

# SHENYUAN GAO

Ph.D. Student at HKUST

Homepage: [github.com/Little-Podi](https://github.com/Little-Podi) ◇ Email: [sygao@connect.ust.hk](mailto: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  
Advanced Class (Elite Program for Information Science, 30 selected from 400 freshmen)

GPA: 3.9/4.0

Overall Rank: 1/30

## RESEARCH INTEREST

**Autonomous Agent** Autonomous Driving, Embodiment, Generalist Agent

**Generative Model** World Models, Diffusion Models, Video Generation

## PUBLICATION

### 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.
- Proposed a driving predictive 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

March 2022 - Jun 2022

*Final Year Project for Bachelor Degree*

*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 ( <b>Top 1%</b> )	2019
• National Scholarship ( <b>Top 2%</b> )	2019

## **ACADEMIC SERVICES**

### **Reviewer**

IEEE/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**

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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).