Siting Li

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Education

Tsinghua University Sep. 2019 – Present

B.Eng in Computer Science (Yao Class, website here) IIIS, Tsinghua University

- Current GPA: 3.74/4.0
- All AI-Related Courses: Machine Learning (A), Computer Vision (A), Introduction to Robotics (A), Data Mining (A), Introduction to Artificial Intelligence (A-), Causal and Statistical Learning (A-), Artificial Intelligence: Principles and Techniques (B+).

Research experiences

Towards Understanding Multi-modal Contrastive Learning Feb. 2022 – Present

Mentor: Professor Simon S. Du (University of Washington)

- Built the theoretical framework for multi-modal contrastive learning by analyzing the gradient flow dynamics.
- Designed regularizers for improving the quality of learned representations.
- Testing regularizers on real-world multi-modal datasets.

Towards Understanding Multi-modal Robustness from an Information-Theoretical View Jul. 2021 – Present

Mentor: Professor Hang Zhao (Tsinghua University)

- Proposed an information-theoretical framework to explain the discrepancy among previous conclusions on multi-modal robustness.
- Designed a metric and its calculating pipeline based on mutual information for evaluating various multimodal datasets in terms of modality complementarity.
- Designed and conducted experiments to show the effectiveness of the metric.
- Summarized the findings in a first-author paper submitted to ICLR2023.

Difference-in-Differences: Bridging Normalization and Disentanglement in PG-GAN Jul. 2020 – Present

Mentor: Professor Yang Yu (Tsinghua University)

- Conducted experiments and plotted graphs to verify the DID counterfactual framework which clarifies the mechanisms how pixel normalization causes PG-GAN entanglement.
- Demonstrated the huge potential of causal methods for explaining and controlling network behaviors.
- Summary of findings available here.

Selected projects

Real Image Editing on User-Specified Semantics by GAN Inversion model Feb. 2021 – Jul. 2021

2021 Spring Computer Vision course project

- Implemented a compact application to find user-defined semantic directions in GAN's latent space and do real image editing, taking advantage of pre-trained GANs and corresponding inversion models. See our codes here and final report available here.

Photon Mapping Dec. 2021 – Jan. 2022

2021 Fall Advanced Computer Graphics course project

- Implemented the photon mapping algorithm and other functions including anti-aliasing, texture mapping, KD-Tree and so on. See the codes and results here.

Multi-thread Programming, Memory Management, and RPC Sep. 2021 – Jan. 2021

2021 Fall Operating System coursework

- Implemented multi-thread programming in a recommender system, emulated a simple memory management system, and provided remote memory management service through RPC. See the codes here.

Honors and scholarships

Volunteer Excellence Scholarship, IIIS, Tsinghua University 2022

Spark Scientific and Technological Innovation Fellowship, Tsinghua University 2021

- top 1% of 3800+ Tsinghua '23 undergraduate students for outstanding research performance

Sports Excellence Scholarship, IIIS, Tsinghua University 2021

Silver Medal (Rank 21/318) in China Collegiate Programming Contest (Regional, Harbin) 2021

Xuetang Program Scholarship, Tsinghua University 2020

Gold Medal in National Olympiad in Informatics (Invitational) 2018

First Prize in National Olympiad in Informatics in Provinces 2016,2017

Service and leadership

Council Member of Spark Innovative Talent Cultivation Program Sept. 2021 – Present

- Gave a talk on model explainability on a Spark Day (cross-disciplinary workshop).
- Worked on the review committee of the Spark Fellowship and was an organizer of Spark Day.

Member of Class Committee, Yao Class 92 Sept. 2020 – Present

Member of Beijing Volunteer Service Federation Sept. 2019 – Present

- 90.5 hours of recorded volunteer experience

Member of Tsinghua University Student Association For Brain Science Sept. 2019 – Present

Skills

Languages : Python, C/C++, Go, Matlab, LaTeX, SQL, Verilog
Framework : Pytorch
Languages : Chinese (Native), English (TOEFL 110 (R30+L29+W28+S23); GRE 332 (V162+Q170) + AW4.0)

Preprints

1. Zhengqi Gao, Sucheng Ren, Zihui Xue, Siting Li, Hang Zhao: Training-Free Robust Multimodal Learning via Sample-Wise Jacobian Regularization. CoRR abs/2204.02485 (2022)
2. Xiao Liu, Jiajie Zhang, Siting Li, Zuotong Wu, Yang Yu: Difference-in-Differences: Bridging Normalization and Disentanglement in PG-GAN. CoRR abs/2010.08402 (2020)