Junchao Huang

Incoming Ph.D. students, The Chinese University of Hong Kong (Shenzhen)
huangjunchao@cuhk.edu.cn —junchaohuang@tju.edu.cn — +86 13020030210 — Shenzhen, China

RESEARCH INTERESTS

Computer Vision & Deep Learning: World Models, Generative Model (Video & 3D), Multimodal, ...

EDUCATION

The Chinese University of Hong Kong (Shenzhen) September 2025 — Present
Ph.D. in School of Data Science (Incoming) Advisor: Prof. Li Jiang

Tianjin University, Tianjin, China September 2021 — June 2025
Bachelor of Science: Mathematics and Applied Mathematics GPA: 3.82/4.00 (90.74/100)
Elite Program: "Qiushi" Class of the Mathematics Department Ranking: 3/55

RESEARCH EXPERIENCE

Research: Edit360: 2D Image Edits to 3D Assets from Any Angle June 2024 — June 2025
Supervisor: Dr. Xinting Hu & Prof. Li Jiang CUHK(Shenzhen)
Research Summary:

We introduce Edit360, a tuning-free framework for multi-view consistent 3D editing, enabling fine-grained modifications from any viewing angle of 3D assets.

We propose Anchor-View Editing Propagation with Spatial Progressive Fusion (SPF) and Cross-View Alignment (CVA) components, enabling seamless propagation of edits across dense viewpoints with structural coherence.

Comprehensive experiments demonstrate that Edit360 achieves state-of-the-art performance across diverse tasks, including precise 3D editing from multiple viewpoints, global style transformation, and multi-view conditional generation.

Research Progress: The paper is under review.

Research: AKRMap: Embedding Metric Visualization April 2024 — May 2025
Supervisor: Dr. Yilin Ye & Prof. Wei Zeng HKUST
Research Summary:

We propose a novel DR method for cross-modal metric visualization, which jointly learns the projection and metric contour mapping through kernel regression supervised DR with adaptive generalized kernel.

We develop a tool for trustworthy visualization of cross-modal metrics, incorporating visualization features such as a scatterplot view and a contour map, along with interactive features like zooming and overlaying.

We conduct quantitative experiments to demonstrate the superior performance of AKRMap in generating more accurate visualizations of cross-modal metric, and highlight its applications across three scenarios to enhance the trustworthiness of T2I model evaluation.

Research Progress: The paper has been accepted to ICML 2025

PUBLICATIONS

Huang, J., Hu, X., Tian, Z., Shi, S., & Jiang, L. (2025). *Edit360: 2D Image Edits to 3D Assets from Any Angle.* arXiv preprint arXiv:2506.10507. `https://arxiv.org/abs/2506.10507`

Ye, Y., **Huang, J.**, Zeng, X., Xia, J., & Zeng, W. (2025). *AKRMap: Adaptive Kernel Regression for Trustworthy Visualization of Cross-Modal Embeddings.* In Proceedings of the 42nd International Conference on Machine Learning (ICML 2025). `https://arxiv.org/abs/2505.14664`

PROJECTS

Center for Applied Mathematics Tianjin University
Project: Anomaly Detection on Attributed Graph with Diffusion Model April 2023 — May 2024
Project Support: National Student Innovation and Entrepreneurship Program
Supervisor: Prof. Yingjun Deng
Project Description:

We propose a novel approach for anomaly detection on attribute networks, addressing computational challenges prevalent in existing methods by leveraging diffusion models to handle large-scale anomalous graph data effectively.

Our approach learns anomalous patterns on the graph using an interpretable and stably-trained diffusion model, and efficiently reconstructs the graph by sampling with an ODE method.

It detects anomalies by diffusing an anomalous scoring function to identify the top-k anomalous nodes, ensuring accurate and efficient anomaly detection.

COURSES & SKILLS

Bachelor's Courses

Mathematical Analysis C: 97

Advanced Algebra A and B: 95 & 92

Ordinary Differential Equations: 95

Partial Differential Equations: 90

Theory of Probability: 98

Topology: 98

Real Variable Function: 90

Functional Analysis: 97

Topics in Advanced Algebra A and B: 96 & 96

Programming Language C: 97

Practice of Computer Language: 98

Data Structure: 92

Mathematical Model: 97

College Physics: 96

Experiment of Physics: 91

Experiment of Mathematics (Mathematica): 99

Internship of Statistical Computing: 100
(The R Programming Language)

IELTS (Academic): 6.5/9 (Reading: 8.5 & Speaking: 6.0 & Writing: 6.5) **CET-4:** 584

Programming: Python, C++, Pytorch, The R Programming Language, Latex, Visual Basic

Software: Pycharm, Visual Studio Code, Mathematica, Matlab, MS Office Suite

Interests: Piano(Since the age of four), Table Tennis, Cycling

AWARDS

Merit Fellowship (Ph.D. Scholarships at CUHK(Shenzhen)) 2025 - 2030
First Class Scholarship (Scholarships from Tianjin University) School year 2024
Student Role Models (Honorary Title from Tianjin University) School year 2023
PetroChina Scholarship (Scholarships from Tianjin University) School year 2022
Pacemaker to Merit Student (Honorary Title from Tianjin University) School year 2022
Zhe-Beiyang Scholarship (Entrance Scholarship from Tianjin University) School year 2021