

Preface

This volume contains the proceedings of the First International Workshop on Medical Learning Meets Medical Imaging (MLMMI 2015) held on July 11, 2015, in Lille, France, in conjunction with the 32nd International Conference on Machine Learning (ICML 2015).

This workshop presented original methods and applications on machine learning in medical imaging. Developments in machine learning have opened up a wealth of novel opportunities in knowledge discovery, analysis, visualization, and reconstruction of medical image datasets. However, medical images also pose several particular challenges for standard approaches, for instance, lack of data availability (due to ethics or rarity of pathology), poor image quality (due to imaging or medical condition), or dedicated training requirements.

The workshop offered a unique opportunity to present and discuss the latest work on machine learning in medical imaging in the presence of both the machine learning and medical imaging communities. Innovative contributions addressed questions such as how to better exploit smaller datasets and understand the fundamentals of image spaces or generative models in order to improve training in machine learning methods. The workshop focused on theoretical aspects as well as on effective applications built on machine learning and all aspects of medical imaging.

The objective of this workshop was to bring together these specialties, to foster links, and to further communicate the specific needs and nuances of medical imaging to the machine learning community while exposing the medical imaging community to current trends in machine learning. We are also extremely grateful to the contributors of the first MLMMI workshop. We thank all authors who shared their latest findings, as well as the Program Committee members, and reviewers, who all achieved quality work in a very short time.

We also thank our keynote speakers, who kindly accepted our invitations: Bertrand Thirion, Research Director at Inria, France; John Ashburner, Professor in the Functional Imaging Laboratory at University College London; Marleen de Bruijne, Professor in the Erasmus Medical Center, in Rotterdam and in Computer Science at the University of Copenhagen; and Ben Glocker, Lecturer at Imperial College London. Special thanks go to the generous sponsors of our workshop: the Microsoft Research – Inria Joint Centre, in Palaiseau, France, and Imperial College London, UK. Congratulations go to Jonathan Young, who received the best paper award, kindly sponsored by NVIDIA Inc.

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