

SHENYUAN GAO

Ph.D. Student at HKUST

Homepage: github.com/Little-Podi ◇ Email: sygao@connect.ust.hk

EDUCATION

The Hong Kong University of Science and Technology (HKUST)

2022 - 2026 (*expected*)

Ph.D. in Electronic and Computer Engineering

Advised by Prof. Jun Zhang (IEEE Fellow)

Huazhong University of Science and Technology (HUST)

2018 - 2022

B.Eng. in Electronic Information Engineering

GPA: 3.9/4.0

Advanced Class (Elite Program for Information Science, 30 selected from 400 freshmen)

Overall Rank: 1/30

RESEARCH INTEREST

Autonomous Agent Autonomous Driving, Embodiment, Generalist Agent

Generative Model World Models, Diffusion Models, Video Generation

PUBLICATION

Vista: A Generalizable Driving World Model with High Fidelity and Versatile Controllability

Shenyuan Gao, Jiazhi Yang, Li Chen, Kashyap Chitta, Yihang Qiu, Andreas Geiger, Jun Zhang, Hongyang Li

Preprint.

Generalized Predictive Model for Autonomous Driving

Jiazhi Yang*, Shenyuan Gao*, Yihang Qiu*, Li Chen, Tianyu Li, Bo Dai, Kashyap Chitta, Penghao Wu, Jia Zeng, Ping Luo, Jun Zhang, Andreas Geiger, Yu Qiao, Hongyang Li

Accepted by IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR) 2024 as *Highlight* (Top 2.8%).

Generalized Relation Modeling for Transformer Tracking

Shenyuan Gao, Chunluan Zhou, Jun Zhang

Accepted by IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR) 2023.

AiATrack: Attention in Attention for Transformer Visual Tracking

Shenyuan Gao, Chunluan Zhou, Chao Ma, Xinggang Wang, Junsong Yuan

Accepted by European Conference on Computer Vision (ECCV) 2022.

EXPERIENCE

Shanghai Artificial Intelligence Laboratory, OpenDriveLab

April 2023 - present

Research Intern

Shanghai, China

- Leader: Dr. Hongyang Li
- Working on autonomous driving foundation models.
- Developed a driving world model with strong generalization ability to diverse scenarios and applications.

The Hong Kong University of Science and Technology

September 2022 - present

Research Postgraduate Program

Hong Kong SAR, China

- Advisor: Prof. Jun Zhang (IEEE Fellow)
- Worked on video object tracking and neural video compression.
- Working on multi-agent cooperative perception for autonomous driving scenarios.
- Proposed a generalized formulation of attention-based relation modeling for tracking.
- Proposed a content-aware masked image modeling style for bidirectional prior interaction.

Huazhong University of Science and Technology*Final Year Project for Bachelor Degree*

March 2022 - Jun 2022

Wuhan, China

- Advisor: Prof. Peng Yang
- Worked on video object tracking and efficient deep learning.
- Proposed a slimmable tracker with hierarchical weight sharing. Awarded as outstanding graduation thesis.

University at Buffalo*Summer Research Intern*

July 2021 - March 2022

New York, United States (Remote)

- Advisor: Prof. Junsong Yuan (IEEE Fellow)
- Worked on video object tracking.
- Proposed a novel Attention in Attention block to facilitate correspondence learning.

The University of Hong Kong, MMLab*HKU CS Summer Research Internship Programme*

July 2021 - August 2021

Hong Kong SAR, China (Remote)

- Advisor: Prof. Ping Luo
- Worked on video object tracking and visual grounding.
- Completed the research project with full stipend award. Paused the further progress due to limited computing resource.

Shanghai Jiao Tong University*Undergrad Research Assistant*

January 2021 - March 2021

Shanghai, China

- Advisor: Prof. Chao Ma
- Worked on video object tracking and segmentation.
- Explored the application of Transformer. Proposed a graph-based spatio-temporal memory update mechanism.

Huazhong University of Science and Technology*Undergrad Research Assistant*

September 2019 - December 2020

Wuhan, China

- Advisor: Prof. Xinggang Wang
- Worked on object detection and tracking.
- Completed a survey paper as co-author. Reproduced about 30 representative algorithms on several benchmarks.

HONORS AND AWARDS

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| • Full Postgraduate Scholarship | 2022-2026 |
| • RedBird PhD Scholarship | 2022-2023 |
| • Outstanding Graduate | 2022 |
| • Outstanding Graduation Thesis | 2022 |
| • Outstanding Undergraduate in Terms of Academic Performance (Top 1%) | 2019 |
| • National Scholarship (Top 2%) | 2019 |

ACADEMIC SERVICES

ReviewerIEEE/CVF Conference on Computer Vision and Pattern Recognition (**CVPR**)Conference on Neural Information Processing Systems (**NeurIPS**)European Conference on Computer Vision (**ECCV**)International Conference on Pattern Recognition (**ICPR**)IEEE Transactions on Pattern Analysis and Machine Intelligence (**TPAMI**)IEEE Transactions on Multimedia (**TMM**)

IEEE Transactions on Circuits and Systems for Video Technology (**TCSVT**)
Image and Vision Computing Journal (**IMAVIS**)

Teaching

Advanced Deep Learning Architectures (**COMP 5214 / ELEC 5680**)
Signal Processing and Communications (**ELEC 3100**)

MISC

During my undergraduate, I built and launched a personal website by myself.
So far, I have posted about 177,000 words of notes and already received 132,000 views from 89,000 unique visitors.

I am a big fan of One Piece comics (not its animation).
Many of my belongings contain One Piece elements, including 6 different T-shirts with One Piece characters.

I am also used to going to the gym in the morning (09:00 - 09:55), and running or swimming in the evening.
My dream is to build 8-pack abs like the shape of chocolates (aim high, probably 6-pack in the end).