

# Aaron Gonzales

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## selected research/work experience

### Data Scientist Intern, TripAdvisor

Summer 2015

*Greater Boston Area, MA*

#### summary:

Data scientist intern with the Vacation Rentals team under George Bezerra, PhD. Developed a predictive model that included a novel ranking system for 720,000+ rental properties and used gradient-boosting machines to predict how well new properties will perform.

#### notable accomplishments:

- The model was built with approximately 5 terabytes of web traffic history using Hive, Python, pandas, and scikit-learn
- The model scales with millions of daily visitors and self-tunes to fluctuations in visitor usage patterns
- A/B testing showed that the model **increased a key visitor conversion rate by 3.46%** and **decreased visitor bounce rate by 0.46%**
- A/B testing showed that integrating the model with another model **increased revenue per visitor by 9.57%**
- The model is now in production across all of TripAdvisor Vacation Rentals' sites

### Research Assistant, The University of New Mexico

2015—current

*Albuquerque, NM*

#### summary:

Research assistant for Dorian Arnold, PhD, in the Scalable Systems Lab. I am investigating high-performance computing resource monitoring strategies using data science. We are collaborating with Los Alamos National Laboratory and the Center for Advanced Research Computing.

### Analyst/Programmer, The University of New Mexico

2011—2014

*Albuquerque, NM*

#### summary:

Lead analyst in a neuroscience research lab run by Elaine Bearer, MD—PhD, managing various research projects and lab members.

#### notable accomplishments:

- Streamlined lab data processing and analytical techniques, resulting in a 100x (3 hours manually → 30 seconds) reduction on time spent in critical image preprocessing steps and numerous batch processing steps for other tasks
- Designed, ran, and analyzed a pilot study that was instrumental for landing a \$2.7 million dollar NIH R01 grant to study the etiology of post traumatic stress disorder via neuroimaging and genetics using transgenic mouse models
- Authorship on 10 total conference posters, conference presentations, and journal articles
- Trained and mentored 10 undergraduate and postbaccalaureate student employees and volunteers

## education

### Master of Science, Computer Science

2014—2016 (expected)

*The University of New Mexico*

3.8 cumulative GPA

Concentrating in data mining and machine learning.

### Bachelor of Science, Psychology

2010

*The University of New Mexico*

Concentrated in neuroscience and minored in computer science.

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## computer skills

### programming languages, notable libraries, and tools

Java, **R** (caret, ggplot2, plyr), Python (scikit-learn, gensim, matplotlib, pandas, statsmodels, Cython, sqlalchemy), C, bash,  $\text{\LaTeX}$ , git, svn, MongoDB, Hadoop, Hive, SQL (Postgres, MSSQL). Some experience with Javascript, HTML, CSS, D3.js, C++, Matlab, and Amazon Web Services (EC2, S3, Redshift).

### data science techniques

data munging, supervised learning (random forests, gradient boosting, neural networks, regression, SVMs), unsupervised learning (autoencoders, self-organizing maps, DBSCAN, k-means/mediods, EM), outlier analysis, novelty detection, time-series analysis, dimensionality reduction, and feature selection.

### software packages and operating systems

Linux (Ubuntu/CentOS), Microsoft Windows, Apple OS X, VirtualBox, Adobe Illustrator, Adobe InDesign, Adobe Photoshop, Amira, ImageJ, MIPAV, SPM8, FSL, NiftyReg, and MetaMorph.

## selected publications

### articles in peer-reviewed journals

A simple, rapid process for semi-automated brain extraction from magnetic resonance images of the whole mouse head

Adam Delora\*, **Aaron Gonzales**\*, Christopher S Medina, Adam Mitchell, Abdul Faheem Mohed, Russell E Jacobs, Elaine L Bearer  
*Journal of Neuroscience Methods* (2015). \* - these authors contributed equally

Quantitative measurements and modeling of cargo–motor interactions during fast transport in the living axon

Pamela E Seamster, Michael Loewenberg, Jennifer Pascal, Arnaud Chauviere, **Aaron Gonzales**, Vittorio Cristini, Elaine L Bearer  
*Physical Biology* 9.5 (2012) p. 055005

### conference proceedings

Unbiased comprehensive analysis of neural activity in response to fear with in vivo MR imaging of animal models of PTSD

**A. Gonzales**, A. Delora, R. E. Jacobs, E. L. Bearer  
*2014 Neuroscience Meeting Planner*, 2014, Washington, DC

Aging deficits in axonal transport are exacerbated by abeta plaques: An MEMRI study

**A. Gonzales**, J. J. Gallagher, X. Zhang, R. E. Jacobs, E. L. Bearer  
*2013 Neuroscience Meeting Planner*, 2013, San Diego, CA USA

Live imaging of mesolimbic circuitry and activity in transgenic mouse models of post-traumatic stress by manganese-enhanced mri

**A. Gonzales**, J. J. Gallagher, X. Zhang, R. E. Jacobs, E. L. Bearer  
*2012 Neuroscience Meeting Planner*, 2012, New Orleans, LA USA

## other interests/accolades

### Olympic Weightlifting

- 2014 New Mexico Games: Gold Medalist, 94kg class
- 2013 New Mexico Games: Silver Medalist, 85kg class
- 2013 Barnholth Memorial Invitational: Silver Medalist, 85kg class