2011 Fifth ACM/IEEE International Conference on Distributed Smart Cameras

(ICDSC 2011)

Ghent, Belgium
22 – 25 August 2011

IEEE

IEEE Catalog Number: CFP11ICF-PRT
ISBN: 978-1-4577-1708-6

TABLE OF CONTENTS

Collaborative Acquisition Of Multi-View Face Images In Real-Time Using A Wireless Camera Network 1
S. Parupati, R. Bakkannagari, S. Sankar, V. Kulathumani

Human Attribute Analysis using a Top-View Camera Based on Multi-Stage Classification 7
T. Yamasaki, T. Matsunami

View-Invariant 3D Human Body Pose Reconstruction using a Monocular Video Camera 13
S. Ke, J. Hwang, K. Lan, S. Wang

Real-time Multi-view Human Action Recognition using a Wireless Camera Network 19
S. Ramagiri, R. Kavi, V. Kulathumani

A Socio-Economic Approach to Online Vision Graph Generation and Handover in Distributed Smart Camera Networks 25
L. Esterle, P. Lewis, M. Bogdanski, B. Rinner, X. Yao

Optimizing Load Distribution in Camera Networks with a Hypergraph Model of Coverage Topology 31
A. Mavrinac, X. Chen

Distributed Three-Dimensional Camera Alignment in Highly-Dynamical Prioritized Observation Areas 38
U. Jaenen, M. Huy, C. Grenz, J. Haehner, M. Hoffmann

Automatic Reconfiguration Of Video Sensor Networks For Optimal 3D Coverage 44
C. Piciarelli, C. Micheloni, G. Foresti

Staging RANSAC: An Indoor Camera Calibration Method 50
M. Aerts, E. Six

Distributed Data Association in Smart Camera Networks 56
J. Wan, Q. Liu

Predictive Duty Cycle Adaptation for Wireless Camera Networks 64
P. Shin, H. Medeiros, J. Park, A. Kak

Identification of Intruders in Groups of People using Cameras and RFIDs 70
R. Cucchiara, M. Fornaciari, R. Haider, F. Mandreoli, A. Prati

Multiview Social Behavior Analysis in Work Environments 76
C. Chen, H. Aghajan

Tracking Across Multiple Cameras with Overlapping Views Based on Brightness and Tangent Transfer Functions 82
C. Chu, J. Hwang, K. Lan, S. Wang

Rapid Discriminative Detection for Smart Camera Applications 88
G. Taylor, P. Wang, Z. Rasheed, N. Haering

Multi-Camera Tracking by Joint Calibration, Association and Fusion 94
S. Chen, H. Leung

Target Container: A Target-Centric Parallel Programming Abstraction for Video-based Surveillance 100
K. Hong, S. Smaldone, J. Shin, D. Lillethun, L. Iftode, U. Ramachandran

Energy-efficient Feedback Tracking on Embedded Smart Cameras by Hardware-level Optimization 108
M. Casares, S. Velipasalar, P. Santinelli, R. Cucchiara, A. Prati

Wi-FLIP: A Wireless Smart Camera Based on a Focal-plane Low-power Image Processor 114
J. Fernandez-Berni, R. Carmona-Galan, G. Linan-Cembrano, A. Zarandy, A. Rodriguez-Vazquez

End-User Viewpoint Control Of Live Video From A Medical Camera Array 120
J. Blum, H. Sun, A. Olmos, J. Cooperstock

Smart Camera Design For Realtime High Dynamic Range Imaging 126
P. Lapray, B. Heyrman, M. Rosse, D. Ginhac

A Statistical Approach to Create Side Information in Distributed Video Coding 133
F. Verbist, N. Deligiannis, M. Jacobs, J. Barbarien, P. Schelkens, A. Munteanu

Local Image Quality Metric for a Distributed Smart Camera Network with Overlapping FOVs 139
E. Shen, R. Hornsey

Efficient Hash-Driven Wyner-Ziv Video Coding for Visual Sensors 145
N. Deligiannis, M. Jacobs, F. Verbist, J. Slowack, J. Barbarien, R. Walle, P. Schelkens, A. Munteanu

Enabling Communication Infrastructure and Protocol on Embedded Distributed Smart Cameras 151
A. Zarezadeh, C. Bobda

FPGA-Based Pedestrian Detection Using Array of Covariance Features 157
S. Martelli, D. Tosato, M. Cristani, V. Murino

Human Detection using Mobile Embedded Smart Cameras 163
L. He, Y. Wang, S. Velipasalar, M. Gursoy
Summarisation of Surveillance Videos by Key-frame Selection 169
Y. Yang, F. Dadgostar, C. Sanderson, B. Lovell
On-Line Control of Active Camera Networks for Computer Vision Tasks 175
A. Ilie, G. Welch
Fusion of Multiple Trackers in Video Networks 181
Y. Li, B. Bhanu
Learning Proactive Control Strategies for PTZ Cameras 187
W. Starzyk, F. Qureshi
Building an Occupancy Model from Sensor Networks in Office Environments 193
F. Castanedo, D. Lopez-de-Ipina, H. Aghajan, R. Kleihorst
Evaluation Of Similarity Measures For Appearance-Based Multi-Camera Matching 199
J. Sherrah, D. Kamenestsky, T. Scoleri
An Accurate 3D Feature Tracking System with Wide-baseline Stereo Smart Cameras 205
D. Rueß, K. Manthey, R. Reulke
Accelerating Viola-Jones Face Detection for Embedded and SoC Environments 211
L. Acasandrei, A. Barriga
Enhanced Patrol Course Planning Method for Multiple Mobile Surveillance Cameras 217
Y. Tomioka, A. Takara, H. Kitazawa
Probabilistic Framework for Person Tracking on Embedded Distributed Smart Cameras 223
A. Zarezadeh, C. Bobda
Distributed Smart Cameras for Hard Real-Time Obstacle Detection in Control Applications 229
H. Guggi, B. Rinner
ENRA: Event-based Network Reconfiguration Algorithm for Active Camera Networks 235
M. Wittke, A. Jimenez, S. Radike, C. Grenz, J. Hahner
Fusion of Non-Visual Modalities Into the Probabilistic Occupancy Map Framework for Person Localization 241
R. Mandeljc, J. Pers, M. Kristan, S. Kovacic
Synthetic And Privacy-Preserving Visualization Of Video Sensor Network Outputs 247
C. Velardo, C. Araimo, J. Dugelay
Human Tracking by Adaptive Kalman Filtering and Multiple Kernels Tracking with Projected Gradients 252
C. Chu, J. Hwang, S. Wang, Y. Chen
Demo: Spatio-Temporal Template Matching For Ball Detection 258
A. Kumar, P. Parisot, C. Vleeschouwer
Demo: Omnidirectional Video Navigation on a Tablet PC using a Camera-based Orientation Tracker 260
J. Macq, N. Verzijp, M. Aerts, F. Vandeputte, E. Six
PhD Forum: Volumetric 3D Reconstruction Without Planar Ground Assumption 262
H. Aliakbarpour, J. Dias
Demo: Real-Time Depth Extraction and Viewpoint Interpolation on FPGA 264
G. Yi, K. Zhang, H. Yeh, G. Vanmeerbeeck, G. Lafruit
Demo: Mouse Sensor Networks, The Smart Camera 268
M. Camilli, R. Kleihorst
Demo: A Distributed Virtual Vision Simulator 271
W. Starzyk, A. Domurad, F. Qureshi
Demo: An Embedded Vision System for High Frame Rate Visual Servoing 273
Z. Ye, Y. He, R. Pieters, B. Mesman, H. Corporaal, P. Jonker
PhD Forum: Using Participatory Camera Networks For Object Tracking 275
M. Rege, V. Handziski, A. Wolisz
Demo: Real-time Remote Reporting of Active Regions with Wi-FLIP 277
J. Fernandez-Berni, R. Carmona-Galan, G. Linan-Cembrano, A. Zarandy, A. Rodriguez-Vazquez
PhD Forum: Adaptive Storage Management in Highly Heterogeneous Smart Sensor Systems 279
C. Grenz, J. Hahner
PhD Forum: A Cyber-Physical System Approach To Embedded Visual Servoing 281
Z. Ye, H. Corporaal, P. Jonker
PhD Forum: Multi-View Occupancy Maps Using A Network Of Low Resolution Visual Sensors 283
S. Gruenwedel, V. Jelaca, P. Hese, R. Kleihorst, W. Philips
Demo:Vision Based Smart in-Car Camera System for Driver Yawning Detection 285
B. Hariri, S. Abtahi, S. Shirmohammadi, L. Martel

PhD Forum: A Data Mining Approach For Human Activity Learning In A Multi-Modal Sensor System 287
F. Vandewiele, C. Motamed
PhD Forum: Investigating the Performance of a Multi-modal Approach to Unusual Event Detection 289
J. Kuklyte, P. Kelly, N. O'Connor
Demo: An Automated Face Enrolment and Recognition System Across Multiple Cameras On CCTV Networks 291
F. Dadgostar, A. Bigdeli, T. Smith
Demo: Real-Time 3D Visualization Of Multi-Camera Room Occupancy Monitoring For Immersive Communication Systems 293
A. Demeulemeester, C. Hollemeersch, P. Lambert, R. Walle, V. Jelaca, S. Gruenwedel, J. Nino, D. Cauwelaert, P. Veelaert, P. Hese, W. Philips
Demo: Real-Time Indoors People Tracking In Scalable Camera Networks 295
V. Jelasca, S. Grunwedel, J. Nino-Castaneda, P. Hese, D. Cauwelaert, P. Veelaert, W. Philips
Demo: Distributed Video Coding Applications in Wireless Multimedia Sensor Networks 297
M. Jacobs, N. Deligiannis, F. Verbist, J. Slowack, J. Barbarien, R. Walle, P. Schelkens, A. Munteanu
Demonstration of a Low Power Image Processing System Using a SCAMP3 Vision Chip 299
S. Carey, D. Barr, P. Dudek
PhD Forum: BiSeeMos: A Fast Embedded Stereo Smart Camera 301
F. Pelissier, F. Berry
Author Index