Daohan "Fred" Lu

New York, NY · dl3957@nyu.edu · (LinkedIn) www.linkedin.com/in/daohanlu (Github) github.com/daohanlu · (Website) daohanlu.github.io/

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 OPA: 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 Andrew Wilson & Saining Xie New York, NY PhD Student 09/2023 - 05/2028

• Research interest in exploiting novel structures in data with scalable ML. Paper [1].

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 02/2022 - 07/2023 Research Assistant

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 [2], Website). Presented at SIGGARPH Asia 2023.

NYU CILVR Lab (wp.nvu.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 10/2019 - 08/2020 Research Assistant

- 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 [5])
- Designed MobileNet-SSD based models that provide real-time (>10/s) audio feedback to help the blind maintain social distance (Paper [4]) and with collaborative hand gestures (Paper [3]).

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] Hexu Zhao, Haoyang Weng, **Daohan Lu** et al. "On Scaling Up 3D Gaussian Splatting Training." arXiv preprint arXiv:2406.18533 (2024). arXiv, Website
- [2] 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

- [3] **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
- [4] 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
- [5] **Daohan Lu** and Yi Fang. "Meta Deformation Network: Meta Functionals for Shape Correspondence." arXiv preprint arXiv:2006.14758 (2020). <u>arXiv</u>