Ziyao Zeng (Adonis)

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Summary

- **Fourth year CS undergraduate student at ShanghaiTech University**
- **Intern with Prof. Jianbo Shi at UPenn GRASP Lab; Prof. Xuming He at ShanghaiTech PLUS Lab**
- **Three (pre) published papers, in Artificial General Intelligence (AGI) which simulates human thinking**
- **Reviewer of CVPR 2022**

Educations

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

B.Eng. in Computer Science, Major | Innovation and Entrepreneurship, Minor
- Overall GPA: **3.59/4.00, rank 37/16** | Last year (2020-2021 academic year): **3.85/4.00, rank 6/166**
- International Summer Program　　　　　　　　　　　　　　　　Osaka University | June 2022
- Entrepreneurial Mindshift Program　　　　　　　　　　　　　Babson College | March 2021

Publications *(*: equal contribution)*

- **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
  > -We are **the first to** conduct zero-shot adaptation from the semantic language knowledge to quantified downstream vision tasks and **perform zero-shot training-free monocular depth estimation**.
  > -Our DepthCLIP **surpasses existing unsupervised methods** and even **approaches the early fully-supervised networks**.

- **DSPoint: Dual-scale Point Cloud Recognition with High-frequency Fusion**
  Renrui Zhang*, **Ziyao Zeng***, Ziyu Guo*, Xinben Gao, Kexue Fu | **Mentor: Prof. Jianbo Shi**, GRASP Lab, University of Pennsylvania
  arXiv technical report, 2021 | Link: https://arxiv.org/pdf/2111.10332.pdf
  > -To deal with point cloud processing, we proposed DSPoint to **conduct dual-scale processing**: one by point-wise convolution for fine-grained geometry parsing, the other by voxel-wise global attention for long-range structural exploration.
  > -We design a co-attention fusion module for feature alignment to blend local-global modalities, which conducts inter-scale cross-modality interaction by **communicating high-frequency coordinates information**.

- **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
  > -To improve downstream adaptation of Contrastive Vision-Language Pre-training (CLIP), we propose VT-CLIP to **enhance vision-language modeling via visual-guided texts**.
  > -Specifically, we **guide the text feature to adaptively explore informative regions on the image** and aggregate the visual feature by cross-attention.

Course Project

- **Twitter Emotion Classification** (CS181 Artificial Intelligence)
  Link: https://adonis-galaxy.github.io/homepage/research/AI_CS181_project/AI_CS181_project.pdf
- **Generalized DUQ: Generalized Deterministic Uncertainty Quantification** (CS282 Machine Learning)
  Mentor: Prof. Xuming He, PLUS Lab, ShanghaiTech University | Link: https://adonis-galaxy.github.io/homepage/research/ML_CS282_project.pdf
- **Seek Common while Shelving Differences: A New Way for dealing with Noisy Labels** (CS280 Deep Learning)
  Mentor: Prof. Xuming He, PLUS Lab, ShanghaiTech University | Link: https://adonis-galaxy.github.io/homepage/research/DL_CS280_project.pdf

Research / Working Experience

- **GRASP Lab, University of Pennsylvania**　　　　　　　　　　　　　　　April 2021 - Present
  -**Mentor: Prof. Jianbo Shi** | Project: Self-supervised Image Segmentation, Monocular 3D Object Detection, Point Cloud Recognition
- **PLUS Lab, ShanghaiTech University**　　　　　　　　　　　　　　　　July 2020 – June 2021
  -**Mentor: Prof. Xuming He** | Project: Mix-data Anomaly Segmentation, Noisy Labels Classification, Uncertainty Estimation
- **UISEE AI Lab, UISEE Technology**　　　　　　　　　　　　　　　　　July 2021 – April 2022
  -Algorithm Engineer | Develop point cloud recognition & monocular 3D object detection algorithm for self-driving cars
- **Shanghai Advanced Research Institute, CAS**　　　　　　　　　　　　Aug. 2020 - June 2021
  -Intern Lecturer | Teaching advanced scientific topic to public, including deep learning and computer vision

Service

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

Tutoring Experience

Freshman Mentor | Instructed by Prof. Rui Fan　　　　　　　　　　　　2020 Fall – 2021 Spring

Awards / Competitions

Merit Student of ShanghaiTech University (Top 15%)　　　　　　　　　　　　　　2021
State Grid AI Innovation Competition in Power Dispatch and Control (Top 10%, 24/242)　2021

Skills

Python, C/C++, PyTorch, Unity/C#, Bilingual (Chinese/English: CET6-607, GRE-327+4, TOEFL-103)