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Deep Learning and Data Labeling for Medical Applications

First International Workshop, LABELS 2016, and
Second International Workshop, DLMIA 2016
Held in Conjunction with MICCAI 2016, Athens, Greece, October 21, 2016
Proceedings

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Preface: DLMIA 2016

After the success of the First Deep Learning in Medical Image Analysis (DLMIA) Workshop, held with MICCAI 2015, where we welcomed hundreds of attendees, we present the proceedings of the Second DLMIA Workshop. Deep learning methods have experienced an immense growth in interest from the medical image analysis community because of their ability to process very large training sets, to transfer learned features between different databases, and to analyze multimodal data. DLMIA is a workshop dedicated to the presentation of work focused on the design and use of deep learning methods in medical image analysis applications. We believe that this workshop is setting the trends and identifying the challenges of the use of deep learning methods in medical image analysis. For the keynote talks, we invited Prof. Dinggang Shen from the Department of Radiology and BRIC at UNC-Chapel Hill, and Prof. Nassir Navab from the Technische Universität München, who are two prominent researchers in the field of deep learning in medical image analysis. We would like to acknowledge the financial support provided by the Butterfly Network for the realization of these keynote talks.

The first call for papers for the Second DLMIA Workshop was released on April 1, 2016, and the last call was on May 24, 2016, with the paper deadline set to July 10, 2016. The submission site of DLMIA received 46 papers registrations, from which 42 papers turned into full paper submissions, where each submission was reviewed by at least three reviewers. The chairs decided to select 21 out of the 42 submissions, based on the scores and comments made by the reviewers (i.e., a 50 % acceptance rate). The top ten papers with the best reviews were selected for oral presentations and the remaining 11 accepted papers had poster presentations. Finally, the workshop chairs voted for the best paper of the workshop based on the reviewers' scores and comments, and the best paper prize of the Second DLMIA Workshop went to Michal Drozdal, Eugene Vorontsov, Gabriel Chartrand, Samuel Kadoury, and Christopher Pal for the paper "The Importance of Skip Connections in Biomedical Image Segmentation." Nvidia generously offered to sponsor the Best Paper Award. Finally, we would like to acknowledge the support from the Australian Research Council for the realization of this workshop (discovery project DP140102794 and ARC Future Fellowship FT110100623). We would also like to thank the reviewers of DLMIA.

August 2016

Gustavo Carneiro
João Manuel R.S. Tavares
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Preface: LABELS 2016

The First Workshop on Large-Scale Annotation of Biomedical Data and Expert Label Synthesis (LABELS) was held during the MICCAI conference on October 21, 2016, in Athens, Greece. With this event, we intended to raise awareness of the importance of training data acquisition in the context of biomedical problems and to promote the development of algorithms that focus on assisting the annotation process.

Our call for papers resulted in ten submissions. Each of them was reviewed in a single-blind fashion by at least three members of the Program Committee. Seven submissions were eventually accepted for a poster presentation at the conference venue and are included in this volume. Following the recommendations of the reviewers, three of these submissions were additionally invited for an oral presentation. We are very enthusiastic about the overall diversity of the final program, which includes topics such as crowdsourcing methods, active learning, transfer learning, semi-supervised learning, or modeling of label uncertainty. In addition to the contribution of the workshop participants, we had the pleasure to invite two keynote speakers who proposed further developments on these topics: Marco Loog from the Technical University of Delft (The Netherlands) and Pascal Fua from the Ecole Polytechnique Federale de Lausanne (Switzerland). We would like to thank them again for their insights and the scientific exchanges fostered by their talks.

To conclude, we would like to thank the reviewers for their contributions and the MICCAI Organizing Committee for encouraging and making possible the holding of this event.

August 2016

Diana Mateus
Loïc Peter
Gustavo Carneiro
Marco Loog
Julien Cornebise

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