Xuan Yang

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EDUCATION

Southern University of Science and Technology, China *Sept 2021 - Present*
B.S. *Computer Science and Engineering (Honored Turing Class)* *GPA: 3.82/4.0*
- Curriculum:
    - Mathematics: Calculus, Linear Algebra, Discrete Mathematics, Probability and Statistics
    - Computer Science: JAVA Program Design, Principle of Database Systems, C/C++ Program Design, Data Structures and Algorithm Analysis, Computer Organization, Artificial Intelligence, Operating Systems, Machine Learning, Computer Networks, Object-oriented Analysis and Design

University of Illinois Urbana-Champaign, US *Jun 2024 - Oct 2024*
Intern Student *advised by Prof. Bo Li, Secure Learning Lab*

National University of Singapore, Singapore *Jul 2023 - Aug 2023*
Summer Workshop *Performance: B+*
- Curriculum: Real-Time Graphics Rendering

PUBLICATIONS

Jiawei Zhang, **Xuan Yang**, Taiqi Wang, Yu Yao, Aleksandr Petiushko, Bo Li. SafeAuto: Knowledge-Enhanced Safe Autonomous Driving With Multi-modal Foundation Models. ICLR 2025 (under review).

Xuan Yang, Dou Huang, Haoran Zhang, Jianan Xie, Yebei Gou, Xuan Song. Reconstructing Trajectories with Transformer Variational AutoEncoder. [paper]

RESEARCH EXPERIENCES

Knowledge-Enhanced Autonomous Driving System *Jun 2024 - Oct 2024*
Research Assistant, Secure Learning Lab, UIUC *Advised by Prof. Bo Li*
- Parsed driving safety regulations into first order logic rules and then explicitly encoded these rules into a probabilistic graphical model (PGM).
- Leveraged the PGM to verify and correct the high-level actions suggested by the MLLM.

Red Teaming and Capability Testing for Speech-To-Speech Models *Aug 2024 - Oct 2024*
Research Assistant, VirtueAI *Advised by Prof. Bo Li & Ph.D. Yi Zeng (VT)*
- Evaluate the model's ability to recognize the number of participants and distinguish between different speakers during conversations.
- Test if the faster interactions enabled by speech-to-speech models allow for rapid prompt injection of harmful in-context demonstrations, leading to risky and harmful outputs.

Human Trajectory Reconstruction *Aug 2023 - Mar 2024*
Research Assistant, School of Urban Planning and Design, Peking University *Advised by Prof. Haoran Zhang*
- Developed a transformer autoencoder model based on NVAE to mine the latent features of mobility trajectories.
- Reconstructed low-quality mobility data based on latent feature vectors with KD-Tree search.
- Conducted experiments on real-world datasets to analyze the statistical similarities of reconstructed data.

COURSE PROJECTS

Traffic-Sign Detection and Recognition *Dec 2023 - Jan 2024*
Developer, Southern University of Science and Technology *Supervised by Prof. Qi Hao*
- Improved the performance of Yolov8 in the recognition of traffic signs.
- Improved the recognition accuracy by 2% through HSV and MSER augmentation.

AI-based Analysis of Sustech Lecture Poster Authorship *Sept 2023 - Dec 2023*
Developer, Southern University of Science and Technology *Supervised by Prof. Jiang Liu*
- Crawled and recognized poster text with paddleOCR, and leveraged ChatGPT API to generate poster abstracts.
- Built user interfaces and visualized analysis results.

HTTP File Manager *Nov 2023 - Dec 2023*
Developer, Southern University of Science and Technology *Supervised by Prof. Ming Tang*
- Construct a simple file manager server in Python based on characteristics of HTTP/1.1 that has ability to serve several clients with legitimate permissions to view, download, upload, delete files.

SUSTech Graduate Student Dormitory Selection System *Sept 2023 - Jan 2024*
Front-end developer, Southern University of Science and Technology *Supervised by Prof. Yuqun Zhang*
- Developed a website to satisfy dormitory choosing based on Vue3, JPA, and Axios; deployed on Sustech server.

Real-Time 3D Graphics Rendering *Jul 2023 - Aug 2023*
Developer, National University of Singapore *Supervised by Prof. LOW Kok Lim*
- Implemented the Whitted Ray Tracing algorithm based on Shadertoy GLSL and deployed it on Shadertoy.

Standardized Test

TOEFL iBT	102 (R26, L27, S23, W26)
TOEFL MyBest Scores	104 (R28, L27, S23, W26)

SKILLS

Programmings	Python, Java, C/C++, Markdown, LaTeX, HTML/CSS/JavaScript
Frameworks	PyTorch, Scikit-Learn, PostgreSQL, Vue
Tools	GitHub, VS Code, JetBrains, Apifox

HONORS&AWARDS

2023	**Finalist**, 2023 Interdisciplinary Contest In Modeling	*Shenzhen, China*
2023	**Gold Medal Winner**, The 1st Sustech Student Cluster Competition	*Shenzhen, China*
2023	**Third Prize**, 2023 Merit Student Scholarship of Southern University of Science and Technology	*Shenzhen, China*
2022	**First Prize**, 2022 China Mathematical Contest in Modeling, Guangdong Province	*Shenzhen, China*
2022	**Second Prize**, 2022 Merit Student Scholarship of Southern University of Science and Technology	*Shenzhen, China*
2021	**Principal's Special Award**, 2021 Freshman Student Scholarship of Sustech	*Shenzhen, China*