

Yang Fei

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RESEARCH INTERESTS

- My research focuses on **motion-centric generative video models** as interactive neural simulators. I work on motion-preserving video tokenizers and on grounding diffusion-based generators in structural priors to achieve temporally consistent, physics-aware video synthesis for agents that need to act and plan in complex environments.

EDUCATION

- **The Hong Kong University of Science and Technology** Hong Kong SAR
B.Sc. in Computer Science and Mathematics Sept. 2022 – June. 2026 (Expected)
Overall GPA: 4.064/4.3 (**Top 2 in CS & MATH**, Class of 2026) Major GPA: 4.151/4.3
- **University of Washington** Seattle, WA
College of Engineering, Exchange Student Jan. 2025 – Mar. 2025
GPA: 3.97/4

Selected Coursework: Advanced Deep Learning Architectures (Grad Level, A), Computer Graphics (UW, 3.9/4.0), Honors Design and Analysis of Algorithms (A+), Honors OOP and Data Structures (A+), Applied Statistics (A+), Statistical Computing (A+), Multivariable Calculus (A+), Linear Algebra (A+).

PUBLICATIONS

* Denotes equal contribution

- [1] **Structure From Tracking: Distilling Structure-Preserving Motion for Video Generation**
[\[paper\]](#) [\[page\]](#)
Yang Fei, George Stoica, Jingyuan Liu, Qifeng Chen, Ranjay Krishna*, Xiaojuan Wang*, Benlin Liu*
Under Review.
- [2] **VideoVAE+: Large Motion Video Autoencoding with Cross-modal Video VAE**
[\[paper\]](#) [\[page\]](#) [\[code\]](#)
Yazhou Xing*, Yang Fei*, Yingqing He*, Jingye Chen, Jiaxin Xie, Xiaowei Chi, Qifeng Chen
In *ICCV 2025*.

RESEARCH EXPERIENCES

- RAIVN Lab, University of Washington** Feb. 2025 – Present
Advisor: Ranjay Krishna, Assistant Professor at UW
- **Structure-Preserving Distillation for Video Generation** (Lead Author)
 - Spearheaded the development of **SAM2VideoX**, a novel framework that distills structure-preserving motion priors from tracking models (SAM2) into Video Diffusion Transformers. This work is currently under review [1].
 - Proposed a Bidirectional Feature Fusion mechanism to bridge the architectural gap between causal trackers and bidirectional generators, and designed a Local Gram Flow loss to enforce relational motion consistency.
 - Curated a large-scale motion dataset (~10k clips) focusing on articulated objects (e.g., animals, humans) to facilitate robust representation learning.
 - Reduced FVD by 22.5% compared to baselines, and secured a 71.4% win rate in human preference evaluations.

Visual Intelligence Lab, The Hong Kong University of Science and Technology Jan. 2024 – Present
Advisor: Qifeng Chen, Associate Professor at HKUST

- **Large Motion Video Autoencoding with Cross-modal Video VAE** (Co-first Author)
 - Developed a robust Video Variational Autoencoder (VAE) that achieves high-fidelity reconstruction, particularly in challenging large-motion scenarios. This work was accepted to **ICCV 2025** [2].
 - Implemented the first cross-modal integration strategy incorporating textual semantics into Video VAEs, enhancing alignment with text-video paired data.
 - Conducted extensive ablation studies proving the method's superiority over state-of-the-art baselines.

PROJECTS

- **VideoTuna: Video Generation Toolkit (500+ Stars)** [\[code\]](#)
Advisor: Qifeng Chen July. 2024 – Jan. 2025
 - Contributed early data-processing and training utilities to the lab's open-source video generation toolkit.
 - Helped set up initial pipelines for fine-tuning video generation models with different VAE architectures.
- **AIGC Showcase Platform** [\[page\]](#)
Advisor: Qifeng Chen June. 2023 – Aug. 2023
 - Built a web platform demonstrating SOTA video generation capabilities and conducted hyperparameter tuning experiments to optimize generation quality.

TEACHING

- **COMP 1023 - Python Programming** Fall 2024
Undergraduate Teaching Assistant HKUST
 - Developed two laboratory exercises and one Programming Assignment (PA) from the ground up.
 - Prepared self-assessment tests for future cohorts to evaluate students' understanding of the material.
- **COMP 2012 - Object-Oriented Programming and Data Structures** Spring 2024
Undergraduate Teaching Assistant HKUST
 - Facilitated weekly lab sessions and provided one-on-one technical support to help students debug code and understand algorithmic concepts.
- **COMP 2011 - Programming with C++** Fall 2023
Undergraduate Teaching Assistant HKUST
 - Conducted lab tutorials on C++ fundamentals and resolved technical inquiries regarding pointers and memory management.

HONORS & AWARDS

- **HKSAR Government Scholarship (Top 1%)** 2023 – Present
- **Hong Kong, China - Asia-Pacific Scholarship** 2024/25
- **Tse Cheuk Ng Tai Scholarship** Fall 2025
- **HKSAR Government Scholarship Fund - Reaching Out Award** Spring 2025
- **Best UROP Mini-Conference Paper Award** Fall 2024
- **Dean's List** All Semesters (2022 – Present)
- **First Prize, National Olympiad in Informatics in Provinces (NOIP)** 2020

SKILLS

- **Languages:** Python, C/C++, Java, $\text{\LaTeX}$
- **Tools:** PyTorch, Git, HTML/CSS
- **English:** TOEFL 104 (Speaking 24)