

# Siyuan Huang

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## EDUCATION

### Karlsruher Institute of Technology (KIT)

Master of Science in Mechatronics and Information Technology; GPA:1.8

Karlsruhe, DE

Expected July 2020

**Relevant Coursework:** Automotive Vision, Machine Vision, Localization of mobile robot, Optimization of dynamic system

### Darmstadt University of Technology (TU Darmstadt)

Bachelor of Mechanical Engineering; Exchange Student

Darmstadt, DE

Oct 2016 - Sept 2017

**Thesis:** Construction of a Hardware-in-the-Loop-Model for the Co-Simulation of a robotic arm in the CAD-MBS process chain

### Beijing Institute of Technology (BIT)

Bachelor of Mechanical Engineering; GPA: 3.5/4.0. Ranking: 5/100

Beijing, CHN

Oct 2013 - July 2016

**Relevant Coursework:** Mechanical Graphing, Machinery principle, Computer aided Design & Manufacturing, Mechanical design.

## EXPERIENCE

### Master Thesis at ITE, Robotics Odometry.

Institute of Systems Optimization

Karlsruhe, DE

Oct. 2019 - Jun. 2020

- \* Topic: Motion Estimation based on Thermal Inertial Odometry(TIO).
- \* Benchmark to evaluate SOAT VIO frameworks and tune configuration parameters (almost) automatically.
- \* Proposed one front-end pipeline to utilize raw thermal image with full-size value range (16-Bit), including feature management and loop-closure detection.

### Student Assistant at IPR, Safety in Robotics.

Institute for Anthropomatics and Robotics (IAR) - Intelligent Process Automation

Karlsruhe, DE

Nov. 2018 - Dez. 2019

- \* Dynamic Simulation for Human-Robot-Interaction in the environment Gazebo/ROS to ensure safe HRI.[Paper]
- \* Algorithms Implementation in Matlab/Python with topics about optimization of sensor placement.

### Project Intern at ISAS

Institute for Anthropomatics and Robotics - Intelligent Sensor-Actuator-System

Karlsruhe, DE

Apr. 2019 - Aug. 2019

- \* LiDAR based multiple extended object tracking framework with UKF filter. [Demo]
- \* Motion model learned with Gaussian Process method to gain a more robust motion prediction.
- \* LiDAR noise characteristic learn and correction with GP method.

### Project Intern at IPR

Institute for Anthropomatics and Robotics (IAR) - Intelligent Process Automation

Karlsruhe, DE

Nov. 2018 - Mai. 2019

- \* Multiple object detection upon proximity sensor modules, tracking method was developed with Kalman Filter.
- \* One paper based on this project has been accepted by IROS2019 Workshop.[Paper]

### Internship at Daimler AG

Beijing Research & Design Center; Autonomous Driving& Regularization

Beijing, CHN

Oct. 2017 - Mai. 2018

- \* Mainly responsible for imported vehicle CCC certification, including technical documentation preparation.
- \* Support the validation process of the autonomous vehicle, including field test, data analysis.

## PROFESSIONAL COMPETITIONS

- **A coins sorting machine with completely mechanical power:** Second Prize of National College Mechanical Innovation Competition
  - Designed and built a coins sorting machine with the completely mechanical power which can identify coins of different denominations and collect them in different containers.
  - Responsible for the structure design and processing of the machine and making the adjustment
- **Dynamics Simulation and Optimization of Six DOF Swaying Platform:** National University Students Science and Technology Innovation
  - Study for the theory of hydraulic 6-DOF parallel robot and use it to design a multi-legged mobile platform which can stand high pressure and overcome obstacles.
  - Responsible for the analysis of mechanism dynamics analysis, structure design and building of the platform.

## SKILLS

• **Programming Languages:** Python, C++, Matlab

**Technologies:** GitHub, ROS/Linux, Gazebo

• **Foreign Languages:** English: IELTS 7& German: DSH 2

**Libraries:** Numpy, TensorFlow, OpenCV

## ADDITIONAL INFORMATION & ACHIEVEMENTS

- Chinese Government Scholarship (CSC, funded for Master Study)
- Chinese Government Scholarship (CSC, funded for Exchange Study)
- "84781" scholarship (giving for the top5 student)