

Aaron Gonzales

curriculum vitæ

{aaron@aarongonzales.net, 505.385.9209, aarongonzales.net}

Summary

Data and machine learning professional with a blend of statistics, machine learning, engineering, research, and leadership skills who is comfortable working across the machine-learning lifecycle.

Experience



Senior Machine Learning Research Engineer, Twitter

June 2020 –current

Remote - USA

Tech Lead for the Machine Learning Ethics, Transparency, and Accountability (META) team tasked with Responsible Machine Learning development and research at Twitter.

- Served as a technical lead and provided process improvement, technical guidance, roadmap planning, and organization-wide improvements.
- Designed and built a data collection system that would eventually automate team measurement and impact projects going forward. Reduced time for future similar research projects from months of manual effort to < 1 week
- Led workstream to design and build tools for machine learning practitioners to identify weaknesses in model performance that have been used internally by multiple teams
- Presented at conferences (ACM FAccT, The Data Science Conference) about building and scaling an applied ML research team
- Contributes to company working groups around Python development, data architecture, and Latinx employee support.



Senior Data Scientist, Twitter

May 2019 –June 2020

Boulder, CO

- Tech Lead for the Health data science team, which focuses on on anti-abuse, spam, fake accounts, and misinformation problems at Twitter.
- Built a model to detected accounts that are potentially compromised
- As tech lead, provided process improvement, technical guidance, roadmap planning, and organization-wide improvements.
- Formed team to develops tooling, education, processes, and relationships with peer teams to make doing data science at Twitter better for all.
- Served as a Global Lead for Twitter's Alas BRG for Hispanic and Latinx employees, serve on company-wide organizations, and as a co-chair for our Latinx engineers group at Twitter.



Data Scientist, Twitter

July 2017 –May 2019

Boulder, CO

Worked with the Developer and Enterprise Solutions group to help improve Twitter's developer platform, vet new product ideas, and make datasets that enabled teams to generate insights and make decisions quickly.

- Developed an open-source python API for our premium and enterprise search products (see the Search Tweets Python link to Github for more info) which has been downloaded and used many thousands of times.
- Led project to provide real-world examples using Twitter data ton and support developers and data scientists to build their own solutions with Twitter data products. See the Do more with Twitter data series links for more info.
- Identified clusters of applications abusing Twitter's APIs using time-series mining
- Identified risk factors in developer applications to enable programmatic review of applications to use Twitter APIs.



Data Scientist, TripAdvisor

Greater Boston Area, MA

July 2016–July 2017

- Designed and built a computer vision system that includes models to detect people, content (e.g., beach, bedroom, kitchen), and rate aesthetic quality.
- Computer vision system lead to immediate 4.8% increases in primary click-through rate and a 10.4% increase in return on ad spend. It was broadly adopted for other purposes across TripAdvisor.
- Built an app that enables natural-language queries (e.g. "girls getaway") to find collections of destinations, which led to a 6.1% improvement in a primary metric and was used by many teams.
- Developed methods to extract high-information snippets from reviews to display on search-result pages to boost SEO rankings.
- Developed a common team codebase providing shared tools, common access methods, and other utility code that allowed our data scientists and engineers to get up-to-speed more quickly and iterate faster on projects.



Data Scientist Intern, TripAdvisor

Greater Boston Area, MA

Summer 2015

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

- The model scaled 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 into rankings helped **increase revenue per visitor by 9.57%**
- The model was put into production across all of TripAdvisor Vacation Rentals' sites

Research Assistant, The University of New Mexico

Albuquerque, NM

2015–2016

Research assistant for Dorian Arnold, PhD, in the Scalable Systems Lab. We partnered with both Los Alamos National Laboratory and the Center for Advanced Research Computing to investigate applying data science techniques to understand complex high-performance system behavior.

Analyst/Programmer, The University of New Mexico

Albuquerque, NM

2011–2014

summary:

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

- Streamlined lab data processing and analytical techniques, including a method that speed up a critical data processing step by approximately 360x (3 hours to 30 seconds). Implemented numerous other batch data processing steps for other tasks.
- Designed and conducted a pilot study that helped win a \$2.7 million dollar NIH R01 grant to study the etiology of post traumatic stress disorder.
- Lead author on several research papers, three conference abstracts and presentations, coauthor on many more submitted and pending papers and abstracts
- Trained and mentored 10 undergraduate and graduate student employees and volunteers

Research Associate

The Mind Research Network, Albuquerque, NM

2010–2011

summary:

RA in a neuroscience research group ran by Julia Stephen, PhD. Contributed to a study investigating multi-sensory integration in patients with schizophrenia.

Student Volunteer

The Mind Research Network, Albuquerque, NM

2008–2010

Assisted with a study ran by Pilar Sanjuan, PhD investigating substance use and post-traumatic stress disorder (PTSD) in recently returned combat veterans.

Student Volunteer

2008

The University of New Mexico, Albuquerque, NM—

Assisted Akaysha Tang, PhD, 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.

Education

Master of Science, Computer Science

2016

The University of New Mexico

3.7 cumulative GPA

Concentration in data mining and machine learning.

Bachelor of Science, Psychology

2010

The University of New Mexico

Concentration in neuroscience; minored in computer science.

Publications

Articles In Peer-Reviewed Journals

Measuring disparate outcomes of content recommendation algorithms with distributional inequality metrics

Tomo Lazovich, Luca Belli, **Gonzales, Aaron**, Amanda Bower, Uthaipon Tantipongpipat, Kristian Lum, Ferenc Huszár, Rumman Chowdhury

Patterns (N Y) 3.8 (Aug. 2022) p. 100568. Elsevier BV

Alterations of functional circuitry in aging brain and the impact of mutated APP expression.

Elaine L Bearer, Brett C Manifold-Wheeler, Christopher S Medina, **Aaron Gonzales**, Frances L Chaves, Russel E Jacobs

Neurobiol. Aging 70 (Oct. 2018) pp. 276–290

Unraveling Network Induced Memory Contention: Deeper Insights with Machine Learning.

Taylor L Groves, Ryan E Grant, **Aaron Gonzales**, Dorian Arnold

IEEE Transactions on Parallel and Distributed Systems 29.8 (Aug. 2018) pp. 1907–1922

Automated computational processing of 3D MR images of mouse brain for phenotyping of living animals.

C S Medina, B Manifold-Wheeler, **A Gonzales**, E L Bearer

Curr Protoc Mol Biol 119.29A (July 2017) pp. 1–29

Analysis of endovascular therapy for femoropopliteal disease with the Supera stent

Miguel Montero-Baker, Gregory Ziomek, Luis Leon, **Aaron Gonzales**, Robert S Dieter, Crystal L Gadd, John P Pacanowski Jr

Journal of Vascular Surgery 64.4 (2016) pp. 1002–1008

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

A Principled Approach to HPC Monitoring

A. Gonzales, Michael Mason, Prabhu Khasla, Abdullah Mueen, Dorian Arnold

4th Workshop on Extreme-Scale Programming Tools at Supercomputing 2015, Austin, Texas

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

Axonal transport is altered in aging mice with and without plaques induced by overexpression of human APP

E.L. Bearer, **A. Gonzales**, F. Chavez, R. E. Jacobs

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

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

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

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

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

Other Interests and 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