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Marc Finzi

Education

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

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

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

Research

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

Current Research Interests

- Semi-supervised learning, heterogeneous sources of supervision
- Visual attention mechanisms and structured prediction
- Wide optima and loss surface geometry

Spring 2015 - Fall 2017 **Plasma Physics Research**, *Harvey Mudd College*, Claremont, CA.

- 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 $5\mu m$ 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.

Summers 2014, 2015 **Internship 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.

TA for Simulation Modeling and Analysis TA 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 Advanced Machine Learning Systems, Computer Vision, Bayesian Machine Learning, Numerical Analysis for Data Science, Algorithms, Statistical Principles, Stochastic Processes, Differential Geometry, Algorithms, Programming Languages, Microprocessors.

Programming Languages Python, C++, LaTeX.