

# Yuanbiao Wang

(+86)18801356929 | [wangyuanbiao2016@gmail.com](mailto:wangyuanbiao2016@gmail.com) | [agil27.github.io](https://agil27.github.io) |

## EDUCATION

### Tsinghua University

*Bachelor's in Software Engineering*

Beijing, China

Aug. 2016 – July 2021

- GPA: 3.82/4.0, Ranking: 7/85
- Core courses: 4.0 GPA for Calculus, Linear Algebra, Probability and Statistics, Data Structure, Introduction To Algorithms, Deep Learning, Introduction to Artificial Intelligence, Modern Operating Systems, etc.

## PROJECTS AND EXPERIENCES

### Learning a white-box test-time augmentation policy for biomedical models June 2020 – Present

*Advised by Prof. Hanspeter Pfister*

*Harvard University*

- Proposed a white-box image enhancement method for test-time data augmentation and modeled it to be a continuous optimization problem over enhancement levels, replacing the traditional decision making process modeling.
- Designed a novel optimization method based on gradient estimation with biased surrogate gradients as prior knowledge; proposed several approaches to solve the few-shot learning challenge
- Experimented the proposed method on the manually-corrupted MNIST dataset; Reported up to 0.06 cross entropy loss decrease and up to 2% accuracy increase with only 10% of the test data to train our policy network, comparable to the oracle baseline.
- Preparing a submission to ICML2021.

### Facial expression recognition through multi-task semi-supervised learning April. 2020 – Present

*Advised by Prof. Yue Gao*

*Tsinghua University*

- Reproduce the state-of-art contrastive learning methods on facial expression recognition and report an 46.03% test accuracy on the Affectnet facial expression recognition (FER) benchmark dataset
- Proposed a multi-task learning framework to enhance the performance with auxiliary facial landmark detection task; Report a 46.79% test accuracy on Affectnet dataset, with an 0.76% increase compared to the baseline SimCLR method.
- Experimenting with human-facial-specific weakly-supervised facial deformation (3d warping by the mapping of Delauney triangles of facial landmarks) as the data augmentation to increase its relevance with our specific task; Also trying with a GAN-like network to generate an optimized warping field

### Using Hypergraph neural networks for affective computing Feb 2019- May 2019

*Advised by Prof. Yue Gao*

*Tsinghua University*

- Researched and improved the method of Hypergraph Neural Networks(HGNN) by adding a modality-wise attention block.
- Proposed a new hypergraph construction method and a handcrafted input feature the takes into account the individual specification to enhance the performance of the model
- Implemented the improved HGNN method using PyTorch and ran several experiments on the DEAP and ASCERTAIN dataset (two benchmarks for affective computing); reported a 2.68% and 5.09% accuracy increase respectively

## SOCIAL ACTIVITIES

### Student Union | School of Software, Tsinghua University | Publicity Department Officer Aug 2017 – Sept 2018

- Responsible for suggesting publicity activities as well as drafting and finalizing publicity materials
- Tutored newly recruited members to help them develop publicity skills

## AWARDS

- Comprehensive Excellence Award of Tsinghua University in 2018, 2019 and 2020(Awarded only to the top 10% undergraduate students)

## TECHNICAL SKILLS

**Programming Languages:** Python, Java, C/C++, SQL, JavaScript, HTML/CSS

**Professional Softwares:** PyTorch, sklearn, numpy, Vue, Flask, Git, LaTeX

**Language:** English(fluent), Chinese(native)