

Yifan Zhou

Research Engineer @ NTU S-Lab
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EDUCATION

TOEFL Score Total 103/120 Reading 30/30 Listening 28/30 Writing 23/30 Speaking 22/30
GRE Score Quantitative 170/170 Verbal 150/170 Analytical Writing 3.0/6
Beijing Institute of Technology (BIT), Beijing, China Aug 2017 - Jun 2021
Bachelor of Computer Science, GPA: 3.7/4.0, Ranking: 41/226 (Top 20%)

PROFESSIONAL EXPERIENCE

NTU S-Lab, Singapore, Singapore Mar 2022 - present
Research Engineer

- Refine advanced face super-resolution model GLEAN and face style transfer model DualStyleGAN for commercial application.
- Participate in the development of an AI face editing project. I was responsible for model deployment and codebase management.

Shanghai AI Lab, Shanghai, China Jul 2021 - Feb 2022
Algorithm Researcher

- Improve algorithms, deploy deep learning models and maintain codebase for open source Computer Vision library OpenMMLab.
- I was a core developer of the model deployment framework MMDeploy.

RESEARCH EXPERIENCE

Optical Flow Estimation using Deep Learning Jul 2021 - Feb 2022

- Develop a new state-of-the-art optical flow estimation network on KITTI and Sintel datasets. The network utilizes a novel striping operation that extracts horizontal and vertical features of the image.
- I discussed and strengthened the idea with other authors. I also developed and maintained the codebase of the projects.
- Two research papers were published.

Text Mining in Education Sep 2020 - Jul 2021
Advisor: Prof. Janet K. Allen, Farrokh Mistree, The University of Oklahoma, US

- Create a self-tutoring system that offers suggestions to students based on their input learning statements (a learning statement is a formatted triple [experience, learning, value]). The self-tutoring system calculates the semantic similarity between the input learning statement and learning statements in the database by using SBERT and gets results based on similarity.
- I proposed the idea, developed the program, and wrote the paper.

Radiance Reconstruction using Machine Learning Apr 2020 - Aug 2020

Advisor: Prof. Lei Zhang, Beijing Institute of Technology, China

- Based on a recent method, the research aims to improve the performance of two neural networks that adaptively reconstruct and sample the radiance of a scene to guide path tracing.
- I was responsible for reproducing the paper and proposing new ideas.

OPEN SOURCE PROJECT

MMDeploy: OpenMMLab Model Deployment Framework [[GitHub](#)] Jul 2021 - Feb 2022

- Promising deployment framework for OpenMMLab codebases which occupied GitHub Trending Top 1 for three days. (1.6k+ stars, 300+ fork)
- It supports 100+ algorithms of 8 CV tasks.
- As a core developer, I designed and refactored the main architecture of the codebase.
- I published 6 tutorials for MMDeploy and received positive feedback (1000+ likes) from the community.

Efficient Gradient-domain Image Seamless Blending [[GitHub](#)] Mar 2021 - Jul 2021

- Implemented an efficient Poisson image blending algorithm using OpenCV in C++ which lowers the time complexity of the original algorithm from $O(n)$ to $O(\sqrt{n})$ by using a quadtree.

Image Segmentation using Superpixels [[GitHub](#)] Jan 2020

- Implemented a two-step image segmentation algorithm using OpenCV in C++: 1) Divide the image into superpixels using SLIC 2) Use AP to cluster the superpixels to get the result segments of the image.

Chinese Spelling Checker [[GitHub](#)] Dec 2019

- Developed a Chinese spelling checker using C++ which can detect the potential errors of a Chinese sentence and offer suggestions for revision The program is based on the word lattice decoding model.

PUBLICATION

PanoFlow: Learning 360° Optical Flow for Surrounding Temporal Understanding [[PDF](#)]

Hao Shi†, **Yifan Zhou**†, Kailun Yang, Xiaoting Yin, Ze Wang, Yaozu Ye, Zhe Yin, Shi Meng, Peng Li, and Kaiwei Wang
IEEE Transactions on Intelligent Transportation Systems (ITITS)

Learning optical flow via cross strip correlation for autonomous driving [[PDF](#)]

Hao Shi, **Yifan Zhou**, Kailun Yang, Xiaoting Yin, and Kaiwei Wang
IEEE Intelligent Vehicles Symposium (IV)

HONORS/AWARDS

- The ACM-ICPC Asia Regional Contest Shenyang Site 2018 **Gold Medal** (Ranking Top 10%)
- 2019 China Collegiate Programming Contest Xiamen Site **Silver Medal** (Ranking Top 30%)

SKILLS/OTHERS

Computer Skills: C++, CUDA, Java, Python, OpenGL, OpenCV, PyTorch, TensorFlow

Research Interests: Computer Vision; Image Stylization; Image Generation