Adrian Lam

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EDUCATION

Ph.D., Bioengineering December 2015
Dept of Biomedical Engineering, Georgia Institute of Technology Atlanta, GA
Minor: Digital Signal and Image Processing
Cumulative GPA: 3.72

B.S., Biomedical Engineering June 2010
Dept of Biomedical Engineering, University of California, Davis Davis, CA
Cumulative GPA: 3.84, *cum laude*

WORK EXPERIENCE

Graduate Research Assistant Aug 2010 – Dec 2015
Georgia Institute of Technology Atlanta, GA

Patient Selection for Pacemaker Therapy

- Clustered pixel intensities on cardiac MR images to automatically quantify cardiac health and classify regions of myocardial scar (500MB - 2GB/patient)
- 3D models and 2D projections used to optimize and guide interventional therapy for electrophysiologists
- Results can pre-select patients most likely to benefit from a pacemaker and help guide the implantation procedure

Finding the Origins to Life

- Led a cross-disciplinary team of engineers to isolate precursors of self-replicating life using MATLAB
- Extraction of top 100 most relevant molecules from 32,000 images achieved in seconds with matrix factorization (PCA, NMF) and image correlation techniques

Data Science Fellow June 2015 – Aug 2015
The Data Incubator San Mateo, CA

Intensive, 7-week data science bootcamp with < 2% acceptance rate that equips scientists and engineers with advanced degrees the tools to extract predictive capabilities from “big data”

Generic Drug Release Forecasting

- Munged FDA drug database (90k rows) into SQL to match brand name drugs to generic name counterparts
- Regression performed to predict generic drug launch date from vectorized pharmaceutical class and brand name release date
- Time-series analysis and matrix factorization used to find seasonality trends in generic drug launches
- Results are capable of improving monthly sales forecast and predicting upcoming product introductions

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The Data Incubator San Mateo, CA

Predictive Yelp Modeling

- Developed web scraper to automatically harvest Yelp reviews from user-specified parameters
- Bag-of-words model allowed clear differentiation of five-star from one-star reviews illuminated unique characteristics only found in quality restaurants
- TF-IDF and word bigrams used to predict star ratings based on user reviews
- Vectorized restaurant attributes to build K-Nearest Neighbors model and predict restaurant ratings with cross-validated ridge regression

MapReduce for Distributed Computation

- Used Hadoop MapReduce to calculate Shannon entropy of English and Thai language from a 1GB portion of Wikipedia with Amazon Web Services
- Analyzed Wikipedia link relationships by developing a network of links separated by one degree
- Apache Spark used to evaluate user post statistics and user reputations from a 5GB segment of StackOverflow

SELECTED PUBLICATIONS

- Lam A et al. “Performance of 3D, Navigator-Echo Gated, Contrast-Enhanced, Magnetic Resonance Coronary Vein Imaging in Patients Undergoing CRT.” *Journal of Interventional Cardiac Electrophysiology* 41.2 (2014): 155-160.
- Lam, A., et al. "Postsurgical hemodynamics of the aortic valve bypass operation evaluated with phase contrast magnetic resonance." *Journal of Magnetic Resonance Imaging* (2013).

AWARDS & FUNDING

Travel Grant Recipient, SMRA	2015
Winner of ATL Innovation Economy College Challenge	2014
Frontiers of Biomedical Imaging, Young Investigator Award	2013
American Heart Association (AHA) Predoctoral Fellowship	2012 – 2014
NIH T32 Imaging Training Grant	2010 – 2012

TECHNICAL SKILLS

Operating Systems: Windows, Linux
Programming Languages: MATLAB, Python, SQL, C++, Javascript, Java
Software Packages/Framework: Hadoop, Spark, D3, Git, Adobe Illustrator/Photoshop, Office

PERSONAL

BGA Member: Lead science enrichment activities for K-12 students
ALTA Tennis: Winner of AA-4 division, capable of hitting kick serves that bounce ~6 feet high
Poi: Performance art for creating rhythmic, geometric patterns and illusions using light