Siming Yan

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EDUCATION

Ph.D. Student   Sep. 2019 - Aug. 2024 (expected)
The University of Texas at Austin; Advisor: Qixing Huang

B.S. in Computer Science   Sep. 2015 - Jun. 2019
Peking University

RESEARCH INTEREST

3D Pretraining: 3D Point Cloud Unsupervised / Self-supervised Learning

MultiModal Large Language Models: Large-scale Vision Language Model

INTERNSHIP EXPERIENCES

NVIDIA, Research Intern   Oct. 2023 - Jan. 2024
Mentor: Yue Wang, Xinshuo Weng, Marco Pavone

Amazon AWS AI, Applied Scientist Intern   Jun. 2023 - Sep. 2023
Mentor: Min Bai, Erran Li

Microsoft Research Asia, Research Intern   May. 2022 - Nov. 2022
Mentor: Yang Liu, Xin Tong

Wormpex AI Research, Research Intern   Jun. 2021 - Oct. 2021
Mentor: Haoxiang Li, Gang Hua

Kuaishou Technology, Research Intern   Jun. 2020 - Oct. 2020
Mentor: Haibin Huang, Chongyang Ma

Stanford University, Research Assistant   Mar. 2018 - Oct. 2018
Advisor: Daniel L. K. Yamins

Carnegie Mellon University, Research Assistant   Jun. 2018 - Oct. 2018
Advisor: Tai-Sing Lee

University of California, Los Angeles, Research Assistant   Jun. 2017 - Sep. 2017
Advisor: Debiao Li

PUBLICATIONS

ViGoR: Improving Visual Grounding of Large Vision Language Models with Fine-Grained Reward Modeling. In **ECCV 2024**. [*pdf*]
Siming Yan, Min Bai, Weifeng Chen, Xiong Zhou, Erran Li, Qixing Huang.

Multi-View Representation is What You Need for Point-Cloud Pre-Training. In **ICLR 2024**. [*pdf*]
Siming Yan, Chen Song, Youkang Kong, Qixing Huang.

3D Feature Prediction for Masked-AutoEncoder-Based Point Cloud Pretraining. In **ICLR 2024**. [*pdf*]
Siming Yan, Yuqi Yang, Yuxiao Guo, Hao Pan, Peng-shuai Wang, Xin Tong, Yang Liu, Qixing Huang.

Implicit Autoencoder for Point-Cloud Self-Supervised Representation Learning. In **ICCV 2023**. [*pdf*] [*code*].

Siming Yan, Zhenpei Yang, Haoxiang Li, Li Guan, Hao Kang, Gang Hua, Qixing Huang.

HPNet: Deep Primitive Segmentation Using Hybrid Representations. In **ICCV 2021**. [*pdf*] [*code*].
Siming Yan, Zhenpei Yang, Chongyang Ma, Haibin Huang, Etienne Vouga, Qixing Huang.

Extreme Relative Pose Network under Hybrid Representations. In **CVPR 2020** (**Oral Presentation**). [*pdf*] [*code*].
Zhenpei Yang*, **Siming Yan***, Qixing Huang. (* indicates equal contribution)

Unsupervised Neural Network Models of the ventral visual stream. In Proceedings of the National Academy of Sciences (**PNAS**) Vol. 118(3). [*pdf*] [*code*].
Chengxu Zhuang, **Siming Yan**, Aran Nayebi, Martin Schrimpf, Michael C. Frank, James J. DiCarlo, Daniel L. K. Yamins.

Calcium Removal from Cardiac CT Images Using Deep Convolutional Neural Network. In **ISBI 2018** (**Oral Presentation**). [*pdf*]
Siming Yan, Feng Shi, Yuhua Chen, Damini Dey, Sang-Eun Lee, Hyuk-Jae Chang, Debiao Li, Yibin Xie.

Scene Synthesis via Uncertainty-Driven Attribute Synchronization. In **ICCV 2021**. [*pdf*] [*code*]
Haitao Yang, Zaiwei Zhang, **Siming Yan**, Haibin Huang, Chongyang Ma, Yi Zheng, Chandrajit Bajaj and Qixing Huang.

SELECTED RESEARCH EXPERIENCES

Amazon AWS AI   Jun. 2023 - Sep. 2023
Mentor: Min Bai, Erran Li   *Santa Clara, US*

Improving Visual Grounding of Large Vision Language Models

- Introduced a framework that incorporates fine-grained reward modeling, enhancing the visual grounding of LVLMs.
- Developed reward models that require little human effort while leveraging visual perception models.
- Collected an image-text pair dataset containing fine-grained human evaluation annotation.

Microsoft Research Asia   May. 2022 - Nov. 2022
Mentor: Yang Liu, Xin Tong   *Beijing, China*

Masked Autoencoder for Point Cloud Pre-Training

- Proposed a masked autoencoding method for 3D self-supervised pretraining.
- Designed a new training objective to Predict intrinsic point features at masked points instead of their positions.
- Introduced a unique attention-based decoder without relying on any particular encoder architecture.

Wormpex AI Research   Jun. 2021 - Oct. 2021
Mentor: Haoxiang Li, Gang Hua   *Remote, US*

Implicit Autoencoder for Point Cloud Pre-Training

- Proposed an asymmetric point-cloud autoencoder called Implicit AutoEncoder, taking point cloud as input and uses an implicit function as the output 3D representation.
- Formalized the concept of sampling variations in point clouds and demonstrate IAE is more effective at capturing generalizable features.

Kuaishou Technology   Jun. 2020 - Oct. 2020
Mentor: Haibin Huang, Chongyang Ma   *Remote, US*

3D Point Cloud Primitive Segmentation

- Introduced a new deep-learning model for segmenting 3D shapes represented as point clouds into primitive patches.
- Stood out by using hybrid feature representations, combining a learned semantic descriptor, two spectral descriptors based on geometric parameters, and an adjacency matrix highlighting sharp edges.

Stanford University   Jun. 2018 - Oct. 2018
Advisor: Daniel L. K. Yamins   *Palo Alto, US*

    Unsupervised Neural Network Models of the Ventral Visual Stream

- Explored the relationship between the unsupervised learning model and ventral visual system.

PROFESSIONAL ACTIVITIES

Reviewers: CVPR 2024, ICCV 2023, CVPR 2023, ECCV 2022, CVPR 2022, SIGGRAPH Asia 2022, CVPR 2021, ICCV 2021, TPAMI, TVCG, TMM, MVAP

AWARDS AND HONORS

Outstanding Graduates of Peking University (top 10%)   Sep. 2019

National Encouragement Scholarship (3 times)   2017 - 2019

Selected Member of Top-Notch Class of Peking University (top 10%)   2017 - 2019

Distinguished Student of Peking University   Oct. 2018

Annual Outstanding Research Award of Peking University   Oct. 2018

National athletes and level five in amateur for Go (Weiqi)   Sep. 2015