

ZIYI WU

Toronto, Ontario M5S 1A1 Canada

ziyiwu@cs.toronto.edu ♦ <https://wuziyi616.github.io/>

EDUCATION

University of Toronto, Toronto, ON, Canada Sept. 2021 – Present
Ph.D. in Computer Science
Advisor: Prof. Igor Gilitschenski

Tsinghua University, Beijing, P.R.China Aug. 2017 – Jun. 2021
B.Eng. in Automation
Advisor: Prof. Jiwen Lu

EXPERIENCE

Snap Research, LA Jun. 2024 – Present
Research Intern Mentor: Dr. Aliaksandr Siarohin
Controllable video generation

Google Research, Toronto Dec. 2023 – Jun. 2024
Student Researcher (Remote) Mentor: Dr. Thomas Kipf
3D-aware controllable image generation

Vector Institute Sept. 2021 – Present
Student Researcher

OpenMMLab, SenseTime Ltd. Mar. 2021 – Aug. 2021
Research Intern Mentor: Dr. Kai Chen, Dr. Wenwei Zhang
Develop open source codebase for 3D scene understanding ([MMDetection3D](#))

SELECTED PUBLICATIONS & MANUSCRIPTS

* indicates equal contribution/supervision

Preprints

1. **Mind the Time: Temporally-Controlled Multi-Event Video Generation**
Ziyi Wu, Aliaksandr Siarohin, Willi Menapace, Ivan Skorokhodov, Yuwei Fang, Varnith Chordia,
Igor Gilitschenski*, Sergey Tulyakov*.
Under Review.

Journal Papers

1. **Learning Efficient Binarized Object Detectors with Information Compression**
Ziwei Wang, Jiwen Lu, Ziyi Wu, Jie Zhou.
T-PAMI, 2021.

Conference Papers

1. **SG-I2V: Self-Guided Trajectory Control in Image-to-Video Generation**
Koichi Namekata, Sherwin Bahmani, Ziyi Wu, Yash Kant, Igor Gilitschenski, David B. Lindell.
ICLR, 2025.
2. **Neural Assets: 3D-Aware Multi-Object Scene Synthesis with Image Diffusion Models**
Ziyi Wu, Yulia Rubanova, Rishabh Kabra, Drew A. Hudson, Igor Gilitschenski, Yusuf Aytar, Sjoerd
van Steenkiste, Kelsey Allen, Thomas Kipf.
NeurIPS, 2024 (Spotlight).

3. **LEOD: Label-Efficient Object Detection for Event Cameras**
Ziyi Wu, Mathias Gehrig, Qing Lyu, Xudong Liu, Igor Gilitschenski.
CVPR, 2024.
4. **SPAD: Spatially Aware Multiview Diffusers**
Yash Kant, Ziyi Wu, Michael Vasilkovsky, Guocheng Qian, Jian Ren, Riza Alp Guler, Bernard Ghanem, Sergey Tulyakov*, Igor Gilitschenski*, Aliaksandr Siarohin*.
CVPR, 2024.
5. **SlotDiffusion: Object-Centric Generative Modeling with Diffusion Models**
Ziyi Wu, Jingyu Hu*, Wuyue Lu*, Igor Gilitschenski, Animesh Garg.
NeurIPS, 2023 (Spotlight) | *ICLR@NeSy-GeMs Workshop*, 2023.
6. **SlotFormer: Unsupervised Visual Dynamics Simulation with Object-Centric Models**
Ziyi Wu, Nikita Dvornik, Klaus Greff, Thomas Kipf*, Animesh Garg*.
ICLR, 2023 | *UAI@CRL Workshop*, 2022 | *ECCV@MVCS Challenge*, 2022.
7. **Breaking Bad: A Dataset for Geometric Fracture and Reassembly**
Silvia Sellán*, Yun-Chun Chen*, Ziyi Wu*, Animesh Garg, Alec Jacobson.
NeurIPS Datasets and Benchmarks Track (Featured Paper Presentation), 2022.
8. **Instance Similarity Learning for Unsupervised Feature Representation**
Ziwei Wang, Yunsong Wang, Ziyi Wu, Jiwen Lu, Jie Zhou.
ICCV, 2021.
9. **BiDet: An Efficient Binarized Object Detector**
Ziwei Wang, Ziyi Wu, Jiwen Lu, Jie Zhou.
CVPR, 2020.

INVITED TALK

Invited talk at Vector Institute	Jan. 2025
Neural Assets: 3D-Aware Multi-Object Scene Synthesis with Image Diffusion Models	
Invited talk in Prof. Kun Zhang's group	Feb. 2023
Invited talk in Neuroinformatics Group	Nov. 2022
Winner talk at ECCV@MVCS Workshop CLEVRER Track	Oct. 2022
SlotFormer: Unsupervised Visual Dynamics Simulation with Object-Centric Models	

HONORS & AWARDS

• Outstanding reviewer at NeurIPS 2024	2024
• Outstanding reviewer at NeurIPS 2023	2023
• 1st place in CLEVRER track at MVCS Challenge (ECCV 2022 Workshop)	2022
• Outstanding Graduates (Beijing, Tsinghua University & Dept. of Automation)	2021
• SenseTime Undergraduate Scholarship for AI Research	2020
• Xiaomi Scholarship, Tsinghua University	2020
• Fang Chongzhi Scholarship, Tsinghua University	2019
• Chinese National Scholarship	2018
• Spark Program Membership, Tsinghua University	

ACADEMIC SERVICES

Conference Reviewer/PC Member

- IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR) 2022-25
- International Conference on Computer Vision (ICCV) 2023
- European Conference on Computer Vision (ECCV) 2022-24
- Conference on Neural Information Processing Systems (NeurIPS) 2022-24
- International Conference on Machine Learning (ICML) 2023-25
- International Conference on Learning Representations (ICLR) 2024-25
- Association for the Advancement of Artificial Intelligence (AAAI) 2023-24
- International Joint Conference on Artificial Intelligence (IJCAI) 2024
- IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS) 2022
- IEEE International Conference on Robotics and Automation (ICRA) 2023-24

Journal Reviewer

- IEEE Transactions on Pattern Analysis and Machine Intelligence (T-PAMI)
- Transactions on Machine Learning Research (TMLR)
- International Symposium of Robotic Research (ISRR)
- IEEE Robotics and Automation Letters (RA-L)

Workshop Reviewer

- [ICLR@OSC Workshop](#) 2022

Seminar Co-Organizer

- [Toronto AI in Robotics \(AIR\) Seminar](#) 2022-23

MENTORING

[Mohammad Mohammadi](#)

PhD, University of Toronto

Project: Event-based vision

Sept. 2023 – Present

[Koichi Namekata](#)

Undergrad, University of Toronto

Project: Controllable video generation

May. 2024 – Jan. 2025

[Robert Ren](#)

Undergrad, University of Toronto

Project: Personalized visual generation with diffusion models

Sept. 2023 – Jul. 2024

[Anastasiia Pedan](#)

UofT CS Summer Program for Ukraine Students

Project: Object-centric reinforcement learning

May. 2023 – May. 2024

[Jasper Gerigk](#)

Undergrad, University of Toronto

Project: Object-centric reinforcement learning

Next stop: PhD, University of Toronto

May. 2023 – May. 2024

Qing Lyu

Undergrad, University of Toronto

Project: Event-based vision

Next stop: Data Scientist, Royal Bank of Canada

May. 2023 – Nov. 2023

Xudong Liu

MScAC, University of Toronto

Project: Event-based vision

Next stop: Research Engineer, ByteDance Vancouver

Oct. 2022 – Nov. 2023

Jingyu Hu

Undergrad, University of Toronto

Project: Object-centric diffusion model

Oct. 2022 – May. 2023

Wuyue Lu

Undergrad, University of Toronto

Project: Object-centric diffusion model

Next stop: Master, Simon Fraser University

Oct. 2022 – May. 2023

Jiaqi Xi

Undergrad, Peking University

Project: Object-centric dynamics model

Next stop: Master, Columbia University

Sept. 2021 – May. 2022