

# SHUAIJUN GAO

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## EDUCATION

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### **Tongji University**

*Sept. 2016 - Present*

Bachelor of Science in Computer Science  
Minor in Material Science and Engineering  
Overall GPA: 4.45/5

## RESEARCH INTEREST

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Computer Vision, Object Detection, Object Tracking, Semantic Segmentation, Deep Learning, Machine Learning

## RESEARCH EXPERIENCE

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### **Visual Object Tracking**

Feb. 2019 - present

*Undergraduate Researcher with Dr. Junqiao Zhao*

*TiEV group, Tongji*

- Project aims at building a robust affinity network to perform object tracking and object re-identification
- Proposed a two-step methods with SuperPoint detecting the sparse feature representation as the first stage following an affinity network getting the similarity of each object

### **Vehicle detection in China Intelligent Vehicle Future Challenge**

Sept. 2018 - Nov. 2018

*Undergraduate Researcher with Dr. Junqiao Zhao*

*TiEV group, Tongji*

- Project utilizes Faster\_RCNN to detect in-front vehicle getting an accuracy of above 90% in the illumination change condition
- Implemented affine transformation and calculate the distance between the in-front vehicle and the camera
- Performed vehicle tracker to get an unique ID for in-front vehicle with 80% plus accuracy
- Randed 8 out 23 including 10 plus AI companies

### **Mechanic arm control based on self-reinforcing learning**

Mar. 2018 - Sept. 2018

*National Innovation Research Project for Undergraduates*

*Tongji Uni.*

- Project aims at using reinforcement learning process to achieve self-control of mechanic arm

## PROJECTS

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### **DroneGo Disaster Response System in MCM 2019**

Jan. 2019 - Feb. 2019

- Performed weighted K-means to assign 3 locations for drone container under the Tsunami scenario of an island
- Applied 3D backpacking algorithm to maximize the Space utilization of drone container

### **Digital drone model with Tongji Jiading Campus**

Sept. 2018 - Nov. 2018

- Designed an interactive aircraft model with Tongji Library surrounding
- Generated the shadow of the airplane through Z-buffer algorithm

### **Online editor design**

June. 2018 - July. 2018

- Designed an interactive on-line editor using HTML5, CSS and Javascript to offer delightful on-line editing experience with using stack and heap data structure
- Website at: <https://espade.github.io/A-simple-editor/index.html>

## WORK EXPERIENCE

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### Micro Focus Inc.

Apr. 2019 - present

*Software Developer Intern*

- Product aims at managing Hybrid IT transformation with advanced private and public cloud discovery, including AWS and Azure

### Songhong Intelligent Vehicle Inc.

Feb. 2019 - Apr. 2019

*Algorithm Developer Intern*

- Applied DeepLab v3+ model, PSPNet and Lanenet of image semantic segmentation to identify the specific vehicle behavior, namely vehicle lane change, vehicle overtaking and vehicle-can-drive area intrusion
- Modified the model to perform at a level with mIoU of above 80% in certain traffic scene understanding, such as car crash, traffic congestion and vehicle rear-end

### Teaching Assistant in CS100433 Computer Graphics, Tongji

Fall 2018

## SELECTED HONORS

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### Shanghai 3rd Prize in National Mathematical Modeling Contest

Nov. 2018

### 3rd Prize in Tongji University Mathematics Modeling Competition

June 2018

### Top 20% in Certified Software Professional by China Computer Federation

Nov. 2017

### 1st class scholarship(10 out of 145)

Oct. 2017

### 3rd prize in Tongji University Mathematics Competition

May 2017

## ACTIVITIES

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### 2018 World AI Autonomous Driving Challenge (WAIAC)

Sept. 2018 - Oct. 2018

*Volunteer*

- Driving Rule referee: Rating the autonomous vehicle in the competition for turning.

### Chinesisch-Deutsches Fenster Club

Sept. 2016 - Sept. 2017

*Deputy Minister*

- Serving as the main planners and reviewers of major events, the leaders of China-German School carried out a series of events all coined under one name: "Going into Germany".

### Water Rocket Club

May 2015 - July 2016

*President*

- Won Group Second Prize and Third Prize in National Water Rocket Invitational twice.
- Won one of best ten club president award.

## TECHNICAL STRENGTHS

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**Programming Languages**  
**Deep Learning Framework**  
**Hardware**  
**Languages**

Proficient in Python, C/C++, Kotlin; Experience with Javascript, R  
 Keras, Pytorch, Tensorflow  
 VHDL, verilog  
 English(IELTS 7.0), German(Level A2)