

Min Liu

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EDUCATION

Carnegie Mellon University 8/2023 – present
M.S. in Machine Learning Pittsburgh, PA

Nanjing University 9/2019 – 6/2023
B.S. in Computer Science and Technology, Kuang Yaming Honors School Nanjing, China

- GPA: 4.56/5.00 (91.2/100); Ranking: 1st/15

PUBLICATIONS AND MANUSCRIPTS

- [1] **Min Liu**, Gang Yang, Siyuan Luo, Chen Yu and Lin Shao, *SoftMAC: Differentiable Soft Body Simulation with Forecast-based Contact Model and Two-way Coupling with Articulated Rigid Bodies and Clothes*, in submission.
- [2] **Min Liu**, Alberto Sangiovanni-Vincentelli, and Xiangyu Yue, *Beating Backdoor Attack at Its Own Game*, International Conference on Computer Vision (ICCV), 2023.
- [3] **Min Liu**, Yu Bao, Chengqi Zhao, and Shujian Huang, *Selective Knowledge Distillation for Non-Autoregressive Neural Machine Translation*, AAAI Conference on Artificial Intelligence (AAAI), 2023.

EXPERIENCES

National University of Singapore, Department of Computer Science 3/2023 – 9/2023
Undergraduate Researcher Advisor: Prof. Lin Shao

- **Differentiable Physics Simulation:** Proposed an MPM-based differentiable soft body simulator that provides two-way coupling with articulated rigid bodies and cloths. Introduced a forecast-based contact model to reduce artifacts, and a penetration tracing algorithm to reconstruct SDF within local area for the non-volumetric cloth meshes. Verified the system under several robotic manipulation tasks (e.g. pouring wine, making taco).

UC Berkeley, Berkeley Artificial Intelligence Research 8/2022 – 2/2023
Undergraduate Researcher Advisor: Prof. Alberto Sangiovanni-Vincentelli and Prof. Xiangyu Yue

- **Backdoor Defense:** Mimicked the strategy of attackers in backdoor defense. Injected a non-adversarial backdoor by poisoning a small set of suspicious samples, which once triggered can suppress the adversarial backdoor. Achieved state-of-the-art defense effectiveness with minor performance drop on clean samples.

ByteDance Inc., AI Lab 3/2022 – 9/2022
Research Intern Mentor: Dr. Chengqi Zhao

- **End-to-End Speech Translation** Proposed a cross-modal pre-training method to build robust linguistic and acoustic knowledge representation. Forced cross-modal glance by masking self-attention of the shared encoder.

Nanjing University, Natural Language Processing Group 11/2021 – 6/2022
Undergraduate Researcher Advisor: Prof. Shujian Huang

- **Non-Autoregressive Transformer:** Proposed a selective and progressive distillation method for NAT, which introduces an evaluator to select high-quality and low-complexity targets. Distilling only 5% of the raw translations with selection suffices to alleviate the multi-modality problem and significantly improve overall translation quality.

SELECTED HONORS

Chenxue Scholarship (*5 students in Nanjing University*) 2023

SenseTime Scholarship (*awarded to 30 undergraduates in fields related to AI across China*) 2022

National Elite Program in Basic Subjects Scholarship (*first prize, top 5% among program students*) 2021

Gang Zheng Scholarship for Overseas Study (*0.6% in Nanjing University*) 2021

SKILLS

Languages Chinese (native), English (TOEFL: 110)

Programming Python (PyTorch), C/C++, Taichi, MATLAB, Assembly, Verilog