

Xindi (Cindy) Wu

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Computer Science Department
Princeton University

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Education

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| 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

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| • NVIDIA, Spatial Intelligence Lab , Santa Clara, CA
Research Scientist Intern with Prof. Sanja Fidler. | <i>May 2025 – present</i> |
| • Meta Reality Lab, Smart Glass AI Team , Redmond, WA
Research Scientist Intern with Dr. Shane Moon. | <i>May 2023 – Aug. 2023</i> |
| • Snap Inc., Perception Team , New York, NY
Machine Learning Engineer. | <i>Feb. 2022 – Aug. 2022</i> |
| • CMU Argo AI Center for Autonomous Vehicle Research , Pittsburgh, PA
CMU Sponsored Capstone and Research Assistant with Prof. Deva Ramanan. | <i>Jan. 2021 – Jan. 2022</i> |
| • Snap Inc., Perception Team , New York, NY
Research Intern with Dr. Alireza Zareian and Dr. Chen Wang. | <i>May 2021 – Aug. 2021</i> |
| • Megvii Research (Face++) , Beijing, China
Computer Vision Research Intern with Banghuai Li. | <i>June 2020 – Sept. 2020</i> |

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. *Preprint 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.