Sharib Ali, Felix Zhou, Christian Daul (Eds.)

Proceedings of the

EAD 2019
Workshop on Endoscopic Artefact Detection Challenge

Co-located with the 16th International Symposium on Biomedical Imaging (ISBI)
Venice, Italy, April 8, 2019
https://biomedicalimaging.org/2019/challenges/

Preface

Endoscopy is a widely used clinical procedure for the early detection of numerous cancers (e.g., nasopharyngeal, oesophageal adenocarcinoma, gastric, colorectal and bladder cancers) therapeutic procedures and minimally invasive surgery (e.g., laparoscopy). A major drawback of endoscopy video frames is that they are heavily corrupted with multiple imaging artefacts (e.g., pixel saturations, motion blur, defocus, specular reflections, bubbles, fluid and debris). These artefacts not only present difficulty in visualizing the underlying tissue during diagnosis but also affect any post-analysis methods such as lesion detection and video image retrieval required for informative reporting and follow-ups. Accurate detection of artefacts is therefore a core challenge in a wide-range of endoscopic applications across multiple disease areas. The precise detection of endoscopic artefacts is crucial to achieve high-quality endoscopic frame restoration and necessary to realize reliable computer assisted endoscopy tools for improved patient care.

Together with six international clinical data providers, we collated a large set of multi-organ, multi-modal and multi-population endoscopy video frames corrupted with different artefacts. Gold standard ground truths were established and made publicly available to the community. This challenge comprised of three sub-challenges: 1) detection, 2) semantic segmentation and 3) detection generalization. All algorithms were evaluated online with the same evaluation metrics. We attracted nearly 29 AI algorithm developers and 529 enthusiasts to participate in the EAD2019 challenge.

This volume contains the proceedings of the first edition of the EAD challenge workshop, which was held in Venice, Italy, on April 8, 2019 co-located with the 16th International Symposium on Biomedical Imaging (ISBI). This editiion of the EAD workshop has been compiled from the 10 accepted papers submitted by top performing teams (12 out of 29) in an endoscopy artefact detection challenge[1]. Each paper was reviewed by at least 2 reviewers in the field.

Workshop and Challenge Organizers: Sharib Ali, Felix Zhou and Christian Daul

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[1] https://ead2019.grand-challenge.org

EAD2019 Challenge Organization

Organizing committee

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