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# Dynamical Vision

ICCV 2005 and ECCV 2006 Workshops  
WDV 2005 and WDV 2006  
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## Volume Editors

René Vidal

Johns Hopkins University

Center for Imaging Science

301 Clark Hall, 3400 N. Charles St., Baltimore, MD, 21218, USA

E-mail: rvidal@cis.jhu.edu

Anders Heyden

Malmö University

School of Technology and Society

20506 Malmö, Sweden

E-mail: heyden@ts.mah.se

Yi Ma

University of Illinois at Urbana-Champaign

145 Coordinated Science Laboratory

1308 West Main Street, Urbana, Illinois 61801-2307, USA

E-mail: yima@uiuc.edu

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# Preface

Classical multiple-view geometry studies the reconstruction of a static scene observed by a rigidly moving camera. However, in many real-world applications the scene may undergo much more complex dynamical changes. For instance, the scene may consist of multiple moving objects (e.g., a traffic scene) or articulated motions (e.g., a walking human) or even non-rigid dynamics (e.g., smoke, fire, or a waterfall). In addition, some applications may require interaction with the scene through a dynamical system (e.g., vision-guided robot navigation and coordination).

To study the problem of reconstructing *dynamical scenes*, many new algebraic, geometric, statistical, and computational tools have recently emerged in computer vision, computer graphics, image processing, and vision-based control. The goal of the International Workshop on Dynamical Vision (WDV) is to converge different aspects of the research on dynamical vision and to identify common mathematical problems, models, and methods for future research in this emerging and active area.

This book reports 24 contributions presented at the First and Second International Workshops on Dynamical Vision, WDV 2005 and WDV 2006, which were held in conjunction with the 10th International Conference on Computer Vision (ICCV 2005) and the 9th European Conference on Computer Vision (ECCV 2006), respectively. These contributions were selected from over 52 submissions through a rigorous double-blind review process by members of the Program Committee. The book is structured in six parts, each containing three to five contributions on six topics of dynamical vision: (1) motion segmentation and estimation, (2) human motion analysis, tracking and recognition, (3) dynamic textures, (4) motion tracking, (5) rigid and non-rigid motion analysis, and (6) motion filtering and vision-based control.

The success of these workshops would not have been possible without the outstanding quality of reviews by members of the Program Committee, the financial support provided by several sponsors, and the technical support provided by Avinash Ravichandran of The Johns Hopkins University.

October 2006

René Vidal  
Anders Heyden  
Yi Ma

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