

BARUCH TABANPOUR

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EDUCATION

Columbia University

May 2015

MSc Applied Physics and Applied Mathematics

GPA: 3.87 / 4.00

Relevant Coursework: Machine Learning, Advanced Machine Learning, Statistical Mechanics

TA: Partial Differential Equations, Crystallography

The City College of New York, Macaulay Honors College

February 2014

Bachelor of Engineering in Electrical Engineering

Minor in Physics

GPA: 3.96 / 4.00, Rank: 1/152

WORK

Machine Learning Engineer – Squarespace

Feb 2017-Present

- Built python microservice framework with continuous deployment on Kubernetes for the the first machine learning models in production at Squarespace.
- Internationalized text based search models in 6 languages using machine translation ([blog post](#)).
- Trained image tagging and saliency detection models on 9M+ image datasets using multiple GPUs. The saliency model is being productionized for smart image cropping and style suggestions, and the image tagging models for SEO and accessibility.
- Created a functional wrapper around Luigi for sharing datasets and building models.
- Developed semantic search models for a variety of different products: template search, text to image search, and push notifications based on site traffic.

Data Scientist – ondeck

July 2015-Jan 2017

- Built fraud model with scoring service running in production, averting ~\$250k in fraud per quarter.
- Developed loss forecasting and time-to-default models based on payment and behavioral data.
- Performed AB tests for email campaigns and administered AWS instances used for modeling.

RESEARCH

Research Assistant – Columbia University

June-Aug 2015

- Experimenting with deep auto-encoders and the cost scaling algorithm for rotation invariant image representations with Prof. Tony Jebara.

Research Assistant – CUNY Laboratory for Nano and Micro Photonics

June-Oct 2013

- Researched strong coupling and energy transfer between Surface Plasmon Polaritons and excitons on Ag thin films.
- Developed MATLAB code to simulate and fit data with Transfer Matrix Method, Coupled Oscillator Model, Lorentz-Drude Model, and surface plasmon dispersion relations.

Summer Research Fellow – National Institute of Standards in Technology

May-Aug 2012

- Conducted spintronics research in the Electromagnetics Division, Magnetodynamics group.

Independent Study – CUNY Center for Advanced Technology

Dec-May 2012

- Built laser interlock system and researched literature on metamaterials for optical cloaking.

Research Intern – NASA Goddard Institute of Space Studies

May-Aug 2010

- Paleo-climatology and hydrology research in the Hudson River Valley.

PERSONAL PROJECTS

[varlp](#) – yet another reinforcement learning package in tensorflow for reproducible RL experimentation

[Joint image-text embeddings](#) - mapping images and text into the same space using CCA

[Intro-to-Reinforcement-Learning](#) - full solutions to Introduction to RL by Sutton & Barto

[sinkhorn-knopp](#) - implementation of Sinkhorn Knopp algorithm

[Handwritten-generation](#) - implementation of handwritten generation with RNNs

[climatechangebot](#) - climate change chatbot

POSTERS/PRESENTATIONS

Tabanpour, B., X. Liu, V.M. Menon, Strong Coupling Between Surface Plasmon Polaritons on Ag and Excitons in Rhodamine, *CSURP Poster Session*, 2013.

<http://www1.cuny.edu/mu/research/2014/01/22/c-surp-spotlight-baruch-tabanpour-city-college-of-new-york/>

Tabanpour, B., E. Evarts, M. Pufall, B. Rippard, Resonance Phenomena in Magnetic Thin Films and Devices. *Summer Research Fellowship Colloquium*, 2012.

Tabanpour, B., J.E. Nichols, P.D. Isles, D.M. Peteet, Novel Method for Estimating Variations in Salinity in the Hudson Estuary Using Stable Isotopes of Leaf Waxes. *American Geophysical Union Fall Meeting*, 2010.

<https://www.giss.nasa.gov/edu/nycr/research/files/2010/10-GISS-Tabanpour.ppt>

Nichols, J.E., D.M. Peteet, C.M. Moy, B. Tabanpour, P.D. Isles, Links Between the Hydrological Cycle and Carbon Cycle Constrained with Stable Isotope Ratios of Leaf Waxes in an Alaskan Peatland, *American Geophysical Union Fall Meeting*, 2010.

TOOLS

- Daily work: Python, Tensorflow, Spark
- Infrastructure: Kubernetes, Docker, Drone, Consul/Prometheus, HDFS, S3
- Familiar: R, MATLAB, Theano, JavaScript/jQuery, HTML/CSS

AWARDS & AFFILIATIONS

Morin Foundation Engineering and Science Scholar at Macaulay Honors College, 2012

NIST Summer Undergraduate Research Fellowship, 2012

Brooklyn Technical High School Scholarship, 2009-2013

Association of the Old Crows Scholarship, 2011

Major Schultz 1925 Award for Outstanding Achievement in Engineering, 2009

Co-organizer, Cornell/Columbia Data Science Hackathon, March 2015

Secretary and Treasurer, Eta Kappa Nu Beta Pi Chapter, Honor Society of the IEEE, 2011-2013

ONLINE COURSEWORK

Deep Reinforcement Learning - UC Berkeley

Fall 2017

<https://github.com/btaba/homework>

Probabilistic Graphical Models - Coursera

Fall 2016

Convolutional Neural Networks for Visual Recognition - Stanford

Spring 2015