156 Orchard Street, NY, NY
(240) 461-2365
maf820@nyu.edu
mfinzi.github.io

Marc Finzi

Education

2019 - ???? **Ph.D. in Computer Science**, *NYU Courant*, NYC.

2017 - 2019 **Masters in Operations Research**, *Cornell*, Ithaca, NY.

2013 - 2017 **B.S. Physics**, *Harvey Mudd College*, Claremont, CA, GPA: 3.7.

Research Experience

2019 - Present **PhD Student**, *Andrew G. Wilson's lab*, NYU.

Normalizing Flows
- Developed Normalizing Flows for semi-supervised learning with competitive performance on text classification
- Demonstrated how convolutional networks can be inverted directly and trained as normalizing flows

Equivariant Convolutional Networks
- Extending point convolutions to Lie groups, with applications to Chemistry and dynamical systems modeling
- Preparing conference paper for submission.

Summer 2019 **Applied Scientist intern at Amazon**, Seattle, WA.
- Applying deep learning methods for ranking and recommendation
- Experience with models traditionally used for NLP such as LSTM and Transformer

Spring 2017 -2019 **PhD Student**, *Andrew G. Wilson's lab*, Cornell University.

Semi Supervised Learning
- Achieved leading semi-supervised performance on CIFAR10 and CIFAR100, provided theoretical connection between consistency regularization and graph methods for SSL
- Obtained Masters degree and transferred to NYU

2015 - 2017 **Undergraduate Thesis in Physics**, *Tom Donnelly's lab*, Harvey Mudd College.
- Led three-man HMC team at UT Austin to conduct laser physics experiment
- Applied computer vision to detect and register microspheres in SEM images, achieving 95% accuracy.
- LabView automation of laser experiments, using NiDAQs, and ThorLab components.

Summers 2014, 2015 **Applied Physics Intern at NASA**, *Alexander Kutyrev's lab*, NASA Goddard Space Flight Center.
- Implemented a camera based image registration system to measure of mechanical positioning to sub-micron precision.
- Prototyped a control circuit and PCB to regulate the cryo temperature sensors control heating elements.
- Embedded systems programming in C++ for PID control, interfacing with an external microcontroller over SPI.

Publications

Ben Athiwaratkun, Marc Finzi, Pavel Izmailov, and Andrew Gordon Wilson. There are many consistent explanations of unlabeled data: Why you should average. *ICLR 2019*, 2019.

Marc Finzi, Pavel Izmailov, Wesley Maddox, Polina Kirichenko, and Andrew Gordon Wilson. Invertible convolutional networks. *ICML 2019 INNF Workshop*, 2019.

Pavel Izmailov, Polina Kirichenko, Marc Finzi, and Andrew Gordon Wilson. Semi-supervised learning with normalizing flows. *arXiv preprint arXiv:1912.13025*, 2019.

Reviewing

Conferences AISTATS 2019, ICML 2019, NeurIPS 2019, ICLR 2020

Technical Skills

Relevant Coursework Advanced Machine Learning Systems, Computer Vision, Bayesian Machine Learning, Topics in ML optimization, Numerical Analysis for Data Science, Approximate Dynamic Programming, Algorithms, Stochastic Processes

Languages Python: 30k+ LoC, C++: 3k+ LoC, LaTeX.

Hobby Projects

Chess Engine using MCTS and Deep Learning, trained on 4 Million Chess games labeled by Stockfish

Traditional $\alpha - \beta$ search Chess Engine in C++ w/ iterative deepening and transposition tables

Interactive Numerical Schrodinger & KdV equation simulators using Eigen and Split Step Fourier methods

Graph-based circuit simulator supporting arbitrary RLC graphs with voltage and current sources

Numerical N-Body gravitation simulator using symplectic integrators