Xindi (Cindy) Wu

Ph.D. Student
Computer Science Department
Princeton University

Email: xindiw@princeton.edu
Homepage: xindiwu.github.io

Education

2022–now Ph.D., Computer Science, Princeton University
Advisor: Olga Russakovsky

2020–2022 M.S., Computer Vision, Robotics Institute, Carnegie Mellon University
Advisor: Deva Ramanan

2016–2020 B.S., Computer Science, Honors Youth Program, Xi'an Jiaotong University
Advisors: Jinjun Wang and Pengju Ren

Research Interests

Computer Vision, Multimodal Machine Learning, Video/Image Generation.

Award

- **Best Paper Award**, ECCV 2024 Dataset Distillation Workshop for "Vision–Language Dataset Distillation" (Sept. 2024).

Experience

- **NVIDIA, Spatial Intelligence Lab**, Santa Clara, CA *May 2025 – present*
  Research Scientist Intern with Dr. Jonathan Lorraine, Dr. Despoina Paschalidou, Dr. Jun Gao, Prof. Laura Leal-Taixé, Prof. Antonio Torralba, Prof. Sanja Fidler
- **Meta Reality Lab, Smart Glass AI Team**, Redmond, WA *May 2023 – Aug. 2023*
  Research Scientist Intern with Dr. Shane Moon, Dr. Uriel Singer Dr. Luna Dong, Dr. Zhaojiang Lin, Dr. Paul Crook, Dr. Andrea Madotto Dr. Ethan Xu.
- **Snap Inc., Perception Team**, New York, NY *Feb. 2022 – Aug. 2022*
  Machine Learning Engineer.
- **CMU Argo AI Center for Autonomous Vehicle Research**, Pittsburgh, PA *Jan. 2021 – Jan. 2022*
  CMU Sponsored Capstone and Research Assistant with Prof. Deva Ramanan.
- **Snap Inc., Perception Team**, New York, NY *May 2021 – Aug. 2021*
  Research Intern with Dr. Alireza Zareian and Dr. Chen Wang.
- **Megvii Research (Face++)**, Beijing, China *June 2020 – Sept. 2020*
  Computer Vision Research Intern with Banghuai Li.

Publications & Preprints

** indicates equal contribution.*

[26] **Where is Motion From? Scalable Motion Attribution for Video Generation Models**.
X. Wu, D. Paschalidou, J. Gao, A. Torralba, L. Leal-Taixé, O. Russakovsky, S. Fidler, J. Lorraine.
ICCV Workshop on Reliable and Interactable World Models 2025.

[25] **Beyond Objects: Contextual Synthetic Data Generation for Fine-Grained Classification**.
W. Yang, **X. Wu**, Z. Deng, E. Tureci, O. Russakovsky. *Preprint 2025*. Link.

[24] **COMPACT: COMPositional Atomic-to-Complex Visual Capability Tuning**.
X. Wu*, H. S. Hwang*, P. Kirichenko, O. Russakovsky. *Preprint 2025*. Link.

[23] **ICONS: Influence Consensus for Vision–Language Data Selection**.
X. Wu, M. Xia, R. Shao, Z. Deng, P. W. Koh, O. Russakovsky. *Preprint 2025*. Link.

[22] **Actions as Language: Fine-Tuning VLMs into VLAs Without Catastrophic Forgetting**.
A. J. Hancock, **X. Wu**, L. Zha, O. Russakovsky, A. Majumdar. *Preprint 2025*. Link.

[21] **Explain Before You Answer: A Survey on Compositional Visual Reasoning**.
F. Ke, ..., **X. Wu**, ..., H. Rezatofighi. *Preprint 2025*. Link.

[20] **DD-Ranking: Rethinking the Evaluation of Dataset Distillation**.
Z. Li, ..., **X. Wu**, ..., K. Wang. *Preprint 2025*. Link.

[19] **Corgi: Cached Memory-Guided Video Generation**.
X. Wu, U. Singer, Z. Lin, A. Madotto, X. Xia, P. A. Crook, Y. E. Xu, X. L. Dong, S. Moon. *WACV 2025*.
Link.

[18] **ConceptMix: A Compositional Image Generation Benchmark with Controllable Difficulty**.
X. Wu*, D. Yu*, Y. Huang*, O. Russakovsky, S. Arora. *NeurIPS D&B 2024*. Link.

[17] **Vision–Language Dataset Distillation**.
X. Wu, B. Zhang, Z. Deng, O. Russakovsky. *TMLR 2024*. Link.

[16] **SWE-bench Multimodal: Do AI Systems Generalize to Visual Software Domains?**.
J. Yang*, C. Jimenez*, ..., **X. Wu**, ..., O. Press. *ICLR 2025*. Link.

[15] **CharXiv: Charting Gaps in Realistic Chart Understanding in Multimodal LLMs**.
Z. Wang, ..., **X. Wu**, ..., D. Chen. *NeurIPS D&B 2024*. Link.

[14] **Language Models as Science Tutors**.
A. Chevalier, ..., **X. Wu**, ..., D. Chen. *ICML 2024*. Link.

[13] **Pix2Map: Cross-modal Retrieval for Inferring Street Maps from Images**.
X. Wu, K. Lau, F. Ferroni, A. Osep, D. Ramanan. *CVPR 2023*. Link.

[12] **Ego4D: Around the World in 3,000 Hours of Egocentric Video**.
K. Grauman, ..., **X. Wu**, ..., J. Malik. *CVPR 2022*. Link.

[11] **Toward Learning Robust and Invariant Representations with Alignment Regularization and Data Augmentation**.
H. Wang, Z. Huang, **X. Wu**, E. P. Xing. *KDD 2022*. Link.

[10] **CryoETGAN: Cryo-electron Tomography Image Synthesis Using Unpaired Image Translation**.
X. Wu, C. Li, H. Wei, H. Deng, J. Zhang, M. Xu. *Frontiers in Physiology 2022*. Link.

[9] **Squared ℓ_2 Norm as Consistency Loss for Leveraging Augmented Data to Learn Robust and Invariant Representations**.
H. Wang, Z. Huang, **X. Wu**, E. P. Xing. *arXiv 2021*. Link.

[8] **Marrying Motion Forecasting and Offline Model-Based Reinforcement Learning for Self-Driving Cars**.
S. Pande, **X. Wu**. *Preprint 2021*. Link.

[7] **High Frequency Component Helps Explain the Generalization of Convolutional Neural Networks**.
H. Wang, **X. Wu**, Z. Huang, E. P. Xing. *CVPR 2020*. Link.

[6] **Transferable Adversarial Attacks on Deep Reinforcement Learning**.
X. Pan, Y. Cao, **X. Wu**, E. Zelikman, C. Xiao, Y. Sui, R. Chakraborty, R. S. Fearing. *CVPR 2020 Workshop on Adversarial ML*. Link.

[5] **Reducing Exploitation of Data Idiosyncrasy Helps Robustify Trained Models**.
X. Wu, H. Wang, E. Zelikman, M. Xu, E. P. Xing. *Preprint 2020*. Link.

[4] **Regularized Adversarial Training (RAT) for Robust Cellular Electron Cryo Tomograms Classification**.
X. Wu, Y. Mao, H. Wang, X. Zeng, X. Gao, E. P. Xing, M. Xu. *BIBM 2019*. Link.

[3] **Template-based and Template-free Approaches in Cellular Cryo-electron Tomography Structural Pattern Mining**.
X. Wu, X. Zeng, Z. Zhu, X. Gao, M. Xu. *Computational Biology (Codon Publications) 2019*. Link.

[2] **Deep Self-Paced Learning for Semi-supervised Person Re-identification Using Multi-View Self-Paced Clustering**.
X. Xin, **X. Wu**, Y. Wang, J. Wang. *ICIP 2019*. Link.

[1] **Multitask Learning with Enhanced Modules**.
Z. Zheng, Y. Wei, Z. Zhao, **X. Wu**, Z. Li, P. Ren. *DSP 2018*. Link.

Talks & Poster Presentations

- **Where is Motion From? Scalable Motion Attribution for Video Generation Models**. ICCV Reliable and Interactive World Model Workshop, Honolulu, Oct. 2025.
- **From Data to Capability: Data for efficient multimodal machine learning**. Datology AI Summer of Data Seminar, June 2025.
- **ConceptMix: A Compositional Image Generation Benchmark with Controllable Difficulty**. NeurIPS, Vancouver, Dec. 2024.
- **Corgi: Cached Memory-Guided Video Generation**. ECCV AI for Visual Arts Workshop, Milan, Oct. 2024.
- **Vision–Language Dataset Distillation**. ECCV Dataset Distillation Workshop, Milan, Oct. 2024.
- **ConceptMix: A Compositional Image Generation Benchmark with Controllable Difficulty**. ECCV Knowledge in Generative Models Workshop, Milan, Oct. 2024.

- **Compositional Generation Evaluation**. Google Research, New York, July 2024.
- **Scaling Down before Scaling Up: Recent Progress on Dataset Distillation**. CVPRW Dataset Distillation, Seattle, June 2024.
- **Corgi: Compositional Memory-Guided Video Generation**. NYC Vision Day, New York, Nov. 2023.
- **Pix2Map: Cross-modal Retrieval for Inferring Street Maps from Images**. CVPR, Vancouver, June 2023.
- **Regularized Adversarial Training for Robust Cellular Electron Cryo Tomograms Classification**. BIBM, San Diego, Nov. 2019.

Professional Service

- **Co-organizer**: ICCV 2025 Curated Data for Efficient Learning Workshop.
- **Reviewer**: NeurIPS 2025/2024/2023; ICLR 2025/2024; ICML 2025/2024; CVPR 2025/2024/2023/2022; ICCV 2025/2023; ECCV 2024/2022; TMLR; ICRA 2024; ACCV 2024; ICLR 2023 Workshop ME-FoMo; NeurIPS Interpolate Workshop 2022; BMVC 2020; IJCAI 2020.
- **Committee Member**: Diversity, Equity and Inclusion Committee, Robotics Institute, CMU.
- **Volunteer**: vGHC (Grace Hopper Celebration) 2021.
- **Panelist**: Robotics Institute MS Student Panel 2021; Robotics Institute Summer Scholars (RISS) 2021.
- **Co-Host**: Weekly RI Meets! 2021.
- **Mentor**: CMU Society of Women Engineers (SWE) mentoring program 2021.

Teaching

- **Teaching Assistant**: COS 429 Computer Vision (Princeton), Spring 2024. Instructors: Vikram V. Ramaswamy and Felix Heide.
- **Teaching Assistant**: COS 597O Advanced Topics in Computer Science: Deep Generative Models (Princeton), Fall 2023. Instructor: Adji Bousso Dieng.

Last updated: October, 2025.