

# Haofei Kuang

ShanghaiTech Automation and Robotics Center

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## EDUCATION

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

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

## CURRENT PROJECTS

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

- Established a Deep Fully Residual Network for predicting a full resolution 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.

## INTERN EXPERIENCE

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**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

## PUBLICATIONS

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

## AWARDS

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**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.*

**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.*