KEYNOTE TALK
Monday, November 29, 2010
8:30AM – 9:30 AM / Ballroom 4-5

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Computational 3D Photography: Extracting Shape, Motion and Appearance from Images

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Abstract

One of the fundamental problems of computer vision is to extract 3D shape and motion from images. This can be achieved when a scene or object is observed from different viewpoints or over a period of time. There is a wide range of applications, ranging from digitizing cultural heritage to vision-based autonomous robot navigation. This talk will present several approaches to solve this problem. First, we'll discuss techniques for 3D shape recovery for static objects and scenes. One particular case is the 3D mapping and localization in large environments from images, e.g. urban 3D reconstruction from vehicle-borne cameras or localization from cell-phone images. Next, we'll shift our focus to modeling dynamic scenes, e.g. people who are moving around. In addition to explicitly 3D modeling an event, we'll consider the possibility to perform video-based rendering from casually captured videos.

Speaker Bio-Sketch: Marc Pollefeys is a full professor in the Dept. of Computer Science of ETH Zurich since 2007 where he is the head of the Institute for Visual Computing and leads the Computer Vision and Geometry lab. He currently also remains associated with the Dept. of Computer Science of the University of North Carolina at Chapel Hill where he started as an assistant professor in 2002 and became an associate professor in 2005. Before this he was a postdoctoral researcher at the Katholieke Universiteit Leuven in Belgium, where he also received his M.S. and Ph.D. degrees in 1994 and 1999, respectively. His main area of research is computer vision. One of his main research goals is to develop flexible approaches to capture visual representations of real world objects, scenes and events. Dr. Pollefeys has received several prizes for his research, including a Marr prize, an NSF CAREER award, a Packard Fellowship and a European Research Council Starting Grant. He is the author or co-author of more than 130 peer-reviewed publications. He is the General Chair for the European Conference on Computer Vision 2014 (ECCV), was a Program Co-Chair for the IEEE Conference on Computer Vision and Pattern Recognition 2009 (CVPR), was general/program co-chair of the Third Symposium on 3D Data Processing, Visualization and Transmission and has organized workshops and courses at major vision and graphics conferences and has served on the program committees of many conferences. Prof. Pollefeys is/was on the Editorial Board of the IEEE Transactions on Pattern Analysis and Machine Intelligence and the International Journal of Computer Vision as well as several other journals in computer vision, graphics and robotics.