IEEE TRANSACTIONS ON
PATTERN ANALYSIS AND
MACHINE INTELLIGENCE

Special Issue on Egocentric Perception

Important Dates

Submission period: January 1-30, 2020
Author Notification: May 5, 2020
Revised Papers Due: July 20, 2020
Final Notification: September 20, 2020

Aims and Scope

Wearable devices capable of acquiring and processing images and video from a first-person perspective, often synchronized with other sensory information including audio, inertial measurements, and GPS signals, have recently become increasingly common. The past few years have witnessed a shift from research prototypes to commercial products such as Google Glass, Microsoft HoloLens, and Magic Leap One. Such commercial devices promise to unleash the power of Computer Vision and Machine Learning for user-centric applications and could soon be able to automatically understand what camera wearers are doing, manipulating, or attending to. They will be able to recognize the surrounding scene, understand gestures and social relationships, and enhance everyday activities such as sports, education, and entertainment.

While Computer Vision and Machine Learning have made significant advances, egocentric perception introduces multiple challenges which need to be addressed by the research community. For instance, wearable systems must correctly handle the inherently multimodal nature of egocentric information, which apart from images and video may include depth, gaze, audio, geolocation, and inertial data. In the presence of this huge quantity of data, questions such as what to interpret as well as what to ignore, and how captured information can be turned into useful data for guidance or summaries, become central. These questions have long been hindered by the lack of large-scale datasets in egocentric vision.

Over the past years, new datasets have been proposed to address tasks such as egocentric video summarization, egocentric localization and place recognition, egocentric object detection, action recognition and anticipation. Among those, the introduction of some large-scale datasets as EgoSum+gaze, EGTEA Gaze+, Charades-Ego, and EPIC-Kitchens have pushed data-driven learning in egocentric vision to new heights. Particularly, the largest dataset EPIC-KITCHENS2018 and the related challenges on egocentric action recognition and anticipation have attracted significant attention.

The aim of this special issue is to gather recent advances in the field bringing together different communities which are relevant to Egocentric Perception, including Computer Vision, Machine Learning, and Multimedia.

Topics of interest include (but are not limited to):

- Egocentric vision for human action analysis
- Egocentric vision for object/event recognition
- Egocentric vision for summarization
- Egocentric vision for social interaction and human behavior understanding
- Egocentric vision for robotics
- Anticipating future actions, objects, and interactions from egocentric vision
- Head-mounted eye tracking and gaze estimation
- Egocentric perception for attention modelling and next fixation prediction

- Egocentric vision for interactive AR/VR
- Egocentric vision for human-computer interactions
- Egocentric vision for daily life and activity monitoring
- Egocentric vision for augmented human performance
- Multimodal perception for first-person video
- Benchmarking and quantitative evaluation with human subject experiments

Paper Submission and Review

Submitted papers must conform to the author guidelines available on the PAMI website. Authors need to submit full papers online through the PAMI submission site, selecting the choice that indicates this special issue: S.I.: Egocentric Perception.

Submissions must represent original material, that has not appeared elsewhere for publication and that is not under review for another refereed publication, relevant to one of the topics of the Special Issue. If any portion of your submission has previously appeared in or will appear in a conference proceeding, you should notify this at the time of submission, make sure that the submission references the conference publication, and supply a copy of the conference version(s). Please also provide a brief description of the differences between the submitted manuscript and the preliminary version(s). You must select the appropriate designation for the files during the submission process in order to assist the guest editors and reviewers with differentiating between the files.

Submissions will be evaluated by at least three independent reviewers on the basis of relevance for the special issue, originality, significance of contribution, technical quality, scholarship, and quality of presentation. The number of papers appearing in a special issue is dependent on quality alone. There is no upper limit. The editors reserve the right to reject without review any submissions deemed to be outside the scope of the special issue. Authors are welcome to contact the special issue editors with questions about scope before preparing a submission.

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