Preface

A key tool in the exploitation of video is the alignment of video frames to each other or to reference images and models. Registration of consecutive video frames can be used for stabilization of video sequences and construction of video panoramas. Decomposing the motion of image pixels into multiple (e.g. background and foreground) layers can be used for compression and indexing. Recovering displacement fields between video frames can be used for video enhancement, 3D recovery, modeling and image based rendering. Registration of video to models can be used for augmented reality, video insertion, geo-registration, and various applications including site modeling, surveillance, medical imaging and etc.

This workshop follows the success of the *First IEEE Workshop on Video Registration* in conjunction with ICCV01 in Vancouver. This time we also include "Image" in the title of this workshop since we realize that many researchers are studying the same research issues using multiple images (snapshots) instead of continuous video streams. As in the first Workshop in Vancouver, the aim of the **Second IEEE Workshop on Image and Video Registration (IVR04)** is to bring together researchers who are involved in different aspects of image and video registration to exchange information and to foster interaction. The workshop program includes submitted papers, invited talks and a panel discussion.

Out of the 26 submissions, we have accepted 13 papers to be presented in the workshop. This year we have followed a blind circular review process. By submitting a paper, each author has reviewed at least two other submissions. In addition, each paper has been reviewed by at least two members of the program committee. This procedure has hopefully produced useful reviews.

The accepted papers cover research topics that include image and video registration algorithms; calibration and feature detection for video registration; mosaics, layer representations and motion segmentation; multi-modal integration in various applications (e.g., medical, e-learning and archaeology); and view synthesis.

This workshop also features two keynote speakers. Professor Avideh Zakhor in the Department of Electrical Engineering and Computer Sciences at University of California at Berkeley will give a talk entitled "*Fast, Automatic 3D Modeling of Cities*". In this talk, Prof. Zakhor will present a fast approach to automated generation of textured 3D city models with both high details at ground level, and complete coverage for bird's-eye view. A close-range facade model is acquired at the ground level by driving a vehicle equipped with laser scanners and a digital camera under normal traffic conditions on public roads; a far-range Digital Surface Map (DSM), containing complementary roof and terrain shape, is created from airborne laser scans, then triangulated, and finally texture mapped with aerial imagery. Dr. Harpreet S. Sawhney in the Vision Technologies Laboratory at Sarnoff Corporation, Princeton, NJ will give a talk entitled "*Representations of Video and 3D Data for Manipulation and Recognition*". This talk will highlight the representation of dynamic scenes in terms of 2D and 3D layered representations. Applications ranging from tracking to enhanced video visualization for tele-presence and video

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object fingerprinting will be used to illustrate the work. More recent work at Sarnoff will also be presented on classification and recognition of 3D objects from view-based 3D sensor data.

The panelists are a blend of researchers from both academia and industry, including Prof. Shmuel Peleg at the Hebrew University of Jerusalem, Prof. Mubarak Shah at University of Central Florida, Dr. Philip Smith at Harris, Dr. Rick Szeliski at Microsoft Research and Prof. George Wolberg at the City College of City University of New York. The panelists will give their thoughts on the past, current and future of theories, algorithms and applications of Image and Video Registration.

Finally, we would like to thank the program committee members, reviewers and authors for their continuing support for the workshop. We also want thank the following institutions at the City University of New York for their generous financial support: the Department of Computer Science at the City College, the Research and Sponsored Program at the Graduate Center, and the Department of Computer Science at the Graduate Center.

We look forward to seeing you at CVPR04 and IVR04!

Zhigang Zhu, Rakesh (Teddy) Kumar and Yi-Ping Hung
IVR04 Program Chairs

Robert Haralick and Allen Hanson
IVR04 General Chairs

Chairs and Program Committee

General Co-Chairs

Robert Haralick, CUNY, haralick@ gc.cuny.edu
Allen Hanson, UMass-Amherst, hanson@cs.umass.edu

Program Co-Chairs

Zhigang Zhu, CUNY, zhu@cs.ccny.cuny.edu
Rakesh (Teddy) Kumar, Sarnoff, rkumar@sarnoff.com
Yi-Ping Hung, NTU, hung@iis.sinica.edu.tw

Program Committee

Steve Blask, Harris, sblask@harris.com
Rama Chellappa, U. of Maryland, rama@cfar.umd.edu
Chu-Song Chen, Academia Sinica, song@iis.sinica.edu.tw
Charles R. Dyer, U. Wisconsin-Madison, dyer@cs.wisc.edu
Kuo-Chin Fan, National Central Univ, kcfan@csie.ncu.edu.tw
Hassan Foroosh, UCF, foroosh@cs.ucf.edu
Yanlin Guo, Sarnoff, yguo@sarnoff.com
Shree Nayar, Columbia, nayar@cs.columbia.edu
Soo-Chang Pei, NTU, pei@cc.ee.ntu.edu.tw
Shmuel Peleg, The Hebrew University of Jerusalem, peleg@cs.huji.ac.il
Edward Riseman, UMass-Amherst, riseman@cs.umass.edu
Mubarak Shah, UCF, shah@cs.ucf.edu
Philip Smith, Harris, psmith29@harris.com
Stefan Soatto, UCLA,soatto@cs.ucla.edu
Ioannis Stamos, CUNY, istamos@hunter.cuny.edu
Hai Tao, UCSC, tao@soe.ucsc.edu
George Wolberg, CUNY, wolberg@cs.ccny.cuny.edu
Ja-Ling Wu, NTU, wjl@cmlab.csie.ntu.edu.tw
Guangyou Xu, Tsinghua Univ, xgy-dcs@mail.tsinghua.edu.cn
Avideh Zakhor, UC Berkeley, avz@eecs.berkeley.edu
Zhengyou Zhang, Microsoft Research, zhang@microsoft.com

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