MIA POLANSKY

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EDUCATION

Harvard University *Cambridge, Massachusetts*
PhD student, School of Engineering and Applied Sciences in Electrical Engineering August 2017 - Present
Advised by Professor Todd Zickler. Awarded NSF GRFP fellowship.
M.S. in Engineering Sciences, August 2017 - March 2019.
Coursework focus: Computer Vision, Machine Learning, and Neural Networks

Rice University *Houston, Texas*
B.S. in Electrical Engineering with Data Science Specialization. August 2013 - May 2017
Distinction in Research and Creative Work.

RESEARCH EXPERIENCE

Graduate Researcher Fall 2017 - Present
Harvard University *Cambridge, Massachusetts*
- Interested in physics based computer vision and neural networks for approximating geometric functions.
- Current research asks whether we can reconstruct the 3D structure of a scene using high order bounces.

Senior Capstone Design Fall 2016 - Spring 2017
LITSCOPE: Mobile Fourier Ptychographic Microscopy *Houston, Texas*
- Fabricated a portable and low-cost Fourier ptychographic microscope that generates both high-resolution and wide field-of-view images.

Research Project Intern Spring 2016 - Present
Baylor College of Medicine Center for Advanced Magnetic Imaging *Houston, Texas*
- Examined the correlation of vestibular nuclei activation with sensation of motion through computationally modeling the brainstem with MATLAB.

Undergraduate Research Assistant Summer 2015
Rice Efficient Computing Group *Houston, Texas*
- Modeled how noise in analog systems affects the image identification performance of the deep learning neural networks GoogLeNet and AlexNet using python and C.

Summer Intern Summer 2014
UT Health Neurobiology and Anatomy Department *Houston, Texas*
- Analyzed the survival of neurons exposed to various chemotherapy drugs using R and ImageJ.

WORK EXPERIENCE

Temporary Software Engineer Summer 2017
OpenStax Connexions *Houston, Texas*
- Migrated textbook content between system versions using Python.
- Modified and accelerated the existing textbook search engine with PostgreSQL.

Product Engineering Intern Summer 2016
Texas Instruments *Santa Clara, California*
- Conducted a multiple-month study looking at the effects of chemical exposure on the HDC1080 humidity sensor with temperature sensor, and optimized existing LabView and NI TestStand programs in use at Texas Instruments.

Digital Media Assistant Fall 2014-Spring 2015
OpenStax Connexions *Houston, Texas*
- Worked on editorial and technical mark-up tasks related to OpenStax textbook production.
- Managed OpenStax textbook modules and their affiliated HTML and CSS.

LEADERSHIP EXPERIENCE

Attended CRA-W Grad Cohort Workshop Spring 2019

- Workshop encourages graduate women in computing to develop meaningful relationships with other graduate women, as well as mentors with similar experiences, and discusses how we can be advocates and leaders for women in computing.

President of SHElecs: Women in Electrical Engineering Fall 2016-Spring 2017

- Organizing lunch talks, networking events and outreach activities for female electrical engineering undergraduates at Rice.

Volunteer for DREAM Spring 2016

- Lead a team of high school students at Austin High School in Houston through a semester-long solar vehicle engineering project.

NOTABLE PROJECTS

Housing Price Prediction Using Images - Mia Polansky and Jeanette Jin Spring 2019

ES 201: Decision Theory *Cambridge, Massachusetts*

- Objective to improve Greater Massachusetts housing price predictions using Google Maps images.
- Combined autoencoded Google Maps images with other relevant features (location, square feet, etc.) in neural network that learned house sale prices. Performance maximized by iteratively training autoencoder network and price prediction network.
- Our results suggest that Google Maps contain meaningful information for real estate pricing.

L0 Optical Flow - Mia Polansky and Dor Verbin Spring 2018

AM 221: Advanced Optimization *Cambridge, Massachusetts*

- Goal to approximate the motion of objects, i.e. "optical flow", in two side-by-side video frames.
- We achieve more uniform optical flow fields than traditional methods by deriving and implementing L0 constrained optical flow.

PUBLICATIONS & PRESENTATIONS

"LITSCOPE: A portable and inexpensive approach to Fourier ptychographic microscopy."
Brian Brenner, John Haug, Morganne Lerch, Mia Polansky, Vinay Raghavan, Sujay Tadwalkar
Presented by Mia Polansky at Gulf Coast Undergraduate Research Symposium 2016.

"RedEye: Analog ConvNet Image Sensor Architecture for Continuous Mobile Vision"
Robert LiKamWa, Yunhui Hou, Julian Gao, Mia Polansky, Lin Zhong
ISCA '16: Proc. of the 43rd int'l symposium on computer architecture.

TEACHING EXPERIENCE

Teaching Fellow for BE 128: Medical Imaging Spring 2019
Help Session Instructor for ELEC 242: Fundamentals of Electrical Engineering II Spring 2017
Help Session Instructor for ELEC 301: Signals and Systems Fall 2016
Lab Assistant for ELEC 220: Fundamentals of Computer Engineering Spring 2016
Lab Assistant for ELEC 241: Fundamentals of Electrical Engineering Fall 2015

ADDITIONAL SKILLS AND INTERESTS

Languages: Fluent English, Business Spanish
Computer: MATLAB, Python**,** Arduino**,** Photoshop, Microsoft Word, Excel, ImageJ, CSS, JQuery, Javascript
Miscellaneous Interests: DSLR photography, Graphic design, Running, Food blogging