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.

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