HAORAN TANG

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EDUCATION

Purdue University *Present*
Ph.D., Computer Science GPA: 4.0/4.0
Advisor: Rajiv Khanna

University of Pennsylvania *May 2023*
M.S.E., Robotics GPA: 3.97/4.0
Thesis Advisor: Pratik Chaudhari

University of Illinois at Urbana-Champaign *May 2021*
B.S., Computer Engineering GPA: 3.73/4.0
Minor in Mathematics

EXPERIENCE

Research Intern, Generative AI *June 2023 - Nov 2023*
Baidu USA Sunnyvale, CA

· Developed a new anime-figure dataset with clothing identities labeled by large VLM, and propose new training pipeline and tasks for diffusion-based personalization based on the new annotations.
· Proposed a new conditional encoder architecture to retrieve characteristic information from multiple reference images, and a new metric family to measure the flexibility and the identity-diversity balance of the generation using VQA models.
· Took full responsibility in constructing the benchmark, deriving the new metric group based on VQA model feedback, conducting multi-node pre-training and inference using Slurm, and analyzing results.

Research Assistant, Deep Learning *June 2021 - May 2023*
University of Pennsylvania; University of Illinois Urbana-Champaign Philadelphia, PA

· Worked with Prof. Pratik Chaudhari (Penn) on the low-dimensionality of multiple tasks in the prediction space. Embedded task-specific weights as trajectories in the defined manifold, which function as more informative foundation priors for transfer learning. Conducted experiments and analysis, and completed master's thesis based on the findings.
· Worked with Prof. Jianbo Shi (Penn) on autoencoding. Investigated multi-resolution hash tables as intermediate layers of autoencoders to process coordinate information, which contribute to reconstructing images. Conducted experiments and the analysis of translational invariance of hash functions.
· Worked with Prof. Yuxiong Wang (UIUC) on contrastive learning. Designed a systematic data corruption pipeline to investigate the higher dependency of contrastive learning on spatial inductive bias than supervised learning, and analyzed the observations from both extensive empirical studies and feature space behaviors. Published results on ICCV.

PUBLICATIONS AND PREPRINTS (* denotes equal contribution)

RetriBooru: Leakage-Free Retrieval of Conditions from Reference Images for Subject-Driven Generation
Haoran Tang, Jieren Deng, Zhihong Pan, Hao Tian, Pratik Chaudhari, Xin Zhou arXiv

Contrastive Learning Relies More on Spatial Inductive Bias Than Supervised Learning: An Empirical Study
Yuanyi Zhong*, Haoran Tang*, Junkun Chen*, Yuxiong Wang ICCV 2023

HashEncoding: Autoencoding with Multiscale Coordinate Hashing
Lukas Zhornyak*, Zhengjie Xu*, Haoran Tang*, Jianbo Shi arXiv

Shuffle Augmentation of Features from Unlabeled Data for Unsupervised Domain Adaptation
Changwei Xu*, Jianfei Yang*, Haoran Tang, Han Zou, Cheng Lu, Tianshuo Zhang arXiv

SERVICE

Conference Reviewer	CVPR (2022 – 24), ECCV (2022 – 24), ICCV (2023), ICLR (2025)
Teaching Assistant	CS 314 Numerical Methods, FA24, Purdue University
	CIS 680 Advanced Topics in Machine Perception, FA22, University of Pennsylvania

SKILLS

Programming Languages	Python, C++
Tools/Softwares	PyTorch, Slurm, Git, SSH, Jupyter, VS Code
Operating Systems	Linux, Mac OS, Windows