Computer Methods in Biomechanics and Biomedical Engineering: Imaging & Visualization

ISSN: 2168-1163 (Print) 2168-1171 (Online) Journal homepage: https://www.tandfonline.com/loi/tciv20

Special issue: VI ECCOMAS thematic conference on computational vision and medical image processing (VipIMAGE)

João Manuel R. S. Tavares & Renato Natal Jorge

To cite this article: João Manuel R. S. Tavares & Renato Natal Jorge (2019) Special issue: VI ECCOMAS thematic conference on computational vision and medical image processing (VipIMAGE), Computer Methods in Biomechanics and Biomedical Engineering: Imaging & Visualization, 7:5-6, 479-479, DOI: 10.1080/21681163.2019.1679499

To link to this article: https://doi.org/10.1080/21681163.2019.1679499

Published online: 31 Oct 2019.

COMPUTER METHODS IN BIOMECHANICS AND BIOMEDICAL ENGINEERING: IMAGING & VISUALIZATION
2019, VOL. 7, NOS. 5–6, 479
https://doi.org/10.1080/21681163.2019.1679499

Taylor & Francis
Taylor & Francis Group

EDITORIAL

Special issue: VI ECCOMAS thematic conference on computational vision and medical image processing (VipIMAGE)

Computational methodologies of signal processing and analyses have been commonly used in our society. For instances, fully automatic or semi-automatic Computational Vision systems have been increasingly 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-disciplinarily. 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 continual 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 characterisation or computer-assisted intervention and therapy.

These issues (5 and 6) of the seventh volume of the journal *Computer Methods in Biomechanics and Biomedical Engineering: Imaging & Visualization (CMBBE: Imaging & Visualization)* contain the extended and revised versions of 22 articles presented at the *VI ECCOMAS Thematic Conference on Computational Vision and Medical Image Processing (VipIMAGE 2017)*, which was held in Porto, Portugal, during the period 18–20 October 2017.

VipIMAGE 2017 had 6 invited lectures and 124 contributed presentations originated from 25 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, United Kingdom and United States of America.

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 included extended works were reviewed according to the *CMBBE: Imaging & Visualization* policy. They present and discuss new trends in those fields using several novel methods and techniques, including: statistical shape analysis, Gaussian regularisation, region-based convolutional neural network, Generalised Sturmian Functions, convolutional neural network, transfer learning, geometric techniques, statistical parametric mapping, attenuation correction, spline interpolation, reprojection error minimisation, support vector machine, iterative closest point, hybrid clustering, shape priors and principal component analysis. The aforementioned methods and techniques were proposed to address different applications, such as biomechanical modelling and simulation, image restoration, medical diagnosis, brain–computer interface, deformation assessment, detection of floodwater extent on inundated roadways, discrete wavelet construction, treatment planning and follow up, biomarker extraction, activity monitoring and tissue segmentation.

The Guest-Editors wish to thank all the *VipIMAGE 2017* authors and members of the Program Committee for sharing their expertise, the *International European Community on Computational Methods in Applied Sciences (ECCOMAS)*, the *Portuguese Association of Theoretical, Applied and Computational Mechanics (APTMAC)*, the '*Universidade do Porto*' *(U.Porto)* and the '*Instituto de Ciência e Inovação em Engenharia Mecânica e Engenharia Industrial*' *(INEGI)* for supporting *VipIMAGE*, the authors of the selected articles and also the editors and reviewers of *CMBBE: Imaging & Visualization*for helping improving the accepted articles.

João Manuel R. S. Tavares
Universidade do Porto
tavares@fe.up.pt
http://orcid.org/0000-0001-7603-6526

Renato Natal Jorge
Universidade do Porto
http://orcid.org/0000-0002-7281-579X