

Preface

This book contains invited lectures and full papers presented at VipIMAGE 2017—VI ECCOMAS Thematic Conference on Computational Vision and Medical Image Processing, which will be held in Porto, Portugal, during the period 18–20 October 2017. The event had six invited lectures, and 124 contributed presentations originated from twenty-five countries: Brazil, China, Colombia, Czech Republic, Egypt, France, Hungary, India, Italy, Japan, Lithuania, Netherlands, Nigeria, Pakistan, Peru, Poland, Portugal, Romania, Russian Federation, Spain, Sweden, the Slovak Republic, United Arab Emirates, UK and USA.

Computational methodologies of signal processing and analyses have been commonly used in our society. For instances, full automatic or semi-automatic Computational Vision systems have been increasing used in surveillance tasks, traffic analysis, recognition processes, inspection purposes, human–machine interfaces, 3D vision, deformation analysis and aided medical diagnosis and treatment plans.

One of the notable aspects of the Computational Vision domain is the inter- and multi-disciplinarity. Actually, principles and methodologies of other sciences, such as Informatics, Mathematics, Statistics, Psychology, Mechanics, Medicine and Physics, are regularly comprised into this domain. One of the key motives that contributes for the continually effort done in this field of the human knowledge is the high number of applications that can be easily found in Medicine. For instance, computational algorithms can be applied on medical images for shape reconstruction, motion and deformation analysis, tissue characterization or computer-assisted intervention and therapy.

The main objective of these ECCOMAS Thematic Conferences on Computational Vision and Medical Image Processing, initiated in 2007, is to promote a comprehensive forum for discussion on the recent advances in the related fields in order to identify potential collaboration between researchers of different sciences. Henceforth, VipIMAGE 2017 brought together researchers representing fields related to Biomechanics, Biomedical Engineering, Computational Vision, Computer Graphics, Computer Sciences, Computational Mechanics, Electrical

Engineering, Mathematics, Statistics, Medical Imaging, Medicine, Sports and Rehabilitation.

The expertises covered a broad range of techniques for Signal Processing and Analysis, Image Acquisition, Image Processing and Analysis, Data Registration and Fusion, Image Segmentation, Tracking and Analysis of Motion and Deformation, 3D Vision, Computer Simulation, Physics of Medical Imaging, Machine Learning, Medical Imaging, Computer Aided Diagnosis, Surgery, Therapy and Treatment, Computational Bio- imaging and Visualization, Visual Inspection, Software Development and Applications.

The Conference co-chairs would like to take this opportunity to express gratitude for the support given by the International European Community on Computational Methods in Applied Sciences and the Portuguese Association of Theoretical, Applied and Computational Mechanics, and thank all sponsors, all members of the Scientific Committee, all organizers of thematic sessions, all invited lecturers, all session chairs and all authors for submitting and sharing their knowledge.

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VipIMAGE 2017

Proceedings of the VI ECCOMAS Thematic Conference
on Computational Vision and Medical Image Processing

Porto, Portugal, October 18-20, 2017

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2018, XXIX, 1160 p. 631 illus., Hardcover

ISBN: 978-3-319-68194-8