Aaron Gonzales

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Machine learning professional who blends responsible machine learning, engineering, research, and leadership skills to solve problems.

Staff Machine Learning Engineer, Mozilla.ai   April 2023—current

Remote —USA

Mozilla.ai is a brand-new company funded by the Mozilla Foundation with a mission to make developing trustworthy AI easier. Hired to be the lead engineer and help build the entire technical foundation of a burgeoning AI research organization.

- Designed and built core infrastructure to enable early research work, including a remote ML development platform
- Helped develop our early research strategy, development processes, and engineering culture.
- Built out technical hiring program which allowed us to vet and hire early engineers/researchers.
- Onboarded and mentored engineers and research scientists.
- Developed basic security and privacy measures, and oversaw all technical company IT management.
- Technically contributed to partnerships, including to ACM KDD 2023[2] and the NeurIPS Large Language Model Efficiency Challenge[1] with a team from PyTorch.

Senior Machine Learning Research Engineer, Twitter   June 2020—January 2023

Remote —USA

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

- As a technical lead, provided process improvement, technical guidance, mentorship, review, roadmap planning, and organization-wide improvements.
- Designed and built a data collection system that automated enabled researchers to measure phenomenon more rapidly. Reduced time for future research projects from months of manual effort to < 1 week.
- Led workstream to design and build tools for machine learning practitioners to identify biases and weaknesses in model performance that were in use by multiple teams.
- Contributed to team research[3][4] and outreach, presenting at conferences (ACM FAccT,[5] The Data Science Conference[6]) and more.[7]
- Continued leadership in company groups as stated below.

Senior Data Scientist, Twitter   July 2017—June 2020

Boulder, CO

Worked with various teams, most importantly as tech lead for the Health Data Science team, which worked on combating abuse, spam, fake accounts, and misinformation problems.

- Developed tooling, education, and processes that enabled data scientists to work more effectively with heterogenous data sources. Tools were used by hundreds of data scientists, ML, and data engineers weekly, and leadership supported me leading a small team to do this work more formally.
- Developed strategy, model, and pipeline for identifing potentially compromised accounts.
- Developed open-source materials and tools for external users.[8][10]
- Identified risk factors in developer applications to enable programmatic review of customer applications to use Twitter APIs.
- Identified clusters of apps abusing Twitter's APIs using time-series mining, allowing programmatic action to be taken against offenders.
- Served on company advisory groups for data architecture, open-source development, and Python development.
- Served as a Global Lead for Twitter's Alas BRG for Hispanic and Latinx employees.

Data Scientist, Tripadvisor   July 2016—July 2017

Greater Boston Area

Data Scientist for the Vacation Rentals group bulding scalable models to tackle business problems.

- Designed and built a computer vision system that includes models to detect people, content (e.g., beach, bedroom,

kitchen), and rate aesthetic quality, with basic measures to prevent unwanted bias.

- Above system was adopted by other groups at TripAdvisor and powered multiple systems. In Vacation Rentals, it lead to a **4.8% increases** in a primary click-through rate metric and a **10.4% increase** in revenue from ad expenditures.
- Built an NLP 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 language-modeling tools 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.

Education

Master of Science, Computer Science   2016
University of New Mexico   3.7 cumulative gpa

Bachelor of Science, Psychology   2010
University of New Mexico

Selected Publications and Artifacts

[1] **Neurips large language model efficiency challenge: 1 llm + 1gpu + 1day**
Mark Saroufim, Weiwei Yang, Joe Isaacson, Luca Antiga, Driss Guessous, Greg Bowyer, Christian Puhrsch, Geeta Chauhan, Supriya Rao, Artidoro Pagnoni, Vicki Boykis, Aaron Gonzales, Davide Eynard. (Dec. 2023). `https://llm-efficiency-challenge.github.io/`.

[2] **Evalrs: Well-rounded recommender systems for real-world deployments**
Federico Bianchi, Patrick John Chia, Jacopo Tagliabue, Claudio Pomo, Gabriel Moreira, Ciro Greco, Davide Eynard, Fahd Husain, Aaron Gonzales. (Jul. 2023). `https://reclist.io/kdd2023-cup/`.

[3] **County-level algorithmic audit of racial bias in twitter's home timeline**
Luca Belli, Kyra Yee, Uthaipon Tantipongpipat, Aaron Gonzales, Kristian Lum, Moritz Hardt. (Nov. 2022). *arXiv preprint* arXiv: `2211.08667 [cs.SI]`.

[4] **Measuring disparate outcomes of content recommendation algorithms with distributional inequality metrics**
Tomo Lazovich, Luca Belli, Aaron Gonzales, Amanda Bower, Uthaipon Tantipongpipat, Kristian Lum, Ferenc Huszár, Rumman Chowdhury. (Aug. 2022). *Patterns (N Y)*, vol. 3, no. 8 (100568).

[5] **Research, meet engineering or: How i stopped worrying about scaling and love the process**
Aaron Gonzales, Luca Belli. Conference Talk, ACM FAccT, (Jun. 2022). `https://facctconference.org/2022/acceptedcraft.html`.

[6] **Enabling, accelerating, and scaling data science for ml ethics**
Aaron Gonzales. Invited Talk, The Data Science Conference, (May 2022). `https://www.thedatascienceconference.com/_files/ugd/a4f11b_468d08b0a6f74203ba4b1c90e00417a7.pdf`.

[7] **Investing in privacy enhancing tech to advance transparency in ml**
Aaron Gonzales, Rumman Chowdhury. Company blog post, Twitter, Inc. (Jan. 2022). `https://blog.twitter.com/engineering/en_us/topics/insights/2022/investing-in-privacy-enhancing-tech-to-advance-transparency-in-ML`.

[8] **Search tweets python library**
Aaron Gonzales, Fiona Pigott, Jim Moffitt, Josh Montague. Python package, Twitter, Inc. (2018). `https://github.com/twitterdev/search-tweets-python`.

[9] **Unraveling network-induced memory contention: Deeper insights with machine learning**
Taylor Liles Groves, Ryan E. Grant, Aaron Gonzales, Dorian Arnold. (2018). *IEEE Transactions on Parallel and Distributed Systems*, vol. 29, no. 8 (1907–1922).

[10] **Do more with twitter data: Evaluating time series and identifying trends**
Aaron Gonzales. Company blog post, Twitter, Inc. (Mar. 2018). `https://blog.twitter.com/developer/en_us/topics/tips/2018/evaluating-time-series-and-identifying-trends`.

[11] **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. (Jul. 2017). *Curr Protoc Mol Biol*, vol. 119, no. 29A (1–29).

[12] **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. (2016). *Journal of Neuroscience Methods*, vol. 257 (185–193).