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Shape in Medical Imaging

International Workshop, ShapeMI 2018
Held in Conjunction with MICCAI 2018
Granada, Spain, September 20, 2018
Proceedings

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Preface

This volume contains the proceedings of the International Workshop on **Shape in Medical Imaging** (ShapeMI 2018) held in conjunction with the 21st International Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI 2018) on September 20, 2018, in Granada, Spain. This workshop is a continuation of the previous MICCAI SeSAMI 2016 and SAMI 2015 Workshops as well as the Shape Symposium 2015 and 2014.

This workshop presented original methods and applications related to shape analysis and processing. It provided a venue for researchers working in shape modeling, analysis, statistics, classification, geometric learning, and their applications to share novel ideas, to present recent research results, and to interact with each other.

Today's image data usually represents 3D geometric structures, often describing continuous and time-varying phenomena. Therefore, shape and geometry processing methods have been receiving increased attention, for example, thanks to their higher sensitivity to local variations relative to traditional markers, such as the volume of a structure. Shape and spectral analysis, geometric learning and modeling algorithms, as well as application-driven research were the focus of this workshop. Shape analysis methods are broadly applicable to many different fields from medical image computing to paleontology, anthropology and beyond.

This workshop brought together medical imaging scientists to discuss novel approaches and applications in shape and geometry processing and their use in research and clinical studies and applications. Another aim was to explore novel, cutting-edge theoretical methods and their usefulness for medical applications, such as from the fields of geometric learning or spectral shape analysis. As a single-track workshop, ShapeMI featured excellent keynote speakers, technical paper presentations, and demonstrations of state-of-the-art software for shape processing in medical research.

We thank all the contributors to this workshop for making it such a huge success, with an audience of around 80 people throughout the day. We thank all authors who shared their latest findings, as well as the Program Committee members who contributed quality reviews in a very short time. We especially thank our keynote speakers, who kindly accepted our invitation and enriched the workshop with their excellent presentations: Stanley Durrleman (Co-Director of the Inria/ICM Aramis Lab at the Brain and Spine Institute within the Pitié-Salpêtrière Hospital in Paris), Michael Bronstein (Professor at USI Lugano, Italy, and at Imperial College London, UK), and Daniel Rueckert (Professor and Head of the Department of Computing at Imperial

College London, UK). We congratulate Kris M. Campbell and Thomas Fletcher, who received the best paper award, kindly sponsored by Kitware.

September 2018

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Contents

Shape Applications/Validation/Software

Deformetrica 4: An Open-Source Software for Statistical Shape Analysis. . . .	3
<i>Alexandre Bône, Maxime Louis, Benoît Martin, and Stanley Durrleman</i>	
On the Evaluation and Validation of Off-the-Shelf Statistical Shape Modeling Tools: A Clinical Application.	14
<i>Anupama Goparaju, Ibolya Csecs, Alan Morris, Evgueni Kholmovski, Nassir Marrouche, Ross Whitaker, and Shireen Elhabian</i>	
Characterizing Anatomical Variability and Alzheimer’s Disease Related Cortical Thinning in the Medial Temporal Lobe Using Graph-Based Groupwise Registration and Point Set Geodesic Shooting.	28
<i>Long Xie, Laura E. M. Wisse, Sandhitsu R. Das, Ranjit Ittyerah, Jiancong Wang, David A. Wolk, Paul A. Yushkevich, and for the Alzheimer’s Disease Neuroimaging Initiative</i>	
Interpretable Spiculation Quantification for Lung Cancer Screening.	38
<i>Wookjin Choi, Saad Nadeem, Sadegh Riyahi, Joseph O. Deasy, Allen Tannenbaum, and Wei Lu</i>	
Shape and Facet Analyses of Alveolar Airspaces of the Lung.	49
<i>Roman Grothausmann, Christian Mühlfeld, Matthias Ochs, and Lars Knudsen</i>	
SlicerSALT: Shape AnaLysis Toolbox.	65
<i>Jared Vicory, Laura Pascal, Pablo Hernandez, James Fishbaugh, Juan Prieto, Mahmoud Mostapha, Chao Huang, Hina Shah, Junpyo Hong, Zhiyuan Liu, Loic Michoud, Jean-Christophe Fillion-Robin, Guido Gerig, Hongtu Zhu, Stephen M. Pizer, Martin Styner, and Beatriz Paniagua</i>	
3D Shape Analysis for Coarctation of the Aorta	73
<i>Lina Gundelwein, Heiko Ramm, Leonid Goubergrits, Marcus Kelm, and Hans Lamecker</i>	
Morphometric Sex Estimation from the Hip Bone by Means of the HIP 1.1 Software.	78
<i>Miroslav Králík, Ondřej Klíma, Petra Urbanová, Lenka Polcerová, and Martin Čuta</i>	

Shape Methods

Deformable Cubic Hermite Mesh Templates for Statistical Liver Shape Analysis	93
<i>Hao Bo Yu, Yui Nakagawa, Harvey Ho, Atsushi Saito, and Akinobu Shimizu</i>	
Global Divergences Between Measures: From Hausdorff Distance to Optimal Transport	102
<i>Jean Feydy and Alain Trouné</i>	
Parallel Transport of Surface Deformations from Pole Ladder to Symmetrical Extension.	116
<i>Shuman Jia, Nicolas Duchateau, Pamela Mocer, Maxime Sermesant, and Xavier Pennec</i>	
4D Continuous Medial Representation Trajectory Estimation for Longitudinal Shape Analysis	125
<i>Sungmin Hong, James Fishbaugh, and Guido Gerig</i>	
Probabilistic Fitting of Active Shape Models	137
<i>Andreas Morel-Forster, Thomas Gerig, Marcel Lüthi, and Thomas Vetter</i>	
Automatic Extraction of a Piecewise Symmetry Surface of a 3D Mesh: Application to Scoliosis	147
<i>Marion Morand, Olivier Comas, Gérard Subsol, and Christophe Fiorio</i>	
Image Registration and Predictive Modeling: Learning the Metric on the Space of Diffeomorphisms	160
<i>Ayagoz Mussabayeva, Alexey Kroshnin, Anvar Kurmukov, Yulia Denisova, Li Shen, Shan Cong, Lei Wang, and Boris A. Gutman</i>	
Joint Registration of Multiple Generalized Point Sets.	169
<i>Zhe Min, Jiaole Wang, and Max Q.-H. Meng</i>	
OCT Segmentation: Integrating Open Parametric Contour Model of the Retinal Layers and Shape Constraint to the Mumford-Shah Functional.	178
<i>Jinming Duan, Weicheng Xie, Ryan Wen Liu, Christopher Tench, Irene Gottlob, Frank Proudlock, and Li Bai</i>	
Segmenting Bones Using Statistical Shape Modeling and Local Template Matching	189
<i>Elham Taghizadeh, Alexandre Terrier, Fabio Becce, Alain Farron, and Philippe Büchler</i>	

Shape Analysis of White Matter Tracts via the Laplace-Beltrami Spectrum	195
<i>Lindsey Kitchell, Daniel Bullock, Soichi Hayashi, and Franco Pestilli</i>	
Virtual 2D-3D Fracture Reduction with Bone Length Recovery Using Statistical Shape Models	207
<i>Ondřej Klíma, Roman Madeja, Michal Španel, Martin Čuta, Pavel Zemčík, Pavel Stoklásek, and Aleš Mizera</i>	
Shape Classification and Deep Learning	
Deep Shape Analysis on Abdominal Organs for Diabetes Prediction	223
<i>Benjamín Gutiérrez-Becker, Sergios Gatidis, Daniel Gutmann, Annette Peters, Christopher Schlett, Fabian Bamberg, and Christian Wachinger</i>	
Nonparametric Aggregation of Geodesic Trends for Longitudinal Data Analysis	232
<i>Kristen M. Campbell and P. Thomas Fletcher</i>	
DeepSSM: A Deep Learning Framework for Statistical Shape Modeling from Raw Images	244
<i>Riddhish Bhalodia, Shireen Y. Elhabian, Ladislav Kavan, and Ross T. Whitaker</i>	
Combining Deep Learning and Shape Priors for Bi-Ventricular Segmentation of Volumetric Cardiac Magnetic Resonance Images.	258
<i>Jinming Duan, Jo Schlemper, Wenjia Bai, Timothy J. W. Dawes, Ghalib Bello, Carlo Biffi, Georgia Doumou, Antonio De Marvao, Declan P. O'Regan, and Daniel Rueckert</i>	
Deep Learning for Quality Control of Subcortical Brain 3D Shape Models. . .	268
<i>Dmitry Petrov, Boris A. Gutman, Egor Kuznetsov, Christopher R. K. Ching, Kathryn Alpert, Artemis Zavaliangos-Petropulu, Dmitry Isaev, Jessica A. Turner, Theo G. M. van Erp, Lei Wang, Lianne Schmaal, Dick Veltman, and Paul M. Thompson</i>	
Discrimination of Volumetric Shapes Using Orthogonal Tensor Decomposition	277
<i>Hayato Itoh and Atsushi Imiya</i>	
Organ-At-Risk Segmentation in Brain MRI Using Model-Based Segmentation: Benefits of Deep Learning-Based Boundary Detectors.	291
<i>Eliza Orasanu, Tom Brosch, Carri Glide-Hurst, and Steffen Renisch</i>	

Uncertainty Quantification in CNN-Based Surface Prediction Using
Shape Priors 300
*Katarína Tóthová, Sarah Parisot, Matthew C. H. Lee,
Esther Puyol-Antón, Lisa M. Koch, Andrew P. King, Ender Konukoglu,
and Marc Pollefeys*

Author Index 311