

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. **SlotFormer: Unsupervised Visual Dynamics Simulation with Object-Centric Models**

Ziyi Wu, Nikita Dvornik, Klaus Greff, Thomas Kipf*, Animesh Garg*.

ICLR, 2023.

2. **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.

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

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

ICCV, 2021.

4. **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. **SlotDiffusion: Unsupervised Object-Centric Learning with Diffusion Models**

Ziyi Wu, Jingyu Hu*, Wuyue Lu*, Igor Gilitschenski, Animesh Garg.

ICLR@NeSy-GeMs Workshop, 2023.

3. **SlotFormer: Long-Term Dynamic Modeling in Object-Centric Models**

Ziyi Wu, Nikita Dvornik, Klaus Greff, Jiaqi Xi, Thomas Kipf*, Animesh Garg*.

UAI@CRL Workshop, 2022. | *ECCV@MVCS Challenge*, 2022.

4. **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.
5. **A Cascade Regression Model for Anatomical Landmark Detection**
Zimeng Tan, Yongjie Duan, Ziyi Wu, Jianjiang Feng, Jie Zhou.
MICCAI@STACOM Workshop, 2019.
6. **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 (MMDetection3D)	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
- Association for the Advancement of Artificial Intelligence (AAAI) 2023
- IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS) 2022
- IEEE International Conference on Robotics and Automation (ICRA) 2023

Journal Reviewer

- 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 June. 2023 – Present
 B.S. student, University of Toronto
 Project: Event-based vision

Xudong Liu Oct. 2022 – Present
 MScAC student, University of Toronto
 Project: Event-based vision

Wuyue Lu Oct. 2022 – May. 2023
 B.S. student, University of Toronto
 Project: Object-centric diffusion model

Jingyu Hu Oct. 2022 – May. 2023
 B.S. student, University of Toronto
 Project: Object-centric diffusion model

Xinyu Kang May. 2022 – July. 2022
 B.S. student, University of Toronto
 Project: Fractured object reassembly

Jiaqi Xi

B.S. student, Peking University

Project: Object-centric dynamics model

Sept. 2021 – May. 2022