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Machine Learning in Medical Imaging

7th International Workshop, MLMI 2016
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Preface

The 7th International Workshop on Machine Learning in Medical Imaging (MLMI 2016) was held in the Intercontinental Athenaeum, Athens, Greece, on October 17, 2016, in conjunction with the 19th International Conference on Medical Image Computing and Computer-Assisted Intervention (MICCAI).

Machine learning plays an essential role in the medical imaging field, including computer-assisted diagnosis, image segmentation, image registration, image fusion, image-guided therapy, image annotation, and image database retrieval. With advances in medical imaging, new imaging modalities and methodologies, such as cone-beam CT, tomosynthesis, electrical impedance tomography, as well as new machine-learning algorithms/applications come to the stage for medical imaging. Owing to large inter-subject variations and complexities, it is generally difficult to derive analytic formulations or simple equations to represent objects such as lesions and anatomy in medical images. Therefore, tasks in medical imaging require learning from patient data for heuristics and prior knowledge, in order to facilitate the detection/diagnosis of abnormalities in medical images.

The main aim of the MLMI 2016 workshop was to help advance scientific research in the broad field of machine learning in medical imaging. The workshop focused on major trends and challenges in this area, and presented works aimed at identifying new cutting-edge techniques and their use in medical imaging. We hope that the MLMI workshop becomes an important platform for translating research from the bench to the bedside.

The range and level of submissions for this year's meeting were of very high quality. Authors were asked to submit full-length papers for review. A total of 60 papers were submitted to the workshop in response to the call for papers. Each of the 60 papers underwent a rigorous double-blinded peer-review process, with each paper being reviewed by at least two (typically three) reviewers from the Program Committee, composed of 81 well-known experts in the field. Based on the reviewing scores and critiques, the 38 best papers (63 %) were accepted for presentation at the workshop and chosen to be included in this Springer LNCS volume. The large variety of machine-learning techniques applied to medical imaging were well represented at the workshop.

We are grateful to the Program Committee for reviewing the submitted papers and giving constructive comments and critiques, to the authors for submitting high-quality papers, to the presenters for excellent presentations, and to all the MLMI 2016 attendees coming to Athens from all around the world.

August 2016

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Contents

Identifying High Order Brain Connectome Biomarkers via Learning on Hypergraph 1
Chen Zu, Yue Gao, Brent Munsell, Minjeong Kim, Ziwen Peng, Yingying Zhu, Wei Gao, Daoqiang Zhang, Dinggang Shen, and Guorong Wu

Bilateral Regularization in Reproducing Kernel Hilbert Spaces for Discontinuity Preserving Image Registration 10
Christoph Jud, Nadia Möri, Benedikt Bitterli, and Philippe C. Cattin

Do We Need Large Annotated Training Data for Detection Applications in Biomedical Imaging? A Case Study in Renal Glomeruli Detection 18
Michael Gadermayr, Barbara Mara Klinkhammer, Peter Boor, and Dorit Merhof

Building an Ensemble of Complementary Segmentation Methods by Exploiting Probabilistic Estimates 27
Gerard Sanroma, Oualid M. Benkarim, Gemma Piella, and Miguel Ángel González Ballester

Learning Appearance and Shape Evolution for Infant Image Registration in the First Year of Life 36
Lifang Wei, Shunbo Hu, Yaozong Gao, Xiaohuan Cao, Guorong Wu, and Dinggang Shen

Detecting Osteophytes in Radiographs of the Knee to Diagnose Osteoarthritis 45
Jessie Thomson, Terence O'Neill, David Felson, and Tim Cootes

Direct Estimation of Fiber Orientations Using Deep Learning in Diffusion Imaging 53
Simon Koppers and Dorit Merhof

Segmentation of Perivascular Spaces Using Vascular Features and Structured Random Forest from 7T MR Image 61
Jun Zhang, Yaozong Gao, Sang Hyun Park, Xiaopeng Zong, Weili Lin, and Dinggang Shen

Dual-Layer Groupwise Registration for Consistent Labeling of Longitudinal Brain Images 69
Minjeong Kim, Guorong Wu, Isrem Rekik, and Dinggang Shen

Joint Discriminative and Representative Feature Selection for Alzheimer's Disease Diagnosis 77
Xiaofeng Zhu, Heung-Il Suk, Kim-Han Thung, Yingying Zhu, Guorong Wu, and Dinggang Shen

Patch-Based Hippocampus Segmentation Using a Local Subspace Learning Method 86
Yan Wang, Xi Wu, Guangkai Ma, Zongqing Ma, Ying Fu, and Jiliu Zhou

Improving Single-Modal Neuroimaging Based Diagnosis of Brain Disorders via Boosted Privileged Information Learning Framework 95
Xiao Zheng, Jun Shi, Shihui Ying, Qi Zhang, and Yan Li

A Semi-supervised Large Margin Algorithm for White Matter Hyperintensity Segmentation 104
Chen Qin, Ricardo Guerrero Moreno, Christopher Bowles, Christian Ledig, Philip Scheltens, Frederik Barkhof, Hanneke Rhodius-Meester, Betty Tijms, Afina W. Lemstra, Wiesje M. van der Flier, Ben Glocker, and Daniel Rueckert

Deep Ensemble Sparse Regression Network for Alzheimer's Disease Diagnosis 113
Heung-Il Suk and Dinggang Shen

Learning Representation for Histopathological Image with Quaternion Grassmann Average Network 122
Jinjie Wu, Jun Shi, Shihui Ying, Qi Zhang, and Yan Li

Learning Global and Cluster-Specific Classifiers for Robust Brain Extraction in MR Data 130
Yuan Liu, Hasan E. Çetingül, Benjamin L. Odry, and Mariappan S. Nadar

Cross-Modality Anatomical Landmark Detection Using Histograms of Unsigned Gradient Orientations and Atlas Location Autocontext 139
Alison O'Neil, Mohammad Dabbah, and Ian Poole

Multi-label Deep Regression and Unordered Pooling for Holistic Interstitial Lung Disease Pattern Detection 147
Mingchen Gao, Ziyue Xu, Le Lu, Adam P. Harrison, Ronald M. Summers, and Daniel J. Mollura

Segmentation-Free Estimation of Kidney Volumes in CT with Dual Regression Forests 156
Mohammad Arafat Hussain, Ghassan Hamarneh, Timothy W. O'Connell, Mohammed F. Mohammed, and Rafeef Abugharbieh

Multi-resolution-Tract CNN with Hybrid Pretrained and Skin-Lesion Trained Layers 164
Jeremy Kawahara and Ghassan Hamarneh

Retinal Image Quality Classification Using Saliency Maps and CNNs 172
Dwarikanath Mahapatra, Pallab K. Roy, Suman Sedai, and Rahil Garnavi

Unsupervised Discovery of Emphysema Subtypes in a Large Clinical Cohort 180
Polina Binder, Nematollah K. Batmanghelich, Raul San Jose Estepar, and Polina Golland

Tree-Based Transforms for Privileged Learning 188
Mehdi Moradi, Tanveer Syeda-Mahmood, and Soheil Hor

Automated 3D Ultrasound Biometry Planes Extraction for First Trimester Fetal Assessment 196
Hosuk Ryou, Mohammad Yaqub, Angelo Cavallaro, Fenella Roseman, Aris Papageorghiou, and J. Alison Noble

Learning for Graph-Based Sensorless Freehand 3D Ultrasound 205
Loïc Tetrel, Hacène Chebrek, and Catherine Laporte

Learning-Based 3T Brain MRI Segmentation with Guidance from 7T MRI Labeling 213
Renping Yu, Minghui Deng, Pew-Thian Yap, Zhihui Wei, Li Wang, and Dinggang Shen

Transductive Maximum Margin Classification of ADHD Using Resting State fMRI 221
Lei Wang, Danping Li, Tiancheng He, Stephen T.C. Wong, and Zhong Xue

Automatic Hippocampal Subfield Segmentation from 3T Multi-modality Images 229
Zhengwang Wu, Yaozong Gao, Feng Shi, Valerie Jewells, and Dinggang Shen

Regression Guided Deformable Models for Segmentation of Multiple Brain ROIs 237
Zhengwang Wu, Sang Hyun Park, Yanrong Guo, Yaozong Gao, and Dinggang Shen

Functional Connectivity Network Fusion with Dynamic Thresholding for MCI Diagnosis 246
Xi Yang, Yan Jin, Xiaobo Chen, Han Zhang, Gang Li, and Dinggang Shen

Sparse Coding Based Skin Lesion Segmentation Using Dynamic Rule-Based Refinement 254
Behzad Bozorgtabar, Mani Abedini, and Rahil Garnavi

Structure Fusion for Automatic Segmentation of Left Atrial Aneurysm Based on Deep Residual Networks 262
Liansheng Wang, Shusheng Li, Yiping Chen, Jiankun Lin, and Changhua Liu

Tumor Lesion Segmentation from 3D PET Using a Machine Learning Driven Active Surface 271
Payam Ahmadvand, Nóirín Duggan, François Bénard, and Ghassan Hamarneh

Iterative Dual LDA: A Novel Classification Algorithm for Resting State fMRI 279
Zobair Arya, Ludovica Griffanti, Clare E. Mackay, and Mark Jenkinson

Mitosis Detection in Intestinal Crypt Images with Hough Forest and Conditional Random Fields 287
Gerda Bortsova, Michael Sterr, Lichao Wang, Fausto Milletari, Nassir Navab, Anika Böttcher, Heiko Lickert, Fabian Theis, and Tingying Peng

Comparison of Multi-resolution Analysis Patterns for Texture Classification of Breast Tumors Based on DCE-MRI. 296
Alexia Tzalavra, Kalliopi Dalakleidi, Evangelia I. Zacharaki, Nikolaos Tsiaparas, Fotios Constantinidis, Nikos Paragios, and Konstantina S. Nikita

Novel Morphological Features for Non-mass-like Breast Lesion Classification on DCE-MRI 305
Mohammad Razavi, Lei Wang, Tao Tan, Nico Karssemeijer, Lars Linsen, Udo Frese, Horst K. Hahn, and Gabriel Zachmann

Fast Neuroimaging-Based Retrieval for Alzheimer's Disease Analysis 313
Xiaofeng Zhu, Kim-Han Thung, Jun Zhang, and Dinggang Shen

Author Index 323