

# JoshuaFriedman PhD

Data Scientist

## contact

545 1<sup>st</sup> Ave; Apt 2F  
New York, NY 10016

josh.nmr@gmail.com✉  
+1 (213) 537 4331☎

**Github:** jfried23

-DNA analysis package  
-MRI analysis package  
-PDB manipulation package

## machine learning

logistic regression  
random forest  
pca  
naïve bayes  
neural network  
k-means clustering

## science

computational biology  
magnetic resonance  
synthetic biology  
dna damage repair

## recognition

placed in top 4% of  
~1000 "data incubator  
program" applicants

## programming

**python:** pandas, scikit-learn, numpy, scipy, flask, matplotlib, cython  
**database:** postgresSQL / postGIS (Geospatial), mongodb, json, hdf  
**matlab:** signal processing, optimization toolbox  
**web:** html, javascript, d3.js | **general:** git, regex, linux, scala, c++

## experience

- 2013–Now **NYU Langone Medical Center** New York, NY  
*Department of Radiology*
- Developed memoized algorithms providing 10x speed-up in the numerical simulation of magnetization transfer in-vivo, allowing real-time optimization of MRI experiments.
  - Implemented L1-norm reconstruction algorithms reducing MRI data acquisition time 50%.
  - Authored fitting package for MATLAB & Python/Cython that uses L-BFGS-B to extract model dependent parameters from experimental data.
- 2014–2015 **Department of Defense -- Research Directorate** Washington, DC  
*Science & Technology Policy Fellow AAAS*
- Helped to secure \$400 million for bilateral research in quantum science & technology with the United Kingdom Ministry of Defence.
  - Briefed senior DoD officials on synthetic biology, quantum science, and compressive sensing.
- 2011–2013 **University of Washington** Seattle, WA  
*Institute for Protein Design*
- Developed Naïve Bayes & Simulated Annealing optimization routines in C++ for the commercial protein structure prediction package ROSETTA.

## independent projects (selected)

**NYC Taxi** Geospatial analysis on 28 Gb of NYC taxi trip records. [Link to analysis.](#)  
**Kaggle Homesite Insurance** Engineered features and trained AdaBoost classifier to predict home insurance sales scoring 95.8% on public leaderboard.

## education

- 2005–2011 **PhD Biophysics** Johns Hopkins University  
Authored 8 research publications (Nature, Biochemistry, JACS, *et al.*) and a book chapter on DNA repair | Received US patent for MRI technology that is now found on commercial MRI scanners.
- 2001–2005 **BS Biochemistry & Molecular Biology** Pennsylvania State University