

ZIYI WU

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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](#)

PUBLICATIONS & MANUSCRIPTS

* indicates equal contribution/supervision

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. **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.

2. **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.

3. **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.

4. **Instance Similarity Learning for Unsupervised Feature Representation**

Ziwei Wang, Yunsong Wang, **Ziyi Wu**, Jiwen Lu, Jie Zhou.

ICCV, 2021.

5. **BiDet: An Efficient Binarized Object Detector**

Ziwei Wang, **Ziyi Wu**, Jiwen Lu, Jie Zhou.

CVPR, 2020.

Workshop Papers & Preprints

1. **EventCLIP: Adapting CLIP for Event-based Object Recognition**

Ziyi Wu, Xudong Liu, Igor Gilitschenski.

arXiv, 2023.

2. **IF-Defense: 3D Adversarial Point Cloud Defense via Implicit Function based Restoration**

Ziyi Wu*, Yueqi Duan*, He Wang, Qingnan Fan, Leonidas J. Guibas.

arXiv, 2020.

3. **A Cascade Regression Model for Anatomical Landmark Detection**
Zimeng Tan, Yongjie Duan, **Ziyi Wu**, Jianjiang Feng, Jie Zhou.
MICCAI@STACOM Workshop, 2019.
4. **CFUN: Combining Faster R-CNN and U-net Network for Efficient Whole Heart Segmentation**
Zhanwei Xu, **Ziyi Wu**, Jianjiang Feng.
arXiv, 2018.

EXPERIENCE

Toronto Intelligent Systems Lab, University of Toronto	Sept. 2022 – Present
Graduate Research Assistant	Supervisor: Prof. Igor Gilitschenski
3D vision, robotics	
Vector Institute	Sept. 2021 – Present
Student Researcher	
People, AI and Robotics Group, University of Toronto	Sept. 2021 – Aug. 2022
Graduate Research Assistant	Supervisor: Prof. Animesh Garg & Prof. Andrea Tagliasacchi
3D vision, robotics	
OpenMMLab, SenseTime Ltd.	Mar. 2021 – Aug. 2021
Research Intern	Manager: Dr. Kai Chen
Develop open source codebase for 3D scene understanding (<i>MMDetection3D</i>)	Mentor: Wenwei Zhang
Geometric Computation Group, Stanford University	Jun. 2020 – Dec. 2020
Research Intern	Supervisor: Prof. Leonidas J. Guibas
3D adversarial attack and defense in point cloud	
Intelligent Vision Group, Tsinghua University	Apr. 2019 – May. 2020
Undergraduate Researcher Assistant	Supervisor: Prof. Jiwen Lu
Efficient design for 2D object detectors	

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

• 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) 2022-23
- International Conference on Computer Vision (ICCV) 2023
- European Conference on Computer Vision (ECCV) 2022
- Conference on Neural Information Processing Systems (NeurIPS) 2022-23
- International Conference on Machine Learning (ICML) 2023
- International Conference on Learning Representations (ICLR) 2024
- Association for the Advancement of Artificial Intelligence (AAAI) 2023-24
- IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS) 2022
- IEEE International Conference on Robotics and Automation (ICRA) 2023

Journal Reviewer

- IEEE Transactions on Pattern Analysis and Machine Intelligence (T-PAMI)
- International Symposium of Robotic Research (ISRR)

Workshop Reviewer

- [ICLR@OSC Workshop](#) 2022

Seminar Co-Organizer

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

MENTORING

Qing Lyu B.S. student, University of Toronto Project: Event-based vision	June. 2023 – Present
Xudong Liu MScAC student, University of Toronto Project: Event-based vision	Oct. 2022 – Present
Jingyu Hu B.S. student, University of Toronto Project: Object-centric diffusion model	Oct. 2022 – May. 2023
Wuyue Lu B.S. student, University of Toronto Project: Object-centric diffusion model <i>Next stop:</i> Master at Simon Fraser University	Oct. 2022 – May. 2023
Jiaqi Xi B.S. student, Peking University Project: Object-centric dynamics model <i>Next stop:</i> Master at Columbia University	Sept. 2021 – May. 2022