Daohan "Fred" Lu

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Education

New York University	New York, NY
Graduate School of Arts and Science	05/2028 (Expected)

- Doctor of Philosophy in Computer Science

Carnegie Mellon University	Pittsburgh, PA
School of Computer Science	12/2022

- Master of Science in Computer Vision   QPA: 3.97

New York University	New York, NY
College of Arts and Science	05/2021

- Bachelor of Arts in Economics and Computer Science   GPA: 3.86/4.00   *magna cum laude*

Work and Research Experience

New York University	Advised by Saining Xie	New York, NY
PhD Student		09/2023 - 05/2028

- Research interest in exploiting novel structures in data with scalable ML. Paper [1, 2].

PathAI (pathai.com**)**	Boston, MA
Machine Learning Engineer Intern	06/2022 - 09/2022

- Researching methods to measure and reduce the impact of catastrophic forgetting when fine-tuning models on a smaller or differing medical imaging dataset.

Generative Intelligence Lab (cs.cmu.edu/~junyanz/**)**	Advised by Jun-Yan Zhu	Pittsburgh, PA
Research Assistant		02/2022 - 07/2023

- Created Modelverse, a content-based search algorithm that lets users find image generative models with words or pictures via a web-based user interface (Paper [3], Website). Presented at SIGGARPH Asia 2023.

NYU CILVR Lab (wp.nyu.edu/cilvr/**)**	Advised by Rob Fergus	New York, NY
Research Assistant		05/2021 - 08/2021

- Researched Machine Common Sense (MCS): designed generative models (VGG+LSTM) that detect and localize implausible physics in videos by learning to generate plausible frames. (Github)
- Achieved 84% True Positive and 73% True Negative rates on the Gravity physics test set.

NYU MMVC Lab (mmvc.engineering.nyu.edu/**)**	Advised by Yi Fang	New York, NY
Research Assistant		10/2019 - 08/2020

- Innovated lightweight MLPs dynamic initialized by a PointNet for 2x faster training and fine-tuning on 3D shape correspondence tasks while retaining the same level of accuracy compared to state of the art. (Paper [6])
- Designed MobileNet-SSD based models that provide real-time (>10/s) audio feedback to help the blind maintain social distance (Paper [5]) and with collaborative hand gestures (Paper [4]).

Avigilon, Motorola Solutions (avigilon.com/)	Somerville, MA
Research Engineer Intern	06/2019 - 08/2019

- Trained and tested a specialized LeNet model that classified human false-positive detections from the camera's security cameras, reducing human false-positive detections by ~40% on proprietary test datasets.
- Modeled enhanced versions of the Kalman Filter (UKF, EKF) with C++ and Python to evaluate their potential to improve object tracking and detection when integrated into the security cameras.

Selected Papers

- [1] Yucen Lily Li, Daohan Lu et al. "Out-of-Distribution Detection Methods Answer the Wrong Questions." arXiv preprint arXiv:2507.01831 (2025). arXiv
- [2] Hexu Zhao, Haoyang Weng, **Daohan Lu** et al. "On Scaling Up 3D Gaussian Splatting Training." arXiv preprint arXiv:2406.18533 (2024). arXiv, Website
- [3] **Daohan Lu**, Sheng-Yu Wang, Nupur Kumari, Rohan Agarwal, Mia Tang et al. "Content-Based Search for Deep Generative Models." SIGGRAPH Asia 2023. arXiv, YouTube

- [4] **Daohan Lu** and Yi Fang. *Audi-Exchange: AI-Guided Hand-Based Actions to Assist Human-Human Interactions for the Blind and the Visually Impaired*. Ninth International Workshop on Assistive Computer Vision and Robotics (ACVR), ICCV Workshops. 2021. Paper
- [5] Samridha Shrestha and **Daohan Lu** et al. "*Active Crowd Analysis for Pandemic Risk Mitigation for Blind or Visually Impaired Persons.*" Eighth International Workshop on ACVR, ECCV Workshops. 2020. Paper
- [6] **Daohan Lu** and Yi Fang. "Meta Deformation Network: Meta Functionals for Shape Correspondence." arXiv preprint arXiv:2006.14758 (2020). arXiv