

# GENGWEI ZHANG

School of Data and Computer Science, Sun Yat-Sen University  
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## EDUCATION

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### Sun Yat-Sen University

Senior Undergraduate

School of Data and Computer Science

*Sept. 2015 - Present*

Overall GPA: 4.0/5.0

rank: 22/465

## ACADEMIC EXPERIENCE

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### Human Parsing

*Advisor: Dr. Zhuo Su*

March 2018 - Present

*Research Assistant*

- Proposed an effective enlarge method based on deformable convolution to instead the use of deconvolution for the structural property of human parsing data.
- Proposed a multi-path network with proposed enlarge method and Densenet, which gained 54% mIoU on LIP validation dataset.
- Implement an efficient network architecture with attention guidance for human parsing, which outperformed the state-of-the-art model with only 60% parameters of it.
- Used the same network for multi-person human parsing, performed 58% mIoU on CHIP validation dataset.

### Multi-Person Pose Estimation

*Advisor: Dr. Zhuo Su*

Oct. 2017 - March 2018

*Research Assistant*

- Fully implemented state-of-the-art algorithm CPN with PyTorch and made it public, which gained more than 220 stars on GitHub. (Project: <https://github.com/GengDavid/pytorch-cpn>)
- Analyzed MS-COCO dataset and tried different data augmentation strategies.
- Transferred detection algorithm FPN to human pose estimation task using TensorFlow.

### Visual Tracking

*Advisor: Dr. Zhuo Su*

Summer 2017

*Research Assistant*

- Reviewed current works and presented in group seminar.

## PUBLICATIONS

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Xianghui Luo, **Gengwei Zhang**, Jiaming Guo, Zhuo Su, Xiangjian He, Chengying Gao. "Multi-scale meets Spatial Awareness: An Efficient Attention Guidance Network for Human Parsing." (Submitted)

Zhuo Su, Jiaming Guo, **Gengwei Zhang**, Xianghui Luo, Ruomei Wang, Fan Zhou, "Conditional progressive network for clothing parsing", IET Image Processing, 2019, 13, (4), p. 556-565, DOI: 10.1049/iet-ipr.2018.5494

Xianghui Luo, Zhuo Su, Jiaming Guo, **Gengwei Zhang**, Xiangjian He. "Trusted Guidance Pyramid Network for Human Parsing." In 2018 ACM Multimedia Conference on Multimedia Conference (ACM Multimedia) (pp. 654-662). ACM. (**Poster**)

Jiaming Guo, Zhuo Su, Xianghui Luo, **Gengwei Zhang**, Xiwen Liang "Conditional Feature Coupling Network for Multi-Persons Clothing Parsing." Pacific Rim Conference on Multimedia (PCM), 2018, September (pp. 189-200). Springer, Cham. (**Oral**)

## WORK EXPERIENCE

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**Tencent Inc.**

Summer 2018

*Supervisor: Zuck Chen*

*Research and Development Intern*

- Aiming at integrating Super resolution algorithm into an existing mobile video app for sake of saving the Internet traffic.
- Selected and implemented algorithms with TensorFlow and deployed on Android devices.
- Accelerated the running time by 5 times and saved about 75% Internet Traffic for image loading.

## LEADERSHIP AND AWARDS

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### **FashionAI Global Challenge**

*Team Leader*

*March - May, 2018*

- Led a team of 3 people to compete in two challenges.
- Optimized Hourglass and CPN algorithm with PyTorch.
- Used model fusion and test set augmentation strategy to get better performance.
- Key Points Detection of Apparel Challenge, final rank(2<sup>nd</sup> round): 53/2322

### **Kaggle Human Protein Atlas Image Classification**

*Team Member*

*Dec. 2018*

- Used re-sampling strategy to solve the problem of unbalanced data
- Utilized cross validation for ensemble.
- Silver medal, final rank: 88/2172

### **AI-Foundation**

- Implemented traditional machine learning algorithms from scratch with python and c++.
- Link: <https://github.com/GengDavid/AI-Foundation>

### **Awards**

- Honorable Mentions in 2017 COMAP's Mathematical Contest in Modeling.
- 1<sup>st</sup> class scholarship in Sun Yat-sen University (rank 10/465)
- First Prize in 2017 Sun Yat-sen University software innovation competition.
- Third Prize in 2017 Sun Yat-sen University Programming Contest.

## TECHNICAL STRENGTHS

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**Computer Languages**

C/C++, Python, MATLAB, CUDA

**Deep learning Platforms**

PyTorch, Tensorflow, Caffe/Caffe2

**Os**

Windows, Linux (Ubuntu, CentOS, Kali), MacOS

**Software**

L<sup>A</sup>T<sub>E</sub>X, Wordpress, Photoshop, After Effects, Premiere