

# GEOFFREY NEWMAN, PhD

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## EDUCATION

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- Johns Hopkins University (JHU)** *2008 - 2016*  
PhD, Biomedical Engineering  
Dissertation: "Network Modeling of Motor Pathways from Neural Recordings"
- City College of New York (CCNY)** *2004 - 2008*  
Bachelor of Engineering, Biomedical Engineering (Magna Cum Laude)  
Minor: Applied Mathematics

## EXPERIENCE

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- Data Science Fellow** (The Data Incubator) – New York *2015*  
Intensive two month training program in data science with an acceptance rate below 2%
  - Scraped event photograph albums from [newyorksocialdiary.com](http://newyorksocialdiary.com) to form a weighted network of 102k socialites appearing together based on the captions
    - Performed name-entity-recognition and determined well-connectedness with **PageRank**
  - Determined the distribution of links across titles on the 12.2 GB English Wikipedia (5M articles) using **MapReduce**, as well as the entropy of **n-grams** across simple English and Thai languages
- Research Assistant** (Brain Computer Interface) – JHU *2008 - Present*
  - Employed **signal processing** and **graph theory** techniques to the field of neuroscience
    - Applied **time-varying connectivity** models to quantify the flow of neural information
    - Found functional units of neural computation using **Eigenspectral clustering**
  - Utilized **machine learning** methods to predict movement intent from neural recordings
    - Decoded movement kinematics from spiking activity of neural clusters
  - Improved code run-time by implementing **parallelization** and deploying on a 96-node cluster
- Research Assistant** (Eye Movement and Vision) – CCNY *2006 - 2008*
  - Investigated movement planning of saccades via eye tracking data and non-invasive neural recordings

## PROJECTS

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- Baltimore Tax Credit Map** *2015*  
[www.baltimoretaxcredit.com](http://www.baltimoretaxcredit.com) *Created at HopHacks*
  - Designed an **interactive online visualization** of eligibility and claims for the Maryland homeowners' tax credit to help inform Baltimore residents
  - Produced an **API** with Flask to hot-link each home on the map to its tax record
  - **Awards: First place overall**, best user experience (sponsored by Mission:Data), best use of Baltimore open data (sponsored by Booz Allen Hamilton)
- Product Suggestion Service** - Suggests products relevant to a user provided description
  - Assigns a similarity score for each existing product to the search query from the text of 581,933 reviews

## MERITS AND TECHNICAL STRENGTHS

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| <b>Honors and Awards</b>             | NIH Neuroengineering Training Fellowship (2008-2010)<br>Howard Hughes Undergraduate Research Award (2008)<br>Whitaker Foundation Research Scholarship (2004-2008) |
| <b>Programming Languages</b>         | Python, Matlab, C++, Java, LaTeX, HTML, SQL   |
| <b>Computer Systems and Software</b> | Linux, Node.js, Qt, Photoshop, Cloud computing, Git   |