

Marc Finzi

517 East State Street, Ithaca, NY

☎ (240) 461-2365

✉ maf388@cornell.edu

Education

2017 - ??? - **Ph.D. in Operations Research**, *Cornell University*, Ithaca, NY.

2013 - 2017 **B.S. Physics**, *Harvey Mudd College*, Claremont, CA, GPA: 3.8.

2009 - 2013 *Georgetown Day School*, Washington, DC.

Research

Spring 2017 - **Deep Learning Research**, *Cornell University*, Ithaca, NY.

Present Current Research Interests

- Data dependent regularization for semi-supervised learning
- The notion of sharp and wide optima and loss surface geometry
- Applying GAN's to partially discrete data spaces

Spring 2015 - **Plasma Physics Research**, *Harvey Mudd College*, Claremont, CA.

- Fall 2017
- Led three-man HMC team to set up an experiment at UT Austin to test the theory of multipass Stochastic Heating in spherical targets using the high-power GHOST OPCPA laser. Setting up this experiment required more than 20 optical elements inside the vacuum chamber, alignment to a $5\mu\text{m}$ focal spot size, and careful synchronization between two laser systems.
 - Wrote image processing code using openCV to identify and characterize microspheres in SEM images, achieving 95% accuracy on identification.
 - Automated sphere ejection velocity experiment using LabView, an NiDAQ, and ThorLab motor actuators.

Summer 2015 **EE intern at NASA**, *Goddard Space Flight Center*, Greenbelt, MD.

- Brought concept of low cost, high precision (5mK), cryogenic temperature sensors based on the internal temperature response of commercially available transistors into practice.
- Designed and prototyped a control circuit to read 16 of these sensors, and control the current to 4 heating elements.
- Implemented C++ program on the microcontroller for PID control of the heaters, with an API for accepting commands and sending data over USB to a host computer.
- Developed a more scalable, higher fidelity (1mK) and easier to use PCB revision with Eagle.
- Tested device under Vacuum + Cryo conditions and debugged operation.

Publications

Ben Athiwaratkun, Marc Finzi, Pavel Izmailov, and Andrew Gordon Wilson. Improving consistency-based semi-supervised learning with weight averaging. *arXiv preprint arXiv:1806.05594*, 2018.

Teaching Experience

2017 - Present **Teaching Assistant**, *Cornell*, Ithaca, NY.

TAing for Basic Engineering Probability and Statistics (ENGRD 2700)

2015 - 2017 **Physics Academic Excellence Tutoring**, *Harvey Mudd College*, Claremont, CA.

Tutoring for freshman and sophomore physics classes.

Technical Skills

Relevant Coursework Bayesian Machine Learning, Numerical Analysis for Data Science, Statistical Principles, Differential Geometry, Algorithms, Statistical Mechanics.

Programming Languages Python, C++, \LaTeX .

DL Frameworks Pytorch, Tensorflow