble and an "Habilitation" degree from the University of Orsay, Paris. Before joining INRIA, she was a researcher at l'Ecole des Mines de Saint-Etienne (National Engineering School of Saint-Etienne) and worked for one year as a visiting scientist at the University of Utah, USA. She also spent one year at Thomson, and 6 months in the VMSD group of GMD (now Fraunhofer). She has research interest and publications in the areas of rendering, 3D modelling, animation, 3D user interfaces and virtual reality. She has served on several program committees and recently co-chaired the IEEE 3DUI 07-09, JVRC 2010-2011 and IEEE VR 2012 program committees. She has been, or is, on the editorial board of IEEE Transactions on Visualization and Computer Graphics, of Computer Graphics Forum and of the Journal of Virtual Reality and Broadcasting. She is a member of the EUROGRAPHICS Executive Committee. She was co-chair for EUROGRAPHICS'96, for the 2004 EUROGRAPHICS Symposium on Virtual Environments, for EUROGRAPHICS'06, for IEEE 3DUI'07-08-09, and for the 2009 Joint Virtual Reality Conference of EGVE - ICAT - EuroVR. She is a member of IEEE, Eurographics, and one of the Founding Members of the French Computer Graphics Association, of the French Virtual Reality Association (first chair), and of EuroVR (European Association for Virtual Reality).

KEYNOTE TALK
Tuesday, July 17, 2012
8:30 AM – 9:30 AM / MEGAS ALEXANDROS

ISVC 2012: 8th International Symposium on Visual Computing
Crete, Greece, July 16 - 18, 2012

Nearly a theory of visualization

Dr. Randy Goebel

Department of Computing Science
University of Alberta
Canada

Abstract

Information visualization is about transforming non-visual information into visual information, to guide humans to draw explanatory or exploratory inferences. We present the hypothesis that a picture is an inductive hypothesis about some set of foundation data. Furthermore, we argue that a theory of visualization should guide the composition of transformations to produce a picture that encodes some intended inferential bias when viewed by a human. Components of that theory should help articulate what should be preserved in a picture, what aspects of human visual cognition are best exploited in preferred inference, and how alternative transformations can be evaluated with respect to intended inference.



Speaker Bio-Sketch: Randy Goebel is a professor of computing science at the University of Alberta in Edmonton, Alberta, Canada. He is currently a principle investigator in the Alberta Innovates Centre for Machine Learning, and has been involved in a broad variety of research areas, from inductive reasoning, optimization, natural language processing, web mining, systems biology, and visualization, in both academic and industrial research projects in Canada, Japan, Germany, Australia, Malaysia, and China. He has held academic appointments at the universities of Waterloo, Alberta, Tokyo, Multimedia University (Malaysia), and Hokkaido University, and has worked at a variety of research institutes including ICOT (Japan) and DFKI (Germany).

KEYNOTE TALK
Tuesday, July 17, 2012
1:30PM – 2:30 PM / MEGAS ALEXANDROS

ISVC 2012: 8th International Symposium on Visual Computing
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Actions recognition from videos: some recent results

Dr. Cordelia Schmid
INRIA, France

Abstract

The amount of digital video content available is growing daily, on sites such as YouTube. Recent statistics on the YouTube website show that around 48 hours of video are uploaded every minute. This massive data production calls for automatic analysis. In this talk we present some recent results for action recognition in videos. Bag-of-features have shown very good performance for action recognition in videos. We briefly review the underlying principles and introduce trajectory-based video features, which have shown to outperform the state of the art. These trajectory features are obtained by dense point sampling and tracking based on displacement information from a dense optical flow field. Trajectory descriptors are obtained with motion boundary histograms, which are robust to camera motion. We, then, show how to integrate temporal structure into a bag-of-features based on an actom sequence model. Action sequence models localize actions based on sequences of atomic actions, i.e., represent the temporal structure by sequences of histograms of actom-anchored visual features. This representation is flexible, sparse and discriminative. The resulting actom sequence model is shown to significantly improve performance over existing methods for temporal action localization. Finally, we show how to move towards more structured representations by explicitly modeling human-object interactions. We learn how to represent human actions as interactions between persons and objects. We localize in space and track over time both the object and the person, and represent an action as the trajectory of the object with respect to the person position, i.e., our human-object interaction features capture the relative trajectory of the object with respect to the human.

This is joint work with A Gaidon, V. Ferrari, Z. Harchaoui, A. Klaeser, A. Prest, H. Wang.



Speaker Bio-Sketch: Cordelia Schmid holds a M.S. degree in Computer Science from the University of Karlsruhe and a Doctorate from the Institut National Polytechnique de Grenoble (INPG). Her doctoral thesis received the best thesis award from INPG in 1996. Dr. Schmid was a post-doctoral research assistant in the Robotics Research Group of Oxford University in 1996--1997. Since 1997 she has held a permanent research position at INRIA Grenoble Rhone-Alpes, where she is a research director and directs the INRIA team called LEAR for LEARNING and Recognition in Vision. Dr. Schmid is the author of over a hundred technical publications. She has been an Associate Editor for the IEEE Transactions on Pattern Analysis and Machine Intelligence (2001--2005) and for the International Journal of Computer Vision (2004--), and she has been program chair of the 2005 IEEE Conference on Computer Vision and Pattern Recognition and of the 2012 European Conference on Computer Vision. In 2006, she was awarded the Longuet-Higgins prize for fundamental contributions in computer vision that have withstood the test of time. She is a fellow of IEEE.

KEYNOTE TALK
Wednesday, July 18, 2012
8:30AM – 9:30 AM / MEGAS ALEXANDROS

ISVC 2012: 8th International Symposium on Visual Computing
Crete, Greece, July 16 - 18, 2012

Convex Optimization Methods for Computer Vision

Prof. Daniel Cremers
Department of Computer Science
Technical University of Munich
Germany

Abstract

Numerous computer vision problems can be solved by variational methods and partial differential equations. Yet, many traditional approaches correspond to non-convex energies giving rise to suboptimal solutions and often strong dependency on appropriate initialization. In my presentation, I will show how problems like image segmentation, multiview stereo reconstruction and optic flow estimation can be formulated as variational problems. Subsequently, I will introduce methods of convexification which allow to compute globally optimal or near-optimal solutions which are independent of initialization. Experimental results demonstrate that these spatially continuous approaches provide numerous advantages over spatially discrete (graph cut) formulations, in particular they are easily parallelized (lower runtime), they require less memory (higher resolution) and they do not suffer from metrication errors (better accuracy).



Speaker Bio-Sketch: Daniel Cremers received Bachelor degrees in Mathematics (1994) and Physics (1994), and a Master's degree in Theoretical Physics (1997) from the University of Heidelberg. In 2002 he obtained a PhD in Computer Science from the University of Mannheim, Germany. Subsequently he spent two years as a postdoctoral researcher at the University of California at Los Angeles (UCLA) and one year as a permanent researcher at Siemens Corporate Research in Princeton, NJ. From 2005 until 2009 he was associate professor at the University of Bonn, Germany. Since 2009 he holds the chair for Computer Vision and Pattern Recognition at the Technical University, Munich. His publications received several awards, including the award of Best Paper of the Year 2003 by the Int. Pattern Recognition Society and the 2005 UCLA Chancellor's Award for Postdoctoral Research. In December 2010 the magazine Capital listed Prof. Cremers among "Germany's Top 40 Researchers Below 40".

KEYNOTE TALK
Wednesday, July 18, 2012
1:30PM – 2:30 PM / MEGAS ALEXANDROS

ISVC 2012: 8th International Symposium on Visual Computing
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Moving Object Detection and Tracking in Wide Area Motion Imagery

Prof. Vijayan K. Asari
University of Dayton
Dayton, Ohio, USA

Abstract

Detection and tracking of moving objects in wide area motion imagery (WAMI) is challenging as the size of the objects in the image is too small and they appear at different views and in varying environmental conditions. We present a new framework for detection and tracking of such low resolution objects in WAMI data. The strategy behind the development of this algorithm is to utilize the entire information that is available about the objects of interest in the detection and tracking processes. The proposed method makes use of a dense version of localized histogram of gradients on the difference images. A Kalman filter based predictive mechanism is employed in the tracking methodology. The feature based tracking mechanism is capable of successfully tracking moving objects in the scene. The robustness of the proposed methodology in detection and tracking objects of interest is illustrated by performing several experiments on WAMI data captured at a height of around 7000 feet above ground. It is observed that the new method can even track pedestrians in the above WAMI data. We also present the effect of our shadow illumination and super-resolution techniques to improve object detection and tracking accuracy.



Speaker Bio-Sketch: Dr. Vijayan Asari is a Professor in Electrical and Computer Engineering and Ohio Research Scholars Endowed Chair in Wide Area Surveillance at the University of Dayton, Dayton, Ohio. He is the director of the Computer Vision and Wide Area Surveillance Laboratory (UD Vision Lab) at UD. Dr. Asari received his Bachelor's degree in electronics and communication engineering from the University of Kerala, India in 1978, M Tech and PhD degrees in electrical engineering from the Indian Institute of Technology, Madras in 1984 and 1994 respectively. Prior to joining UD in February 2010, Dr. Asari worked as Professor in Electrical and Computer Engineering at Old Dominion University, Norfolk, Virginia, Research Fellow at National University of Singapore and Nanyang Technological University, Singapore and Assistant Professor at University of Kerala, India. He received several teaching, research and advising awards while at ODU. Dr. Asari holds two patents and has published more than 320 research papers, including 64 peer-reviewed journal papers in the areas of image processing, computer vision, machine learning, pattern recognition, and high performance digital architectures. Dr. Asari is a Senior Member of IEEE and SPIE.

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University, USA
Herbelin Bruno, EPFL, Switzerland
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Barbara, USA
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USA
Huang Zhiyong, Institute for Infocomm Research
(I2R), Singapore
Julier Simon J., University College London, UK
Kaufmann Hannes, Vienna University of
Technology, Austria
Kiyokawa Kiyoshi, Osaka University, Japan
Klosowski James, AT&T Labs, USA
Kozintsev, Igor, Intel, USA
Kuhlen Torsten, RWTH Aachen University,
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Lee Cha, University of California, Santa Barbara,
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Liere Robert van, CWI, The Netherlands
Livingston A. Mark, Naval Research Laboratory,
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Malzbender Tom, Hewlett Packard Labs, USA
Molineros Jose, Teledyne Scientific and Imaging,
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Muller Stefan, University of Koblenz, Germany
Olwal Alex, MIT, USA
Owen Charles, Michigan State University, USA
Paelke Volker, Institut de Geomàtica, Spain
Peli Eli, Harvard University, USA
Pettifer Steve, The University of Manchester, UK
Piekarski Wayne, Qualcomm Bay Area R & D,
USA
Pronost Nicolas, Utrecht University, Netherlands
Pugmire Dave, Los Alamos National Lab, USA
Qian Gang, Arizona State University, USA
Raffin Bruno, INRIA, France
Raij Andrew, University of South Florida, USA
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Richir Simon, Arts et Metiers ParisTech, France
Rodello Ildeberto, University of San Paulo, Brazil
Sandor Christian, University of South Australia, Australia
Santhanam Anand, University of California at Los Angeles, USA
Sapidis Nickolas, University of Western Macedonia, Greece
Sherman Bill, Indiana University, USA
Slavik Pavel, Czech Technical University in Prague, Czech Republic
Sourin Alexei, Nanyang Technological University, Singapore
Steinicke Frank, University of Münster, Germany
Suma Evan, University of Southern California, USA
Stamminger Marc, REVES/INRIA, France
Srikanth Manohar, Indian Institute of Science, India

Vercher Jean-Louis, Université de la Méditerranée, France
Wald Ingo, University of Utah, USA
Wither Jason, University of California, Santa Barbara, USA
Yu Ka Chun, Denver Museum of Nature and Science, USA
Yuan Chunrong, University of Tuebingen, Germany
Zachmann Gabriel, Clausthal University, Germany
Zara Jiri, Czech Technical University in Prague, Czech
Zhang Hui, Indiana University, USA
Zhao Ye, Kent State University, USA

(Area 4) Visualization

Andrienko Gennady, Fraunhofer Institute IAIS, Germany
Avila Lisa, Kitware, USA
Apperley Mark, University of Waikato, New Zealand
Balázs Csébfalvi, Budapest University of Technology and Economics, Hungary
Brady Rachael, Duke University, USA
Benes Bedrich, Purdue University, USA
Bilalis Nicholas, Technical University of Crete, Greece
Bonneau Georges-Pierre, Grenoble Universits , France
Bruckner Stefan, Vienna University of Technology, Austria
Brown Ross, Queensland University of Technology, Australia
Bühler Katja, VRVis Research Center, Austria
Callahan Steven, University of Utah, USA
Chen Jian, Brown University, USA
Chen Min, University of Oxford, UK
Chiang Yi-Jen, Polytechnic Institute of New York University, USA
Cooper Matthew, University of Linköping, Sweden
Chourasia Amit, University of California - San Diego, USA
Coming Daniel, Desert Research Institute, USA
Daniels Joel, University of Utah, USA
Dick Christian, Technical University of Munich, Germany
DiVerdi Stephen, Adobe, USA
Doleisch Helmut, SimVis GmbH, Austria
Duan Ye, University of Missouri-Columbia, USA
Dwyer Tim, Monash University, Australia

Entezari Alireza, University of Florida, USA
Ertl Thomas, University of Stuttgart, Germany
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Grinstein Georges, University of Massachusetts Lowell, USA
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Görg Carsten, University of Colorado at Denver, USA
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Hadwiger Helmut Markus, KAUST, Saudi Arabia
Hagen Hans, Technical University of Kaiserslautern, Germany
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Hege Hans-Christian, Zuse Institute Berlin, Germany
Hochheiser Harry, University of Pittsburgh, USA
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Jiang Ming, Lawrence Livermore National Laboratory, USA
Joshi Alark, Yale University, USA

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Kohlhammer Jörn, Fraunhofer Institut, Germany
Kosara Robert, University of North Carolina at Charlotte, USA
Laramée Robert, Swansea University, UK
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Lim Ik Soo, Bangor University, UK
Linsen Lars, Jacobs University, Germany
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Maeder Anthony, University of Western Sydney, Australia
Malpica Jose, Alcala University, Spain
Masutani Yoshitaka, The University of Tokyo Hospital, Japan
Matkovic Kresimir, VRVis Research Center, Austria
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Monroe Laura, Los Alamos National Labs, USA
Morie Jacki, University of Southern California, USA
Mudur Sudhir, Concordia university, Canada
Museth Ken, Linköping University, Sweden
Paelke Volker, Institut de Geomàtica, Spain
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Pugmire Dave, Los Alamos National Lab, USA
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Rhyne Theresa-Marie, North Carolina State University, USA

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Santhanam Anand, University of California at Los Angeles, USA
Scheuermann Gerek, University of Leipzig, Germany
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Shen Han-Wei, Ohio State University, USA
Sips Mike, Stanford University, USA
Slavik Pavel, Czech Technical University in Prague, Czech Republic
Sourin Alexei, Nanyang Technological University, Singapore
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Thiele Olaf, University of Mannheim, Germany
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Zhang Hui, Indiana University, USA
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Special Tracks

3D Mapping, Modeling and Surface Reconstruction

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Computational Bioimaging

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Optimization for Vision, Graphics and Medical Imaging

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Unconstrained Biometrics: Advances and Trends

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Intelligent Environments: Algorithms and Applications

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Object Recognition

Organizers:

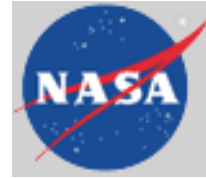
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Face Processing and Recognition

Organizers:

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