AaronGonzales

resume

contact

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programming at a glance

Java, Python, R

about

I enjoy devloping tools and methods to solve problems arising from myriad 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 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, 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*

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 Revascualarization 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