Jacob D. Marold, Ph.D.

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	⚙ github.com/xtremejake	▤ stackoverflow.com/users/4852245/xtremejake

Education

Ph.D. Molecular Biophysics, *Johns Hopkins University, GPA: 3.65*   2015
B.S. Biochemistry and Molecular Biology, *University of Minnesota, with distinction, and Cum Laude, GPA: 3.74*   2009
B.A. Chemistry, *University of Minnesota, Magna Cum Laude, GPA: 3.74*   2009

Technical Skills

Languages: Python, SQL, NoSQL, HTML5, CSS, Matlab, Mathematica, Javascript, Scala*
Tools : Natural Language Processing, NLTK, Doc2Vec, Word2Vec, H2O.ai, VoiceRecognition, Pandas, NumPy, SciPy, SymPy, lmfit, BeautifulSoup, RegEx, MultiProcessing, SciKit-Learn, NetworkX, NLTK, MRJob, Hadoop*, LATEX, Bash*, Elasticsearch, Data Visualization (Vincent, D3, Matplotlib), expert in Microsoft Powerpoint, Excel, and Word, (*) familiar with

Experience

Data Scientist, *J.P. Morgan Chase & Co. - J.P. Morgan Intelligent Solutions (JPMIS)*
New York, NY   November 2015 - Present

- Analysis of textual data using Natural Language Processing (NLP)
- Parsing, part-of-speech tagging and metadata extraction from documents
- Supervised, Unsupervised, Semi-Supervised classification and clustering of documents
- Machine learning classification of documents - Neural Network and Deep Learning language techniques, K-neighbors, K-means, Random Forest, Logistic Regression, SVM
- Anomaly and outlier detection algorithm development

Data Science Fellow, *The Data Incubator*, Washington, DC   April 2015 - October 2015

- Selected in top 2% from over three thousand PhD applicants based on statistical knowledge, programming ability, and data analysis skill-set
- Developed Yelp Business Ratings Predictor - Empowered businesses to intelligently build successful branch locations using a custom machine learning algorithm predictive model (70% Accuracy)
- Built NYC Restaurant Inspection Grade Predictive Model - Successfully predicted (80% Accuracy) outcomes of NYC restaurant inspections to help businesses receive "A" inspection grades.
- Constructed a Network Graph of the NYC Social Diary - developed custom web-scraper to crawl data from NYC Social Diary photograph captions to build a complex network graph of social interactions
- Analyzed >10GB Wikipedia corpus using various NLP techniques

Molecular & Computational Biophysicist, *Johns Hopkins University - Department of Biophysics*   2009 - 2015

- Developed and applied novel statistical thermodynamic model for enhanced multi-component Ising (Nearest-Neighbor) analysis

- Built computational platform for global non-linear regression and analysis of equilibrium and time-series biophysical data. Experience using multiple mathematical algorithms (Levenberg-Marquardt, Simulated Annealing, Monte-Carlo, Simplex) in minimization routines
- Improved error and confidence interval analysis using superior statistical sampling techniques (Bootstrapping, F-Statistics, Monte-Carlo)
- Determined electron density and constructed structure of unknown protein molecule using X-ray Crystallography

Independent Data Science Projects

- Analyzed 8GB of Centers for Medicare and Medicaid (CMS) Provider Utilization and Payment Data by regional networks to view cost distribution for services
- Created CapitalOne Credit Risk Predictive Model - Predicted credit risk of applicants using over 250 numerical and categorical features

Publications

- Marold JD, Kavran JM, Bowman GD ,and Barrick D, "A Naturally Occurring Repeat Protein with High Internal Sequence Identity Defines a New Class of TPR-like Proteins". *Structure*. 2015 Nov 3;23(11):2055-65. doi: 10.1016/j.str.2015.07.022.
- Westholm DE, Marold JD, Viken KJ, Duerst AH, Anderson GW, Rumbley JN, "Evidence of evolutionary conservation of function between the thyroxine transporter Oatp1c1 and major facilitator superfamily members". . 2010 Dec;151(12):5941-51. doi: 10.1210/en.2010-0640.
- Ebie Tan A, Burgess NK, DeAndrade DS, Marold JD, Fleming KG, "Self-association of unfolded outer membrane proteins". Biosci. 2010 Jul 7;10(7):763-7. doi: 10.1002/mabi.200900479.

Leadership and Professional Presentations

- Conference Speaker - 59th International Biophysical Society Meeting
- Organizing committee member and speaker - NSF Protein Folding Consortium
- Conference co-organizer - Institute for Biophysical Research
- Co-founder - Johns Hopkins University Computational Graphics Club

Interests   Guitar, Beach Volleyball, Weight Lifting, Bowling, Biking, Traveling