

# Aaron Gonzales

## resume

### contact

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87106  
in ,

**programming  
at a glance**  
Java, Python, R

### about

I enjoy developing tools  
and methods to solve  
problems arising  
from complex systems.

### education

#### Master of Science, Computer Science

2014–2016 (expected)

*The University of New Mexico*

Concentrating in data science applied to online natural language processing and semantic analysis using collected data from social media websites.

#### Bachelor of Science, Psychology

2010

*The University of New Mexico*

Concentrated in neuroscience with a minor in computer science.

### selected research/work experience

#### Analyst/Programmer

2011–2014

*The University of New Mexico, 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
- Major contribution to 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
- Lead author on five research papers (one submitted, four nearing submission), three conference abstracts and presentations, coauthor on many more submitted and pending papers and abstracts
- Trained and mentored 10 undergraduate and postbaccalaureate student employees and volunteers

### computer skills

#### programming languages, notable libraries, and tools

Java, R (caret, ggplot2), Python (scikit-learn, gensim, matplotlib, pandas), linux shell scripting,  $\text{\LaTeX}$ , git, MongoDB, map/reduce. Some experience with Javascript and C/C++.

#### software packages and operating systems

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

### selected publications

#### articles in peer-reviewed journals

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. 2012

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## 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

## manuscripts in preparation

The RESTORE Registry: The Initial United States Experience with Lower Extremity Revascularization on Real World Patients with the Supera Stent

Miguel Montero-Baker, **Aaron Gonzales**, Gregory Ziomek, Luis R Leon Jr, Joseph L Mills, John P Pacanowski Jr  
*2014, submitted*

Stripping rodent brain images by automation: Empowering rodent models for investigation by magnetic resonance imaging

Adam Delora\*, **Aaron Gonzales\***, Russell E Jacobs, Elaine L Bearer  
*\* - these authors contributed equally, 2014, submitted*

*In-vivo* Imaging of fear pathways in mice: an MEMRI method

**Aaron Gonzales**, Adam Delora, Xiaowei Zhang, Russell E Jacobs, Elaine L Bearer  
*2014*

## favorite courses

### Data Mining

Graduate introduction to data mining from both a theoretical and practical perspective including data cleaning, dimensionality reduction, classification (e.g. Bayes, boosting, bagging, random forests), clustering (e.g. density-based, co-clustering, subspace), machine learning, time-series mining, and graph mining. Course project involves latent dirichlet allocation and other semantic analysis of 86 million captured tweets to forecast economic movements.

### Computational Linguistics

Theoretical and practical introduction to semantic analysis, models of languages, speech synthesis, hidden Markov models, and other topics. Semester group project augmenting a computational humor system with a feed-forward neural network and n-gram query filter system to enhance output.

### Advanced Data Analysis I/II

Graduate statistics with a focus on practical analysis using **R**. Topics included linear, logistic, and polynomial regression, non-parametric methods, cluster analysis, PCA, multivariate methods, experiment design and visualization.

## 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

UNM Mountaineering Club President; 2007-2008