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Deep Learning in Medical Image Analysis and Multimodal Learning for Clinical Decision Support

Third International Workshop, DLMIA 2017
and 7th International Workshop, ML-CDS 2017
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Preface DLMIA 2017

Welcome to the third MICCAI workshop on Deep Learning in Medical Image Analysis (DLMIA). 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 analyse multimodal data. Deep Learning in Medical Image Analysis (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 trend and identifying the challenges facing the use of deep learning methods in medical image analysis. For the keynote talks, we invited Associate Prof. Christopher Pal from the École Polytechnique de Montréal, Dr. Kevin Zhou from Siemens Healthineers, and Dr. Ronald M. Summers from the National Institutes of Health (NIH), who are prominent researchers in the field of deep learning in medical image analysis.

The first call for papers for the 3rd DLMIA was released on 25 March 2017 and the last call was done on 7 June 2017, with the paper deadline set to 16 June 2017. The submission site of DLMIA received 82 paper registrations, from which 73 papers turned into full-paper submissions, where each submission was reviewed by between two and five reviewers. The chairs decided to select 38 out of the 73 submissions, based on the scores and comments made by the reviewers (i.e., a 52% acceptance rate). The top 14 papers with the best reviews were selected for oral presentation and the remaining 24 accepted papers for poster presentation. We would like to acknowledge the financial support provided by Nvidia and the Butterfly Network for the realization of the workshop.

Finally, we would like to acknowledge the support from the Australian Research Council for the realization of this workshop (discovery project DP140102794). We would also like to thank the reviewers of the papers.

September 2017

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Preface ML-CDS 2017

On behalf of the organizing committee, we welcome you to the 7th Workshop on Multimodal Learning for Clinical Decision Support. The goal of this series of workshops is to bring together researchers in medical imaging, medical image retrieval, data mining, text retrieval, and machine learning/AI to discuss the latest techniques in multimodal mining/retrieval and their use in clinical decision support. Although the title of the workshop has changed slightly over the years, the common theme preserved is the notion of clinical decision support and the need for multimodal analysis. The previous six workshops on this topic, held in Athens (2016), Munich (2015), Nagoya (2013), Nice (2012), Toronto (2011), and London (2009), were well-received at MICCAI.

Continuing the momentum built up by these workshops, we have expanded the scope this year to include decision support focusing on multimodal learning. As has been the norm with these workshops, the papers were submitted in an eight-page double-blind format and were accepted after review. As in previous years, the program features an invited lecture by a practicing radiologist to bridge the gap between medical image interpretation and clinical informatics. This year we chose to stay with an oral format for all the presentations. The day will end with a lively panel composed of more doctors, medical imaging researchers, and industry experts.

With less than 5% of medical image analysis techniques translating to clinical practice, workshops on this topic have helped raise the awareness of our field to clinical practitioners. The approach taken in the workshop is to scale it to large collections of patient data, exposing interesting issues of multimodal learning and its specific use in clinical decision support by practicing physicians. With the introduction of intelligent browsing and summarization methods, we hope to also address the ease-of-use in conveying derived information to clinicians to aid their adoption. Finally, the ultimate impact of these methods can be judged when they begin to affect treatment planning in clinical practice. We hope you will enjoy the program we have assembled and actively participate in the discussion on the topics of the papers and the panel.

September 2017

Tanveer Syeda-Mahmood
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