

# Yanming Zhang

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## Education

Chu Kochen Honors College, Zhejiang University(ZJU) Hangzhou, China  
B.E. of Computer Science and Technology (**Turing Class**). **Rank : Top 5%** among 317 students

- **GPA: Major** 3.94/4.0, **Overall** 3.91/4.0;
- **Research Interest** : Diffusion-based generation and editing; 3D generation and reconstruction; Data-centric AI; Continual Learning & Active Learning in Diffusion Process.

## Publications

V<sup>2</sup>Edit: Versatile Video Diffusion Editor for Videos and 3D Scenes

**Yanming Zhang**, Junkun Chen, Yu-Xiong Wang

Under Review in CVPR 2025. [ **Paper** ] [ **Demo** ]

CaCOM: Customizing Text-to-Image Diffusion Models in the Wild via Continual Active Selection

Jianan Yang\*, **Yanming Zhang\***, Haobo Wang, Gang Chen, Sai Wu, Junbo Zhao

Accepted by Machine Learning Journal(MLJ). [ **DOI** ] [ **Paper** ]

Controllable Textual Inversion for Personalized Text-to-Image Generation

Jianan Yang, Haobo Wang, **Yanming Zhang**, Ruixuan Xiao, Sai Wu, Gang Chen, Junbo Zhao

[ **Paper** ]

## Research Experience

**V<sup>2</sup>Edit: Versatile Video Diffusion Editor for Videos and 3D Scenes**

University of Illinois Urbana-Champaign

Advisor: Prof. Yu-Xiong Wang. CVPR'25 Under Review

Jun 2024 - Nov 2024

- Proposed a novel training-free framework for versatile video editing that can not only preserve the original content but also enable flexible edits to target objects.
- Implemented a *Triton*-based fast and memory-efficient approach for real-time replacement of cross-attention maps without the need to store them separately, achieving a *fourfold* speedup.
- For video editing, V<sup>2</sup>Edit excels in handling challenging scenarios involving fast moving camera trajectories, complex motions, and significant temporal variations.
- For 3D scene editing, V<sup>2</sup>Edit enables high-quality 3D-consistent edits for tasks involving substantial geometric changes, such as object insertion.

**CaCOM: Customizing Text-to-Image Diffusion Models in the Wild via Continual Active Selection** Zhejiang University

Advisor: Prof. Junbo Zhao. Accepted by MLJ

Nov 2023 - Apr 2024

- Proposed a framework for customizing text-to-image diffusion models in a *continual learning* setting, where data arrive sequentially and are often incomplete or of varying quality.
- Addressed challenges such as catastrophic forgetting and suboptimal training data by *optimizing data selection* and *memory bank* usage, significantly improving the model's generation performance on unseen and long-tailed concepts.

**Controllable Textual Inversion for Personalized Text-to-Image Generation**

Zhejiang University

Advisor: Prof. Junbo Zhao

Dec 2022 - Apr 2023

- Contributed to designing a data-efficient framework that introduced active learning and novel scoring mechanisms to enhance fidelity, robustness, and efficiency in text-to-image generation.

**Diffusion and 3D Rendering Process Acceleration**

ZJU & Simon Fraser University

Advisor: Prof. Mingli Song & Prof. Ke Li

May 2023 - Oct 2023

- Redesigned key components like the attention mechanism of U-Nets and Transformers using *Triton*, significantly improving GPU utilization during the diffusion and rendering process, achieving a *2–4x speed-up* over the original implementation.

## Internships

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- YuxiongLab, Vision Group  
*Visiting Research Assistant* University of Illinois Urbana-Champaign  
Jun 2024 - Nov 2024
- Visual Intelligence and Pattern Analysis Group  
*Research Assistant* Zhejiang University  
May 2023 - Oct 2023
- APEX Lab  
*Visiting Student Intern* Simon Fraser University  
May 2023 - Oct 2023
- Data Intelligence Laboratory  
*Research Assistant* Zhejiang University  
Dec 2022 - Apr 2024
- State Key Lab of CAD&CG  
*Research Assistant* Zhejiang University  
Sep 2022 - Dec 2022

## Skills

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- Familiar with **Triton**(a CUDA-like language), with experience in optimizing diffusion models, transformers, and 3D rendering process by enhancing parallelism and conserving GPU memory, which significantly saves memory usage and accelerates the algorithm.
- Familiar with Python, Pytorch, C, C++,  $\text{\LaTeX}$ , git, Slurm cluster scheduling, configuration, and management.
- Familiar with website building with Python & Javascript and experienced in Android app development.
- Experienced in academic and professional English writing.

## Selected Achievements

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- 2023.11 First-Class scholarship, **Top 2%** Zhejiang University
- 2022.11 Zhejiang Provincial Outstanding Student Scholarship, **Top 2%** Zhejiang Province
- 2022.10 Basic Disciplines Scholarship, **Top 2%** Zhejiang University
- 2022.01 Zhejiang Provincial College Students Physics Innovation Competition, **2nd Prize** Zhejiang Physical Society
- 2021.12 National College Students Mathematical Competition, **3rd Prize** Chinese Mathematical Society

## Selected Courses <sup>1</sup>

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- AI & Data Science: Machine Learning and Data Analysis - 4.0; Computer Vision - 4.0; Image Analysis and Artistic Processing - 4.0; Fundamental of Artificial Intelligence - 4.0; Introductory to Lectures on Optimization - 4.0; Fundamentals of Data Structures - 4.0;
- Programming: Object-Oriented Programming(C++) - 4.0; Python Programming - 4.0; Software Engineering - 4.0; Java Application Design - 4.0;
- System: Operating System - 4.0; Database System - 4.0; Computer Networks - 4.0; Computer Architecture - 4.0; Computer Organization and Design - 4.0; Assembly Language and Microcomputer Interface - 4.0;
- Mathematics: Mathematical Analysis - 4.0; Linear Algebra - 4.0;

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<sup>1</sup> All grades are on a 4.0 GPA scale.