

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
Controllable video generation
Mentor: Dr. [Aliaksandr Siarohin](#)

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

Toronto Intelligent Systems Lab, University of Toronto Sept. 2022 – Present
Graduate Research Assistant
3D vision, robotics
Supervisor: Prof. [Igor Gilitschenski](#)

Vector Institute Sept. 2021 – Present
Student Researcher

People, AI and Robotics Group, University of Toronto Sept. 2021 – Aug. 2022
Graduate Research Assistant
3D vision, robotics
Supervisor: Prof. [Animesh Garg](#) & Prof. [Andrea Tagliasacchi](#)

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

Geometric Computation Group, Stanford University Jun. 2020 – Dec. 2020
Research Intern (Remote)
3D adversarial attack and defense in point cloud
Supervisor: Prof. [Leonidas J. Guibas](#)

Intelligent Vision Group, Tsinghua University Apr. 2019 – Jun. 2021
Undergraduate Researcher Assistant
Efficient design for 2D object detectors
Supervisor: Prof. [Jiwen Lu](#)

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. **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).
2. **LEOD: Label-Efficient Object Detection for Event Cameras**
Ziyi Wu, Mathias Gehrig, Qing Lyu, Xudong Liu, Igor Gilitschenski.
CVPR, 2024.
3. **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.
4. **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.
5. **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.
6. **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.
7. **Instance Similarity Learning for Unsupervised Feature Representation**
Ziwei Wang, Yunsong Wang, Ziyi Wu, Jiwen Lu, Jie Zhou.
ICCV, 2021.
8. **BiDet: An Efficient Binarized Object Detector**
Ziwei Wang, Ziyi Wu, Jiwen Lu, Jie Zhou.
CVPR, 2020.

INVITED TALK

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
• University of Toronto Mississauga Travel Grant for NeurIPS 2023	2023
• 1st place in CLEVRER track at MVCS Challenge (ECCV 2022 Workshop)	2022
• Vector Institute Research Grant	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
- Innovation Award of Science and Technology, Tsinghua University 2018-20
- Champion of the 20th Electronic Design Competition, Tsinghua University 2018

ACADEMIC SERVICES

Conference Reviewer/PC Member

- IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR) 2022-24
- 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) 2023-24
- 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

Koichi Namekata

Undergrad, University of Toronto

Project: Controllable video generation

May. 2024 – Present

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 <i>Next stop</i> : MSc, University of Toronto	May. 2023 – May. 2024
Qing Lyu Undergrad, University of Toronto Project: Event-based vision <i>Next stop</i> : Data Scientist, Royal Bank of Canada	May. 2023 – Nov. 2023
Xudong Liu MScAC, University of Toronto Project: Event-based vision <i>Next stop</i> : 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 <i>Next stop</i> : Master, Simon Fraser University	Oct. 2022 – May. 2023
Jiaqi Xi Undergrad, Peking University Project: Object-centric dynamics model <i>Next stop</i> : Master, Columbia University	Sept. 2021 – May. 2022