Huijie Tang

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Education

University of Michigan, Ann Arbor, Michigan, U.S.   Aug. 2023 - May 2025 (expected)
B.S.E. in Computer Science, Minor in Mathematics   GPA: **4.00/4.00**

Award: Dean's List, University Honors

Coursework: Foundations of Large Language Models (A+), Natural Language Processing (A), Deep Learning for Robot Perception (A), Data Mining (A+), Algorithms For Machine Learning and Data Science (A+), Discrete State Stochastic Processes (A+), Continuous Optimization Methods (A)

Shanghai Jiao Tong University, Shanghai, China   Sep. 2021 - Aug. 2025 (expected)
B.E. in Electrical and Computer Engineering   GPA: **3.81/4.00**

Award: Undergraduate Top 10% Excellent Scholarship, Feng Tong Sheng Scholarship

Coursework: Programming and Elementray Data Structures (A+), Introduction to Computer and Programming (A), Honor Mathematics II (A+), Honor Mathematics III (A+), Discrete Mathematics (A+)

Research Experience

Situated Language and Embodied Dialogue Lab, UMich   Dec. 2023 - Present

- Aimed to improve fine-grained alignment between language and vision in vision-language models like CLIP by enhancing the model's ability to perceive fine-grained visual details not captured through natural language supervision.
- Designed and integrated a novel plug-and-play spectral layer utilizing frequency analysis into the CLIP vision encoder. This layer diversified image patch token embeddings, amplifying visual detail information to improve the model's capacity for fine-grained visual recognition.
- Initiated the use of frequency domain transformation in deep learning model embeddings to amplify subtle visual details.
- Achieved a **12.6%** increase in CLIP model's accuracy on the Multimodal Visual Patterns (MMVP) benchmark and surpassed diffusion-based approach by **7.4%**, demonstrating a substantial improvement in visual detail perception and better alignment between language and vision modalities.

Lab for Interpretability and Theory-Driven Deep Learning, SJTU   Apr. 2023 - Sep. 2023

- Addressed the challenge of explaining AI decision-making in Go by identifying crucial stone shapes that significantly influence the KataGo value network's predictions.
- Contributed to developing a game-theoretical framework and implementing Python algorithms to extract stone shapes.
- Identified patterns aligned with human knowledge and discovered novel shapes that expanded the traditional understanding of Go.

Work Experience

Software Engineer Internship, Autoliv, China Technical Center, China   Jan. 2023 - Feb. 2023

- Developed an automated code generation tool to streamline programming for automotive steering systems.
- Extracted data from existing documents to ensure accurate and efficient code integration.
- Contributed to optimizing the software development process for car component programming in collaboration with the engineering team.

Skills

Languages: Python, C++, C, Elm

Tools and Frameworks PyTorch, LaTex, Markdown, Git