Haofei Kuang

ShanghaiTech Automation and Robotics Center

Address	393 Middle Huaxia Road, Pudong, Shanghai, 201210
Phone	(+86) 16602127015
Mail	*kuanghf@shanghaitech.edu.cn*
Homepage	`https://kuanghaofei.github.io`

EDUCATION

M.Sc in Computer Science (Advisor: Prof. Sören Schwertfeger) 2017 - Present
ShanghaiTech University

B.E in Computer Science and Technology 2013 - 2017
Hefei University of Technology

REFEREES

Prof. Sören Schwertfeger
Assistant Professor of ShanghaiTech University
Email: soerensch@shanghaitech.edu.cn
Homepage: `https://robotics.shanghaitech.edu.cn/people/soeren`

Prof. Laurent Kneip
Assistant Professor of ShanghaiTech University
Email: lkneip@@shanghaitech.edu.cn
Homepage: `https://www.laurentkneip.com/`

CURRENT PROJECTS

Fast Semantic Segmentation with GluonCV (Python, MXNet, GluonCV)

- Establishing semantic segmentation model to Amazon GluonCV library.
- Speed up the model via replacing existing method to a lightweight network.

Depth Estimation on Omni-directional Images (Python, OpenCV, PyTorch)

- Established a Deep Fully Convolutional Residual Network for predicting a depth map from a single monocular image.
- Developed a spherical convolution to deal with distortion problems of panoramic images.

Robot Pose Estimation for Panoramic Images (C++, ROS, OpenCV)

- Extracted motion of pixels between two frames via improved Fourier-Mellin invariant (iFMI) algorithm.
- Estimated the full 6 DoF 3D transform, up to an unknown scale factor via fitting the motion of the pixels in the panoramic images to two sinusoidal functions.

PUBLICATIONS

Haofei Kuang, Qingwen Xu, Xiaoling Long and Sören Schwertfeger. **"Pose Estimation for Omni-directional Cameras using Sinusoid Fitting."** *Accepted for 2019 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS).* IEEE, 2019.

Jaiwei Hou, Haofei Kuang, and Sören Schwertfeger. **"Fast 2D Map Matching Based on Area Graphs."** *Accepted for 2019 IEEE International Conference on Robotics and Biomimetics (ROBIO).* IEEE, 2019.

Haofei Kuang, Qingwen Xu, and Sören Schwertfeger. **"Depth Estimation on Underwater Omni-directional Images Using a Deep Neural Network."** *Workshop on Underwater Robotics Perception, 2019 IEEE International Conference on Robotics and Automation (ICRA).* IEEE, 2019.

Yuan, Yijun, Haofei Kuang, and Sören Schwertfeger. **"Fast Gaussian Process Occupancy Maps."** *2018 15th International Conference on Control, Automation, Robotics and Vision (ICARCV).* IEEE, 2018.

EXPERIENCE

Research Intern Present
Amazon AI Lab
Projects: MXNet, GluonCV, Fast Semantic Segmentation

Volunteer 2017
2017 IEEE International Symposium on Safety, Security and Rescue Robotics (SSRR)

Visiting Student 2016
Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences
Projects: Camera Calibration, 3D Reconstruction of Binocular Endoscopic Images

Paper Reviewer
ICRA (Top Conference), Design Science (Journal, Cambridge University Press)

AWARDS

Best Paper 2019
Workshop on Underwater Robotics Perception, 2019 ICRA

8/11 (rank/total) 2019
Rescue Robot League of RoboCup 2019.

Winner (5000$) 2018
Hackathon of 2018 IEEE ComSoc Summer School on Fog Computing.

Winner (3000RMB) 2017
Autonomous Challenge of 2017 China ROS Summer School.

First-class Prize 2016
The Scholarship of HeFei University of Technology.

8/16 (rank/total) 2015
2D Soccer Simulation League of 2015 RoboCup.

First-class prize 2015
2D Soccer Simulation League of 2015 RoboCup China Open.