Interactive Global Illumination, Image Search, Estimating Acoustic Materials, and Planning for Robotics

PI: Sung-eui Yoon (http://sgvr.kaist.ac.kr/~sungeui/)
Scalable Graphics/Vision/Robotics Lab. (http://sgvr.kaist.ac.kr/)
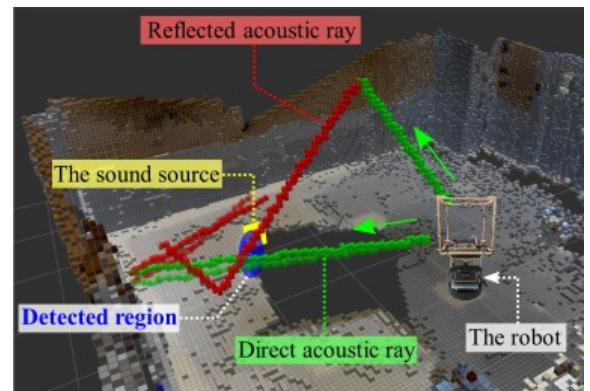KAIST (Korea Advanced Institute of Science of Technology) (http://www.kaist.ac.kr/html/en/)

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Available positions

- Research professor and post-doctorate

Project descriptions

We have high flexibility on choosing research topics, and the following ones are provided as some sample research topics:

Estimating sound materials
- Our lab is working on sound source localization for robots. This technique is based on inversely using ray tracing developed in computer graphics. While our lab is achieving novel results, these techniques require to have good sound material in scenes. Estimating these materials can be done using deep learning techniques and utilizing visual and sound cues. Our publication on this topic is at: https://sgvr.kaist.ac.kr/~ikan/papers/DA-SSL/

Scalable image search
- We have billions of images and video at internet, and demands on efficient image search of them have been drastically growing. We can also utilize multi-modal information (e.g., text) for improving our search accuracy. This project requires you to use recent deep learning methods. Our publication on this topic is at: https://sgvr.kaist.ac.kr/image-search/
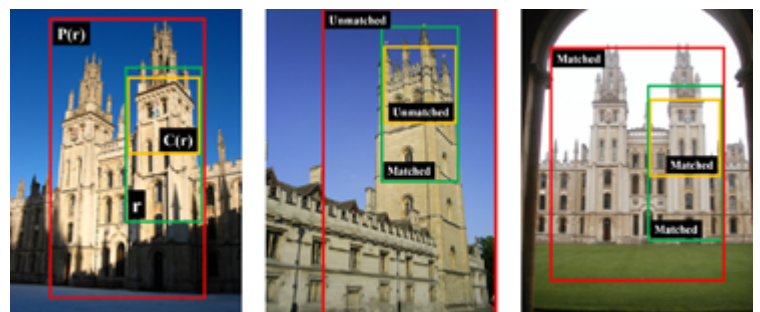
Interactive global illumination

- We focus on designing interactive and scalable global illumination algorithms that can handle complex geometry, lighting, and materials. Additionally, we can work on inverse rendering problems identifying material information and using it for re-lighting. Our publication on this topic is at: https://sgvr.kaist.ac.kr/rendering/

Task and motion planning for robots

- Thanks to the advances on robot hardware, there are growing demands on utilizing such robots for various applications. As a result, it is critical for robots to automatically conduct various tasks and compute collision-free paths. Our lab is also collaborating with other robotics group including KAIST Hubo team. Our publication on this topic is at: https://sgvr.kaist.ac.kr/motion-planning/

Requirement and job descriptions:

Research professor and postdoc:

- Ph.D. degree in computer graphics/vision/robotics or related in computer science is necessary. A research record is requested. He or she will work on various research activities including paper writing and attending conferences.
- Research professor and postdoc will be supported at least one year. Also, it can be extended to multiple years; after you spend 6 months here at KAIST, we will discuss your job continuation to multiple years.
- Yearly salary for postoc. is expected to be 45M Korean won; 1M Korean won is approximately 900 USD and 6000 Chinese Yuan). Actually salary will be adjusted based on your publication record.

Contact:

- Send your CV containing related publication to PI, Sung-eui Yoon (sungeui@kaist.edu)

Location

KAIST is a research-oriented school and one of top engineering schools in South Korea. All the students including undergraduate, graduate, post-doc can stay at in-school dormitory.

Also, KAIST is friendly to international students and researchers; there are many international students at KAIST. KAIST is located in DaeJeon, which is located in almost center of South Korea; refer to the following site: http://www.daejeon.go.kr/dre/index.do. Population of DaeJeon is about 1.5 million. Typical living cost of DaeJeon is relatively cheap. Our lab has 15 graduate students working on graphics, vision, and robotics.