

Machine learning engineer and technical lead who blends responsible machine learning, engineering, research, and leadership to accelerate teams.

## Experience

### Staff Machine Learning Engineer/Architect, Mozilla.ai

April 2023—current, Remote, USA

Hired as Lead/Founding Engineer to develop Mozilla.ai's foundational research and development platform.

- Established engineering culture and practice, including coding standards, developer tooling, CI/CD pipelines, API design styles, abstraction patterns, and a technical hiring program.
- Designed and built a platform for large language model (LLM) research and product iteration on a cloud-based GPU cluster. Continued with a small team to iterate and enhance the platform.
- Managed procurement, setup, and relationships of cloud and IT vendors.
- Coordinated Neurips and KDD workshops.<sup>[2],[1]</sup>

### Senior Machine Learning Research Engineer, Twitter

June 2020—January 2023, Remote, USA

Technical Lead for the Machine Learning Ethics, Transparency, and Accountability team that owned Responsible Machine Learning development and research at Twitter.

- Improved processes, gave technical guidance, mentored other engineers, and led organization-wide improvements.
- Built a system of feature pipelines and tools for researchers that accelerated critical team research by 20x while ensuring more reliable results.
- Led projects to build tools into Twitter's internal Tensorflow Extended ecosystem that enabled teams to rapidly identify undue biases and weaknesses in model performance.
- Helped push adoption of team work, leading to company-wide adoption of our model quality metrics and tools. Presented work in multiple forums.<sup>[6],[5],[7],[3],[4]</sup>
- Continued service on company advisory groups, including efforts to select a new Twitter-wide data processing stack that would lead to 3-5x speedups in key data pipelines.

### Senior Data Scientist, Twitter

July 2017—June 2020, Boulder, CO

Data scientist on several teams, most importantly as tech lead for the Health Data Science team, which worked on integrity, combating abuse, identifying fake accounts, and studying misinformation problems.

- Developed tooling, education, and processes that enabled data scientists to expand and streamline analyses with complex and heterogeneous data sources, which were used by hundreds of data scientists, ML, and data engineers weekly.
- Developed strategy, model, and data pipeline for identifying potentially compromised accounts.
- Developed open-source client libraries for Twitter API products, which were used by thousands of API customers.<sup>[10],[8]</sup>
- Built risk model for developers wanting to use Twitter APIs, and model for identifying clusters of applications abusing Twitter's API rate limits, allowing programmatic remediation.
- Served on company advisory groups for data architecture, open-source software, Python development, and as a global lead for Twitter's Hispanic/Latinx employees resource group.

### Data Scientist, Tripadvisor

July 2016—July 2017, Greater Boston Area, MA

Built scalable ML models for the Vacation Rentals group.

- Designed and built a computer vision feature engineering system that includes models to detect humans, extract content, and rate aesthetic quality of all photo assets, increasing a primary click-through rate metric by 4.8% and increase in revenue from ad expenditures by 10.4%.
- Built a language model and interface 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 data scientists and engineers to get up-to-speed more quickly and iterate faster on projects.

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## Education

Master of Science, Computer Science. University of New Mexico, 2016.

Bachelor of Science, Psychology. University of New Mexico, 2010.

## Technical Skills

Languages: Python, SQL, shell, Scala

ML/Data/AI frameworks: Spark, Tensorflow, Kubeflow, TFX, Pytorch, Pandas, scikit-learn, Keras, vllm, Ray

Dev and ML Ops frameworks/platforms: Google Cloud, Coreweave, Oracle Cloud, Kubernetes, Helm, Airflow, Bazel

## 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 Puhersch, 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](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](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](https://blog.twitter.com/developer/en_us/topics/tips/2018/evaluating-time-series-and-identifying-trends).
- [11] 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).