Min Liu

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EDUCATION

Carnegie Mellon University   8/2023 – 12/2024
Master of Science (M.S.) in Machine Learning, School of Computer Science   *Pittsburgh, PA*
- Advised by Prof. Ruslan Salakhutdinov

Nanjing University   9/2019 – 6/2023
Bachelor of Science (B.S.) in Computer Science, Kuang Yaming Honors School   *Nanjing, China*
- Advised by Prof. Xiangyu Yue and Prof. Lin Shao

INDUSTRY EXPERIENCE

Skild AI   1/2025 – present
Member of Technical Staff   *San Mateo, CA*
- Mentored by Prof. Deepak Pathak

ByteDance Research   3/2022 – 9/2022
Machine Learning (NLP) Intern   *Shanghai, China*
- Mentored by Dr. Chengqi Zhao

PUBLICATIONS

* denotes equal contribution

1. <u>**Min Liu**</u>, Deepak Pathak, and Ananye Agarwal, *LocoFormer: Generalist Locomotion via Long-context Adaptation*, Conference on Robot Learning (CoRL), 2025 *(Best Paper Award Finalist)*. [website]

2. Murtaza Dalal*, <u>**Min Liu**</u>*, Walter Talbott, Chen Chen, Deepak Pathak, Jian Zhang, and Ruslan Salakhutdinov, *Local Policies Enable Zero-shot Long-horizon Manipulation*, International Conference on Robotics and Automation (ICRA), 2025. [website]

3. <u>**Min Liu**</u>, Gang Yang, Siyuan Luo, and Lin Shao, *SoftMAC: Differentiable Soft Body Simulation with Forecast-based Contact Model and Two-way Coupling with Articulated Rigid Bodies and Clothes*, International Conference on Intelligent Robots and Systems (IROS), 2024. [website]

4. <u>**Min Liu**</u>, Alberto Sangiovanni-Vincentelli, and Xiangyu Yue, *Beating Backdoor Attack at Its Own Game*, International Conference on Computer Vision (ICCV), 2023.

5. <u>**Min Liu**</u>, Yu Bao, Chengqi Zhao, and Shujian Huang, *Selective Knowledge Distillation for Non-Autoregressive Neural Machine Translation*, AAAI Conference on Artificial Intelligence (AAAI), 2023.

6. Jinpei Guo, Yifei Ji, Zheng Chen, Kai Liu, <u>**Min Liu**</u>, Wang Rao, Wenbo Li, Yong Guo, and Yulun Zhang, *OSCAR: One-Step Diffusion Codec Across Multiple Bit-rates*, Neural Information Processing Systems (NeurIPS), 2025.

RESEARCH EXPERIENCE

Generalist Locomotion via Long-Context Adaptation   1/2025 – 5/2025
Advisor: Prof. Deepak Pathak   *Skild AI*
- Developed LocoFormer, a generalist, omni-bodied locomotion model capable of controlling previously unseen robot morphologies on the fly through long-context adaptation.
- Trained the model with large-scale reinforcement learning across procedurally generated robots under extensive domain randomization, using a long-context Transformer-XL architecture to leverage multi-episodic memory for emergent adaptation.
- Achieved zero-shot transfer across diverse robot embodiments (varying legs, wheels, joints) and high robustness under disturbances (mass changes, motor failures, locked joints), showcasing the potential of in-context learning for robotics.

Sim-to-Real Generalist Policies for Open-World Robotic Manipulation   9/2023 – 9/2024
Advisor: Prof. Ruslan Salakhutdinov   *Carnegie Mellon University*
- Developed ManipGen, a general-purpose manipulation framework capable of executing complex, multi-step tasks directly from text instructions without task-specific training, demonstrating state-of-the-art generalization and compositional reasoning.

- Introduced local policy, a novel policy class that focuses on the local interaction regions to achieve invariance to absolute robot and object poses, skills ordering, and global scene configuration.
- Trained generalist local policies on over 6,000 simulated objects for 4 manipulation skills, which are combined with existing foundation models to form a hierarchical system for open-world manipulation.

Differentiable Soft Body Simulation for Robotic Manipulation 3/2023 – 9/2023
Advisor: Prof. Lin Shao *National University of Singapore*

- Created SoftMAC, a differentiable soft-body simulator supporting two-way coupling among soft, rigid, and cloth materials, expanding the scope of physically realistic robotic manipulation in simulation.
- Improved simulation fidelity of material point method with a forecast-based contact model and a penetration tracing algorithm that reconstructs local signed distance fields for thin deformable objects.
- Demonstrated SoftMAC's effectiveness in tasks such as folding tacos and pouring liquids by optimizing robot actions directly via gradients from the simulator.

Quality Assurance for Neural Networks under Backdoor Attack 8/2022 – 2/2023
Advisors: Prof. Alberto Sangiovanni-Vincentelli and Prof. Xiangyu Yue *University of California, Berkeley*

- Designed a defense framework that injects a benign *decoy* backdoor to proactively suppress adversarial triggers, improving model robustness with minimal performance loss.
- Proposed an efficient test-time data filtering algorithm that leverages the benign backdoor's controllable feature representation to detect and remove poisoned samples.
- Achieved state-of-the-art defense effectiveness while maintaining near-original accuracy on clean data.

Non-Autoregressive Transformer for Neural Machine Translation 11/2021 – 6/2022
Advisor: Prof. Shujian Huang *Nanjing University*

- Developed a selective knowledge distillation method that identifies and trains on samples most beneficial to non-autoregressive models, balancing multi-modality and translation quality.
- Introduced a progressive distillation strategy that incrementally refines the student model, surpassing prior non-autoregressive baselines using only 5% of distilled data.

HONORS AND AWARDS

Best Paper Award Finalist at the Conference on Robot Learning	2025
Outstanding Graduate at Kuang Yaming Honors School, Nanjing University	2023
SenseTime Scholarship *(awarded to 30 undergraduates in fields related to AI across China)*	2022
Gang Zheng Scholarship for Overseas Study *(20 students in Nanjing University)*	2021
National Elite Program in Fundamental Science *(first prize scholarship, top 5%)*	2020-2022

MISCELLANEOUS

Languages	Mandarin Chinese (native), English (TOEFL: 113)
Programming	Python, PyTorch, C/C++, MATLAB, Taichi
Conference Reviewer	CVPR (2024-2026), ICRA (2025), CoRL (2025), AAAI (2026)