

Haofei Kuang

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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

CURRENT PROJECTS

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

- Testing and debugging existed semantic segmentation model of Amazon GluonCV library.
- Implementing fast semantic segmentation model (e.g. ICNet) to GluonCV.

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, IRC, Design Science

Teaching Assistant
Introduction to Robotics (2019)

AWARDS

Best Paper <i>Workshop on Underwater Robotics Perception, 2019 ICRA</i>	2019
8/11 (rank/total) <i>Rescue Robot League of RoboCup 2019.</i>	2019
Winner (5000\$) <i>Hackathon of 2018 IEEE ComSoc Summer School on Fog Computing.</i>	2018
Winner (3000RMB) <i>Autonomous Challenge of 2017 China ROS Summer School.</i>	2017
First-class Prize <i>The Scholarship of HeFei University of Technology.</i>	2016
8/16 (rank/total) <i>2D Soccer Simulation League of 2015 RoboCup.</i>	2015
First-class prize <i>2D Soccer Simulation League of 2015 RoboCup China Open.</i>	2015

REFEREES

Prof. Sören Schwertfeger

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Dr. Yi Zhu

Applied Scientist of Amazon AI Lab

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