

# ZIYAO ZENG

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## SUMMARY

Senior of ShanghaiTech University majoring in Computer Science

Starting AI-Scientist with Enterprise

Research Interests lies towards Artificial General Intelligence (AGI) which simulates human thinking in Strong Perception, Explainable Model, and Cross-Modality

## EDUCATION

**ShanghaiTech University** **Sept. 2019 - (Expected) June 2023**

**B.Eng. in Computer Science, Major**

- **Overall GPA: 3.59/4.00, rank 37/166 (top 22%)**  
**GPA last year** (2020-2021 academic year): **3.85/4.00, rank 6/166 (top 3%)**
- **Selected Courses:** (\*: graduate-level) Deep Learning\* (A), Digital Image Processing\* (A), Probability & Statistics (A), Python Programming (A), Computer Architecture (A), C & C++ Programming (Top Student), Computer Vision I (A)

• **International Summer Program** **Osaka University | June 2022**

**Innovation and Entrepreneurship, Minor**

- **Selected Courses:** Leadership and Teamwork (A+), Negotiation (A), Strategy Management (A), Intro. to Entrepreneurship (Opportunity: A, Marketing: A, Finance: A), Intro. to Economics (A)

• **Entrepreneurial Mindshift Program** **Babson College | March 2021**

**Fuzhou NO.1 High School** **Sept. 2016 - June 2019**

## PUBLICATIONS

(\*: equal contribution, †: corresponding author)

- **Can Language Understand Depth?**  
Renrui Zhang\*, Ziyao Zeng\*, Ziyu Guo, Yafeng Li  
ACM Multimedia 2022 (Brave New Idea), Link: <https://arxiv.org/abs/2207.01077>
- **DSPoint: Dual-scale Point Cloud Recognition with High-frequency Fusion**  
Renrui Zhang\*, Ziyao Zeng\*, Ziyu Guo\*, Xinben Gao, Kexue Fu, Jianbo Shi†  
arXiv technical report, 2021, Link: <https://arxiv.org/pdf/2111.10332.pdf>
- **VT-CLIP: Enhancing Vision-Language Models with Visual-guided Texts**  
Renrui Zhang\*, Longtian Qiu\*, Wei Zhang, Ziyao Zeng  
arXiv technical report, 2021, Link: <https://arxiv.org/pdf/2112.02399.pdf>
- **Twitter Emotion Classification**  
Yiteng Xu\*, Ziyao Zeng\*, Jirui Shi\*, Shaoxun Wu\*, Peiyan Gu\*  
Final Project of CS181 Artificial Intelligence, 2021 Fall, ShanghaiTech University  
Link: [https://adonis-galaxy.github.io/homepage/research/AI\\_CS181\\_project/AI\\_CS181\\_project.pdf](https://adonis-galaxy.github.io/homepage/research/AI_CS181_project/AI_CS181_project.pdf)
- **Generalized DUQ: Generalized Deterministic Uncertainty Quantification**  
Zhitong Gao\*, Ziyao Zeng\*  
Final Project of CS282 Machine Learning, 2021 Spring, ShanghaiTech University  
Link: [https://adonis-galaxy.github.io/homepage/research/ML\\_CS282\\_project.pdf](https://adonis-galaxy.github.io/homepage/research/ML_CS282_project.pdf)
- **Seek Common while Shelving Differences: A New Way for dealing with Noisy Labels**

Zhitong Gao\*, Ziyao Zeng\*

Final Project of CS280 Deep Learning, 2020 Fall, ShanghaiTech University

Link: [https://adonis-galaxy.github.io/homepage/research/DL\\_CS280\\_project.pdf](https://adonis-galaxy.github.io/homepage/research/DL_CS280_project.pdf)

## RESEARCH EXPERIENCES

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### GRASP Lab

### University of Pennsylvania

Research Assistant | Supervisor: Prof. Jianbo Shi

April 2021 - Present

- **Self-supervised Image Segmentation** | With the help of reconstruction-based model that simulates human learning skill | Collaborator: Renrui Zhang, Qinman Wu
- **Zero-shot/Prototype-based Depth Estimation** | Using vision-language model to conduct zero/few-shot depth estimation | Collaborator: Renrui Zhang
- **Monocular 3D Object Detection** | Regress 3D bounding box for object using only monocular RGB image | Collaborator: Xinbeng Gao, Renrui Zhang
- **Point Cloud Recognition** | Process point cloud to efficient extract feature, and deal with recognition tasks like shape classification, part segmentation, scene segmentation, 3D object detection | Collaborator: Renrui Zhang, Ziyu Guo, Xinben Gao, Kexue Fu

### PLUS Lab

### ShanghaiTech University

Research Assistant | Supervisor: Prof. Xuming He

July 2020 – June 2021

- **Mix-data Anomaly Segmentation** | Develop a cascaded auto-encoder with metric learning to perform mix-data anomaly segmentation | Collaborator: Bing Jiang
- **Noisy Labels Classification** | Design a model using Trinet and early stopping to seek common while shelving difference to deal with noisy data classification | Collaborator: Zhitong Gao
- **Uncertainty Estimation** | Focus on uncertainty estimation especially distinguish between epistemic and aleatoric uncertainty using a single model | Collaborator: Zhitong Gao

### Virtual Reality and Visual Computing Center

### ShanghaiTech University

Research Assistant | Supervisor: Prof. Jingyi Yu

Jan. 2021 - March 2021

- **6D Pose Estimation using NeRF** | Modifying NeRF with light disentanglement and rotation matrix optimization to estimate object's 6D pose | Collaborator: Ge Zhang & Peihao Wang
- **Adversarial Training in NeRF** | Adapt NeRF to training under highly noisy scenario by applying method of learning with noisy label | Collaborator: Ge Zhang & Peihao Wang

### State Key Laboratory of Drug Research Shanghai Institute of Materia Medica, CAS

Research Assistant | Supervisor: Prof. Minyue Zheng & Prof. Hualiang Jiang

Jan. 2021 – May 2021

- **miRNA Target Matching** | Design a deep learning model to match miRNA drug with its target | Collaborator: Xiaolong Wu

### Laboratory of Bioinformatics and Functional Genomics

### ShanghaiTech University

Research Assistant | Supervisor: Prof. Liye Zhang

Jan. 2021 – March 2021

- **Enhancer Prediction** | Design a deep learning model to predict enhancer using genetic information | Collaborator: Chenyue Guo

### Laboratory of Cancer Biology

### ShanghaiTech University

Research Assistant | Supervisor: Prof. Xuesong Liu

Nov. 2020 - Jan. 2021

- **HRD Prediction** | Develop a deep learning model to predict HRD symptom based on information of genetic copy number signature | Collaborators: Huiming Li

### Foot Research Laboratory

### Fujian Normal University

Research Assistant | Supervisor: Prof. Yifang Fan

July 2017 - Sept. 2017

- **Adolescent Obesity's Effect to arches of foot** | Conduct a research capturing pressure of feet to

study effects of adolescent obesity to arches of foot

## **WORKING EXPERIENCES**

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### **UISEE AI Lab**

**Shanghai, China**

Visiting Scholar

July 2021 – April 2022

- Develop point cloud recognition & monocular 3D object detection algorithm for self-driving cars

### **Shanghai Advanced Research Institute, CAS**

**Shanghai, China**

Intern Lecturer

Aug. 2020 – June 2021

- Teaching advanced scientific topic to public, including deep learning and computer vision

## **SERVICES**

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**Reviewer:** CVPR 2022 (Emergency reviewer, participating in reviewing two papers)

## **TUTORING EXPERIENCE**

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Freshman Mentor | Instructed by Prof. Rui Fan

2020 Fall – 2021 Spring

## **ACHIEVEMENTS**

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Excellent Student of ShanghaiTech University (top 15%)

2021

State Grid AI Innovation Competition in Power Dispatch and Control

2021

• Top 10% (24/242)

## **SKILLS**

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Python, C/C++, PyTorch, Unity/C#

Bilingual (Chinese/English: CET6-607, GRE-327+4, TOEFL-103)

## **VOLUNTARY**

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Greenpeace

2020 – Present

WWF-China

2020 – Present

ShanghaiTech Campus Opening Day

2021

ShanghaiTech New Students' Welcoming Activity

2020

International Symposium of Attitude Research, Innovation, and Management (ISARIM 2019)

2019