Han Yi

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Education

University of North Carolina at Chapel Hill (UNC) Aug. 2024 - Present
Ph.D. Student in Computer Science, GPA: 4.0 / 4.0
Advisor: *Prof. Gedas Bertasius*

National University of Singapore (NUS) Aug. 2022 - Jun. 2024
Master of Computing (Computer Science)
Advisor: *Prof. Tat-Seng Chua*

East China University of Science and Technology (ECUST) Sep. 2018 - June. 2022
B.S in Mathematics and Applied Mathematics, GPA: 3.7 / 4.0, Rank: Top 10%

Research Interest

I'm broadly interested in Computer Vision and Video Understanding, with a focus on both the fine-grained understanding and generation of complex human actions, particularly in the area of sports. I also work on leveraging foundation models (LLMs, VLMs, etc.) to solve multiple video understanding tasks.

Publications

1. **ExAct: A Video-Language Benchmark for Expert Action Analysis**
   Han Yi, Yulu Pan, Feihong He, Xinyu Liu, Benjamin Zhang, Oluwatumininu Oguntola, Gedas Bertasius
   (NeurIPS 2025)

2. **Single image deraindrop leveraging luminance priors and context aggregation**
   Yi Liu, Zhi Gao, Tiancan Mei, **Han Yi**
   Neurocomputing 2024

3. **Progressive Text-to-3D Generation for Automatic 3D Prototyping**
   Han Yi, Zhedong Zheng, Xiangyu Xu, Tat-seng Chua
   arXiv: 2309.14600, 2023

4. **Image Deblurring with Image Blurring**
   Ziyao Li, Zhi Gao, **Han Yi**, Yu Fu, Boan Chen.
   *IEEE Transactions on Image Processing (**TIP 2023**) DOI: 10.1109/TIP.2023.3321515*

5. **A hierarchical geometry-to-semantic fusion GNN framework for earth surface anomalies detection**
   Boan Chen, Aohan Hu, Mengjie Xie, Zhi Gao, Xuhui Zhao, **Han Yi**
   *International Conference On Brain-Inspired Cognitive Systems (**BICS 2023**) (**Best Student Paper**)*

6. **How Challenging is a Challenge for SLAM? An Answer from Quantitative Visual Evaluation**
   Xuhui Zhao, Zhi Gao, Hao Li, Chenyang Li, Jingwei Chen, **Han Yi**
   *International Conference On Brain-Inspired Cognitive Systems (**BICS 2023**)*

Academic Experience

Research Assistant Aug. 2024 - Present
UNC at Chapel Hill *Advisor: Prof. Gedas Bertasius*

- Proposed **ExAct**, a new video–language benchmark for expert-level understanding of skilled human activities; revealed large human–model performance gaps and enabled rigorous evaluation of fine-grained skill reasoning. (NeurIPS 2025) paper link
- Developing diffusion-based **fine-grained sports video generation** models for basketball and soccer, incorporating motion-based control signals (player trajectories and camera motion) to synthesize realistic multi-player interactions.

Research Assistant Dec. 2022 - Sep. 2023
NExT++ Research Center, National University of Singapore *Advisor: Prof. Tat-seng Chua*

- Proposed a **Multi-Scale Triplane Network (MTN)** to gradually create the 3D model in a bottom-up style, effectively alleviating the optimization issue; proposed a **progressive learning** strategy that simultaneously reduces the camera radius and time step t in diffusion to refine details of the 3D model in a coarse-to-fine manner; achieved high-resolution outputs that align closely with natural language descriptions. paper link

Research Assistant Nov. 2021 - Oct. 2022
Wuhan University *Advisor: Prof. Zhi Gao*

- Proposed a novel **motion deblurring** framework that uniquely integrates both **image blurring** and **deblurring** processes, enhancing performance and robustness; built a blur-sharp paired blur dataset **Rear-Blur-COCOmini** to bridge the gap between the training dataset and real-world blur images; obtained state-of the-art deblurred results on multiple datasets and introduced the Variance of Laplacian edge detection (VL) to quantitatively evaluate the effect on datasets without ground truth. (TIP 2023) paper link
- Developed a recurrent **single-image raindrop removal** network leveraging luminance priors and contextual feature aggregation; two-stage raindrop detection and removal achieved superior performance and generalization on synthetic and real data. (Neurocomputing 2024) paper link

Research Assistant July. 2021 - Sep. 2021
Tsinghua University *Advisor: Prof. Hao Zhang*

- Programmed ceiling-mounted LED lights using Manchester coding; applied **OpenCV SolvePnP** for relative pose estimation; reduced the required number of LEDs and handled challenging camera geometries (e.g., extreme angles); introduced a **malformation matrix** calibration to correct real-world distortions and improve localization accuracy.

Industry Experience

Research Intern Jan. 2024 - Jun. 2024
Tencent Games

- Developed a **controllable** high-quality 3D asset generation pipeline from a few input images using **NeRF** (Neural Radiance Fields).
- Focused on **multi-view** image inputs to enhance reconstruction quality, enabling more controllable 3D synthesis.

Services

Conference reviewer: ICLR 2026, ICLR 2025, ACM MM 2025, ACM MM ASIA 2025, ACM MM 2024 (Outstanding Reviewer Award)

Skills

Programming: Python, C/C++, JavaScript, SQL, HTML5, CSS3, Bash
Library/Framework: Pytorch, Tensorflow, Keras, Pandas, Numpy, Scikit-learn, Seaborn, Vue, Echarts, Django
Tool: Docker, Spark, Hadoop, Git