

JUNYI ZHANG

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RESEARCH INTERESTS

My research interests mainly lie in **computer vision** and **deep generative models**. I am now focusing on the **application of diffusion models**, aiming to explore its potential for **both generation and perception scenarios**.

EDUCATION

Shanghai Jiao Tong University	Shanghai, China
Major in Computer Science and Technology; GPA: 3.92	Sept. 2020 - Present
Zhiyuan College, Shanghai Jiao Tong University	Shanghai, China
Major in Zhiyuan Honors Program of Engineering (Top 5%)	Sept. 2020 - June 2024 (expected)

SELECTED AWARDS

Microsoft Research “Stars of Tomorrow” Certificate (Top 10% interns)	2022
Huawei Fellowship (Top 1% in honors program)	2022
National Scholarship (Top 0.2% nationwide, highest honor in China)	2021
Undergraduate Merit Scholarship, A Level, SJTU (Top 1%)	2021

PUBLICATIONS

A Tale of Two Features: Stable Diffusion Complements DINO for Zero-Shot Semantic Correspondence.
Junyi Zhang, Charles Herrmann, Junhwa Hur, Luisa F. Polanía, Varun Jampani, Deqing Sun, Ming-Hsuan Yang.
Under review, 2023.

LayoutDiffusion: Improving Graphic Layout Generation by Discrete Diffusion Probabilistic Models.
Junyi Zhang, Jiaqi Guo, Shizhao Sun, Jian-Guang Lou, Dongmei Zhang. *In ICCV*, 2023.

Bridging The Isolated Islands in Human Action Understanding.
Yong-Lu Li*, Xiaoqian Wu*, Xinpeng Liu, Yiming Dou, Yikun Ji, **Junyi Zhang**, Yixing Li, Xudong Lu, Jingru Tan, Cewu Lu. *Under review*, 2023.

Mining Cross-Person Cues for Body-Part Interactiveness Learning in HOI Detection.
Xiaoqian Wu*, Yong-Lu Li*, Xinpeng Liu, **Junyi Zhang**, Yuzhe Wu, Cewu Lu. *In ECCV*, 2022.

EXPERIENCE

University of California, Merced - Vision Learning Lab	Merced, California
Visiting Student	June. 2023 - Present

• Diffusion Models for Semantic Correspondence

- Explore the internal representations of text-to-image diffusion models for semantic correspondence.
- Discover the complementary of Stable Diffusion features and DINOv2 features, based on which achieve state-of-the-art performance under zero-shot setting on a variety of semantic correspondence benchmarks.
- Research submitted as first author to top conference. More details at [project page](#).

Microsoft Research Asia - Data, Knowledge and Intelligence Group	Beijing, China
Research Intern	July 2022 - Dec. 2022

• Diffusion Models for Layout Generation, AI for Design Project

- Study the application of diffusion models in graphic design, especially the graphic layout generation.
- Develop discrete diffusion models specific to layout data, achieve state-of-the-art performance in unconditional and conditional generation tasks for several public layout datasets.
- Research accepted as first author to **ICCV’23**, with potential for product implementation.

- **Unified Human Action Understanding Project**

- Research on unifying multi-modal physical action spaces (2D, 3D, image, video, etc.) to a unified semantic space through the introduction of linguistic structure knowledge.
- Design and conduct experiments to extend our method on video datasets and verify the performance.

- **Human Action Knowledge Engine Project**

- Study on improving Human-Object Interaction (HOI) detection by incorporating human action knowledge.
- Conduct experiments to examine the effect of image depth and multi-person interactions on HOI detection.
- Research results were submitted as co-author in two papers, one of which was accepted by **ECCV'22**.

SKILLS

- **Skills:** Python (Pytorch), C/C++, html, css, Linux, L^AT_EX, Assembly language
- **Languages:** English (TOEFL 105/120), Chinese (Native)