

Ph.D. topic 2015

Holistic Scene Understanding for Weak-Sighted Elderly

Supervisor

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Presentation of the Ph.D. topic

Sight loss is closely related to old age. With the growing population of seniors, the number of persons with sight loss will greatly increase with the coming years. Holistic scene understanding technique can greatly help weak-sighted elderly in daily life scenario—outdoor activity and indoor navigation. As a fundamental problem of computer vision, the developed holistic scene understanding technique can also generalize to other applications, such as auto-vehicle, medical and satellite imagery. In this project, we are interested in understanding scenes and reasoning about objects/events spatially and temporally using monocular image sequences, mobile depth sensor and state-of-the-art speech recognition tools, with focus on weak-sighted elderly travel assistance and indoor scene understanding and reconstruction.

Expected deliverables

The goal of this project is to develop state-of-the-art 2D/3D scene understanding techniques with effective semantic representation and efficient inference methods based on probabilistic graphical model that reasons about the scene geometry, object localization and assign semantic class/attribute labels to objects under verbal guidance. Besides publication of the conducted research in reputable conferences and journals, the candidate is expected to develop a demonstrable software prototype.

Keywords

Holistic Scene Understanding, Ambient Assisted Living

Applicant profile

- Excellent Master Degree in computer science (or a related field), with background in computer vision, image processing or machine learning.



- A solid mathematical background and good programming skills (C++, Python or Matlab) are required.
- Previous background in video analytics and machine learning is a plus.
- Open to work with both French and Singaporean scientists.

Gratification: Compliant to French Regulation on Ph.D. students (Contrat doctoral)

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