

Preface

The MICCAI 2014 Workshop on Medical Computer Vision: Algorithms for Big Data (MICCAI-bigMCV 2014) was held in conjunction with the 17th International Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI 2014) on September 18, 2014 in Boston, USA. It succeeds the Workshops on Medical Computer Vision that were held in September 2010 in conjunction with MICCAI 2010 in Beijing, in June 2012 in conjunction with CVPR 2012 in Providence, in October 2012 in conjunction with MICCAI 2012 in Nice, and in September 2013 in conjunction with MICCAI 2013 in Nagoya.

With the ever-increasing amount of annotated multimodal medical data consisting of imaging and textual information, large-scale, data-driven methods provide the promise of bridging the semantic gap between images and diagnoses. The one-day workshop aimed at exploring the use of modern computer vision technology and “big data” algorithms in tasks such as automatic segmentation and registration, localization of anatomical features, and detection of anomalies. We emphasized questions of harvesting, organizing, and learning from large-scale medical imaging datasets and general-purpose automatic understanding of medical images. We were especially interested in modern, scalable, and efficient algorithms that generalize well to previously unseen images and can be applied to large-scale datasets that are arising, for example, from studies with significant populations, through the use of wide-field-of-view imaging sequences at high-spatial resolution, or when compiling hospital-scale databases. In addition, the bigMCV 2014 hosted a VISCERAL session for presentation and discussion of methods for anatomical structure segmentation and localization. The session highlights the results of the VISCERALanatomy2 challenge, and provided a forum to discuss the individual approaches and their comparative evaluation.

Our call for papers resulted in 29 submissions of up to 12 pages. Each paper received two to four reviews. Based on these peer reviews, we accepted 13 papers that were regular oral presentations, and 5 papers for the VISCERAL session.

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