Editorial message from the editor-in-chief

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EDITORIAL

Editorial message from the editor-in-chief

I am pleased to welcome you to the first issue of Volume IX of our journal *Computer Methods in Biomechanics and Biomedical Engineering: Imaging & Visualization*.

The Journal has continued its main objectives of disseminating original solutions and applications of imaging and visualisation of biomedical data as well as building bridges among researchers, technology developers and end-users.

In 2020, the Journal received 361 articles from 41 countries: Algeria, Argentina, Australia, Belgium, Brazil, Canada, Chile, China, Colombia, Finland, France, Germany, India, Indonesia, Iran (the Islamic Republic of), Iraq, Israel, Italy, Japan, Jordan, Kazakhstan, Korea (the Republic of), Malaysia, Morocco, Nigeria, Oman, Pakistan, Poland, Portugal, Russian Federation, Saudi Arabia, South Africa, Spain, Sri Lanka, Switzerland, Thailand, Tunisia, Turkey, the United Arab Emirates, the United Kingdom and the United States, which confirms, once again, the extensive recognition of our Journal worldwide.

In the first issue of Volume VIII, 12 articles were published: (1) Vorwerk et al. presented a solution for deep brain stimulation simulations in near-real time along with a tablet visualisation system for the results; (2) Vergari et al. demonstrated the validation of a new method of landmark selection to achieve the 3D reconstruction of the rib cage from biplanar calibrated radiographies; (3) Vicini et al. described the estimation of the number and locations of ultrasound sensors requited to truly track scapular motion in vivo; (4) Campanelli et al. presented a study about morphological errors, calculated using two registration methods, in 3D bone models of the distal femur and proximal tibia generated from MRI and CT images; (5) Blessy S. A. and Sulochana C. described a new algorithm for intensity inhomogeneity correction in brain MR images; (6) Jaware et al. demonstrated a novel atlas-free new-born brain image segmentation and classification solution; (7) Okyar et al. introduced a methodology to build a robust and high-fidelity CAD model from the CT scans of an individual; (8) Khayyeri et al. provided a discussion about the potential of a new tool to identify pre-radiographic osteoarthritis changes based on hip bone morphology; (9) Talaat et al. presented a study concerning the validity and reliability of 3D landmark-based palatal superimposition of digital dental models using customised software with a computer vision algorithm; (10) Vancleef et al. offered a surface registration framework for anatomical structures which uses a combination of manual and automatic detected landmarks; (11) Hamidpour et al. came up with a new solution for the extraction of vessel structures in thermal images for early breast cancer detection; and (12) Li et al. demonstrated a LeNet-5 neural network for image-based analysis and classification of urine sediments.

In the following issue, there were 10 articles: (1) Kim et al. presented a system to automate the preoperative planning for mandibular reconstruction with a fibula free flap; (2) Finotello et al. described a framework for the in vivo follow-up analysis of a multilayer flow modulator stent in the repair of thoracoabdominal aneurysms with the purpose of reconstructing aneurysms geometry and analysing its changes over time, with and without the stent; (3) Sharifi et al. introduced a new method based on radio frequency signals that evaluates the changes of acoustic and statistical features of carotid artery walls; (4) Okyar et al. described an artificial neural network-based solution to build the finite element mesh of frog gastrocnemius muscle from images; (5) João et al. presented a study about the effectiveness of automatic image filtering methods in order to remove noise and improve the sharpness of distinct structures; (6) Nair and Muthuvel demonstrated a new solution for blood vessel segmentation and diabetic retinopathy recognition; (7) Natarajan et al. presented a study concerning the visualisation of highly disturbed cerebrovascular blood flow dynamics; (8) Tomaka et al. provided a discussion about techniques used to design splint surfaces according to the therapeutic maxilla–mandible relation required; (9) Jeon et al. demonstrated a 3D convolutional neural network-based solution for an automatic 3D cephalometric annotation system; and (10) Guachi et al. investigated how the finite element analysis method can describe non-linear effects induced by material properties and different approximating geometries for the colon.

The third issue, which included 12 articles, was devoted to *CMBBE2018 – 15th international symposium on computer methods in biomechanics and biomedical engineering and 3rd conference on imaging and visualization*, organised by J.M.R.S. Tavares and P.R. Fernandes: (1) Lee et al. presented an analysis of the sagittal profile of the spine using 3D ultrasound imaging; (2) Gajny et al. offered a study about the 3D reconstruction of adolescent scoliotic trunk shape from biplanar X-rays; (3) Vergani et al. demonstrated the use of unsupervised learning algorithms in resting state fMRI analysis; (4) Michiwaki et al. carried out a study to visualise choking on toys based on computer simulation with a new child model of swallowing; (5) Hauser et al. demonstrated a two-tissue reversible compartment model for kinetic modelling of [18F]2-fluoro-2deoxy-D-glucose to quantify amyloid in PET images; (6) Bhattarai and Staat presented a study about organ relocation after laparoscopic pectopexy to repair posthysterectomy vaginal vault prolapse; (7) Fewster et al. introduced a new system for measuring radial displacement of the intervertebral disc based on laser scanning; (8) Moraes et al. described a novel resampling method based on the 3D Lanczos kernel; (9) Sunarya et al. introduced a solution for the 3D reconstruction of the carotid artery based on a modified template matching; (10) Jain and Chauhan presented a study about instance-based learning of marker proteins of carcinoma cells; (11) Colim et al. offered

a discussion about whether skin temperature changes are sensitive to work conditions during lifting tasks; and (12) Slama et al. introduced the use of a deep convolutional neural network for automated vestibular disorder classification using videonystagmography analysis.

The fourth issue which included 11 articles was devoted to *Multimedia systems and applications in biomedicine*, and was organised by I. Domingues, A.F. Sequeira, C. Pinto and A. Rocha: (1) Borra and Thanki presented a crypto-watermarking solution for tamper detection of medical images; (2) Klemm et al. demonstrated a new pipeline for non-invasive, high-resolution analysis of cerebral blood flow; (3) Saraiva et al., a study about compression techniques used in bioelectrical signals applied to electroencephalography; (4) Susha et al. presented a study about the variations in retinal vasculature in predicting the risk of stroke; (5) Tomasiello produced a granular functional network classifier specifically for brain diseases analysis; (6) Dogra et al. introduced two new techniques for the seed selection and segmentation of tumour regions using the graph-cut technique; (7) Safavian et al. described a hippocampus segmentation in MR images based on an automatic level set method; (8) Lopes et al. presented a study about femoral and acetabular morphologies; (9) Kshirsagar et al. described the modelling of an optimised neural network for classification and prediction of benchmark datasets; (10) Joshi and Karule introduced a method based on morphological segmentation and geometrical feature techniques for haemorrhage detection; and (11) Katyal and Singla demonstrated the comparison between a hybrid brain computer interface and a steady-state visually evoked potential-based brain computer interface.

The fifth issue included 12 articles and was devoted to the *3rd MICCAI workshop on bio-imaging and visualization for patient-customized simulations*, organised by J.M.R.S. Tavares and S. Li, and to the *4th MICCAI workshop on deep learning in medical image analysis*, organised by G. Carneiro, J.M.R.S. Tavares, A.P. Bradley, J.P. Papa, V. Belagiannis, J.C. Nascimento, Z. and (1) Lu, Alipour et al. presented a finite element muscle building block derived from 3D ultrasound, which was applied to the human gastrocnemius; (2) Zheng et al. introduced a new automatic method to segment liver tumours in abdomen images from CT scans using fully convolutional networks and a non-negative matrix factorisation based deformable model; (3) Kwon et al. presented a study about the modelling of ballistic cranial injury and backspatter using smoothed particle hydrodynamics; (4) Fernandez et al. described an integration of continuum muscle mechanics with partial least-squares regression in order to build a fast mechanostatistical model; (5) Behnami et al. demonstrated the use of dual-channel deep neural networks for segmentation-free classification of echo cine loops; (6) Imran et al. introduced a new automated lung lobe segmentation method based on a progressive dense v-network; (7) Vandewinckele et al. presented a solution for automated segmentation of longitudinal data based on deformable image registration and convolutional neural networks; (8) Girinon et al. described a quasi-automated method for the reconstruction of the femur from bi-planar X-rays; (9) Juchler et al. demonstrated the use of psychometric and radiomic methods to develop quantitative models of the perceived irregularity of intracranial aneurysms; (10) Chlioui et al. presented a study on the application of preprocessing techniques for a data mining task in breast cancer; (11) Cavegn et al. provided a discussion concerning the prediction of the skeletal muscle mass as assessed by bioelectrical impedance analysis from 3D body scanner data; and (12) Sahli et al. demonstrated the development of a method to identify subjects with a high risk of vestibular neuritis disease.

The last issue of Volume VIII included 10 articles: (1) Bindu and Chari presented an approach for face recognition using hybrid features and exponential moth-flame optimisation based deep belief network; (2) Yazdi and Erfankhah provided a study about the use of four local features, namely local energetic information, local structural information, local geometric information and local patterns, to represent the huge texture variability of histological images in a feature space; (3) Talbi demonstrated an approach of ECG denoising based on 1-D double-density complex DWT and SBWT; (4) João et al. presented an anisotropic gradient based filtering for the segmentation of medical images; (5) Abhari and Razaghian described a noise detection and filtering method that uses leaky integrate-and-fire spiking neurons; (6) Sahli et al. came up with a solution for the classification of morphological malformation in foetal head ultrasound images; (7) Ascenso et al. presented a review about silhouette extraction algorithms that can be used within visual hull pipelines; (8) Ruiz et al. provided a study about a physical rehabilitation system based on a telemedicine approach; (9) Slama et al. provided a discussion about the discrimination and classification of videonystagmography sequences using a deep neural network framework; and (10) Imran et al. introduced a hybrid model that uses deep learning models and SVM for 4-class cataract classification.

Suggestion

The *Best Paper Award* was established in 2014 for the best paper published in the Journal each biennium and it is selected by the editor-in-chief, associate editors and members of the Advisory Board of the Journal. The award is based on the originality of the contribution and readability of the manuscript and demonstrates the outstanding quality of the articles published in our Journal. I am pleased to announce that the winner for the 2019–2020 biennium is *Fast and automatic segmentation of pulmonary lobes from chest CT using a progressive dense V-network* by Abdullah-Al-Zubaer Imran, Ali Hatamizadeh, Shilpa P. Ananth, Xiaowei Ding, Nima Tajbakhsh and Demetri Terzopoulos; additionally, I would like to thank the winners for choosing our Journal to publish their inspiring work and congratulate them on the quality of their article.

Again, I would like to thank the members of the Advisory and Editorial Boards whose support has helped to disseminate the Journal in the international community. In addition, a special thanks to each of the four associate editors for their continued help in managing the Journal. My appreciations also

go to the highly professional members of the Taylor & Francis Group.

Computer Methods in Biomechanics and Biomedical Engineering: Imaging & Visualization continues to reveal its exceptional potential to attract outstanding authors and expand its readership. As I always say, the authors and the readers are decisive for the success of any journal, and therefore, I am certain that you have had a central role in this; thank you all very much.

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