

aaron gonzales

curriculum vitae

contact

505.750.2214
1332 Vassar NE
Albuquerque, NM
87106

agonzales@cs.unm.edu

LinkedIn

programming at a glance

Java, Python, R, C,
Bash

about

I enjoy using computer science to solve emergent problems in our world.

education

- 2016 **Master of Science**, Computer Science University of New Mexico
Specializing in Data Mining and Machine Learning
- 2010 **Bachelor of Science**, Psychology University of New Mexico
Specialized in Neuroscience with a minor in Computer Science

research/work experience

- 2011–2014 **University of New Mexico, Albuquerque, NM —Supervisor: Elaine Bearer, MD–PhD Analyst/Programmer**
Senior analyst in a neuroscience research lab in the School of Medicine working on and managing various projects.
primary duties:
Analyzing scientific data, primarily manganese-enhanced magnetic resonance imaging (MEMRI) data taken from transgenic mice, vesicular cargo transport in axons, DNA methylation, and histological microscopy. Analysis methods included statistical parametric mapping, extensions of the general linear model, data visualization, and modeling. Writing programs and scripts to automate or facilitate analysis that can be used by other lab members for analysis on their projects. Implementing reproducible research methods and documentation. Developing methods to expedite research capacity.
other duties:
Preparing scientific posters, presentations, and manuscripts, assisting with grant writing, database searching, and study design. Training, instructing, and managing both student employees and volunteers at various levels of training (e.g., early undergraduate, late undergraduate, postbaccalaureate, and graduate).
- 2010–2011 **The Mind Research Network, Albuquerque, NM —Supervisor: Julia Stephen, PhD Research Associate**
Worked on a study investigating multi-sensory integration in patients with schizophrenic and healthy normal volunteers.
duties:
Acquiring data by scanning research subjects using both functional magnetic resonance imaging (fMRI) and magnetoencephalography (MEG), writing programs and scripts to automate analysis tasks, participant payment, data analysis.

research internships

- 2008-2010 **The Mind Research Network, Albuquerque, NM —Supervisor: Pilar Sanjuan, PhD**
Student Volunteer
 Assisted with a study investigating substance use disorders and post-traumatic stress disorder (PTSD) in recently returned combat veterans.
duties:
 Recruiting, entering data, constructing SPSS databases, scoring measures, analyzing data, editing fMRI and MEG tasks in Presentation; running research participants in fMRI, running participants in the MEG scanner; phone screening participants, some analysis of fMRI image data; tracking and reviewing pre-processing of imaging data.
- 2008 **University of New Mexico, Albuquerque, NM —Supervisor: Akaysha Tang, PhD**
Student Volunteer
 Assisted with a study investigating stress regulation in rats and assisted an expert in troubleshooting and repairing an EEG system for a study investigating stress in humans.
duties:
 Collecting, coding, and entering data, gathering literature for a grant proposal, testing and analyzing EEG equipment, contacting equipment vendors, replacing computer components, diagnosing and rebuilding workstations.

consulting work

- 2014 **Pima Vascular**
Statistical Consultant
 Analyzed data from a clinical trial for a novel stent used in vascular surgery. Analysis included data munging, visualization, Cox Proportional Hazard modeling, and reproducible reporting using **R**.
- 2014 **Fame4good.com**
Social Media Consultant
 Tested and analyzed advertisements as they affected goal conversions and website traffic.

computer skills

programming languages and tools

MATLAB, Java, **R**, C, Python, bash, Knitr, \LaTeX , git

software packages and operating systems

General

Linux (Ubuntu/CentOS), Microsoft Windows, Apple OS X

Specialized

Adobe Illustrator, Adobe InDesign, Adobe Photoshop, Amira, ImageJ, MIPAV, SPM8, FSL, NiftyReg, MetaMorph

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

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

Imaging functional anatomy in the brain of mouse models of human disease

Elaine L Bearer, Joseph J Gallagher, **Aaron Gonzales**, Russell E Jacobs

Alzheimer's & dementia : The journal of the Alzheimer's Association, 2013

Measurements and modeling of axonal transport: Amyloid precursor protein wins over negative charge in the race to the synapse

J. Pascal, M. Loewenberg, **A. Gonzales**, V. Adair, EL Bearer

Mol. Biol. Cell, 23,4663, abstract 1984, 2012, New Orleans, LA 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

Imaging functional anatomy in the brain of mouse models of human disease

Elaine L Bearer, Joseph J Gallagher, **Aaron Gonzales**, Russell E Jacobs

FASEB Journal 26, 2012

Auditory and visual integration differences from left temporal cortex in schizophrenia

J. M. Stephen, L. Urrea A. Geeda, L. Romero, **A. Gonzales**, C. J. Aine, J. Bustillo

2010 Neuroscience Meeting Planner, 2010, San Diego, CA USA

Good stress regulator begets good stress regulator: Predicting offspring stress regulation from maternal stress regulation

A. C. Tang, Z. Yang, R. D. Romeo, A. Chen, A. Plakio, D. Delvecchio, V. Nguyen, Y. Zhang, J. Youngblood, **A. Gonzales**, B. S. McEwen

2009 Neuroscience Meeting Planner, 2009

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

Functional circuitry is perturbed in a mouse model of PTSD

Aaron Gonzales, Adam Delora, Xiowei Zhang, Russell E Jacobs, Elaine L Bearer

2014

Functional circuitry is preserved in the presence of heavy Abeta plaque load

Aaron Gonzales, Adam Delora, Frances Chavez, Xiowei Zhang, Russell E Jacobs, Elaine L Bearer

2014

A large-scale investigation into live functional circuitry in murine models of Alzheimer's disease

Aaron Gonzales, Adam Delora, Frances Chavez, Xiowei Zhang, Russell E Jacobs, Elaine L Bearer

2014

relevant coursework

statistics

Advanced Data Analysis I - Graduate statistics with a focus on practical analysis using **R**. Topics included linear regression, non-parametric statistics, literate programming, and general linear methods.

Advanced Data Analysis II - Continuation of ADAI. Topics include cluster analysis, principal component analysis, multivariate methods, logistic and polynomial regression, experimental design, visualization, and efficient code using **R**.

computer science

Computational Linguistics

Data Structures

Algorithms

Software Engineering

Artificial Intelligence

psychology

Neuroimaging, Research Methods

other interests/accolades**personal**

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