Amy Fox, PhD

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KEY SKILLS

- **Programming Languages and Technical Skills**: Python, R, SQL, Snowflake, Git version control
- **Machine Learning:** Regression, Clustering, Dimensionality Reduction, Self-Organizing Maps
- **Business Intelligence Tools and Data Visualization:** AWS Quicksight, ggplot2
- **Business Skills:** Business Process Management Certification, Leadership, Effective Communication

PROFESSIONAL EXPERIENCE

Sabbatical – Independent Travel and Personal Development Apr 2024 – Apr 2025

- Developed adaptability, planning, and problem solving skills during one year sabbatical to travel the world, visiting 26 countries. After spending time away, I am fully ready to inject the same enthusiasm back into my career

Manager, Data Analytics and Risk, Capital One, Houston, TX Jan 2023 – Apr 2024

- Developed a modular interest rate stress-testing tool using Python and SQL to identify high-risk borrowers across all commercial bank segments; created a dynamic dashboard to visualize results and collaborated with 10+ senior leaders each month to discuss business insights and guide risk mitigation strategies
- Built a geospatial collateral risk assessment system covering eight states and 100+ properties in hurricane zones; delivered a self-service dashboard that reduced underwriting triage time by 73% and improved response prioritization during disaster events
- Designed and implemented a streamlined methodology and logical framework for evaluating new commercial bank deals and distilled key insights into a monthly interactive dashboard to drive reliable, data-driven decisions by senior leadership
- Led cost optimization efforts through the automation of nine key business management reports which increased efficiency and reduced production time by 89%.

Principal Risk Analyst, Data Analytics and Risk, Capital One, Houston, TX Jan 2022 – Jan 2023

- Developed a recession readiness analytics toolkit used by 50+ underwriters and executives to monitor 10+ metrics and macroeconomic indicators; leveraged Python, SQL, and QuickSight to automate visualizations and enable self-service analytics and insights
- Optimized scalability and efficiency by identifying redundancies and refining 14 business-critical Python scripts used in executive reporting; implemented data governance best practices to improve code standardization, ensure data integrity, and support consistent outputs for monthly and quarterly reporting
- Conducted over 30 ad hoc analyses and resolved 75+ data discrepancies across high-impact executive reports, ensuring accuracy in dashboards covering over $90B in commercial lending exposure

Senior Data Scientist, **Founding Team,** The Neighborhood Score, Houston, TX Dec 2020 – Jan 2022

- Designed and implemented data-driven scoring frameworks to optimize user recommendations, leveraging quiz responses to match individuals with neighborhoods that align with their preferences.
- Mined and standardized publicly available datasets nationwide, ensuring seamless integration and compatibility with the website
- Built and maintained ETL pipelines to load clean, transformed data into our Azure database

Doctoral Candidate, Colorado State University, Fort Collins, CO Aug 2017 – Dec 2021

- Developed an open-source R-based data analysis pipeline for large flow cytometry datasets and multivariate testing, feature engineering millions of cells and reducing data analysis time by 93%. Code is available open-source at https://github.com/aef1004/cyto-feature_engineering
- Developed a new computational method utilizing Principal Components Analysis and linear models to identify correlations between immune cell populations and metabolites in infectious disease models
- Conducted efficacy testing of candidate tuberculosis and SARS-CoV-2 vaccines in animal models, utilizing statistical analysis (e.g., ANOVA) to assess bacterial load and immune cell presence

Ambassador, CSU Ventures, Fort Collins, CO Aug 2020 – May 2021

- Conducted comprehensive technology assessments of university intellectual property by developing prior art searches, competitive landscape analyses, and market research analyses
- Identified emerging trends, key industry players, and potential market opportunities to evaluate innovation potential and inform strategic decision-making

Data Scientist Consultant, Colorado State University, Fort Collins, CO Aug 2019 – Dec 2019

- Created an analysis pipeline for analyzing nanostring data that reduced analysis time per experiment from 1 week to under 1 minute
- Performed automated statistical analysis on hundreds of genes per study animal, through testing each gene-mouse group pair for normality, similar variances, and then performing appropriate statistical tests

EDUCATION

Doctor of Philosophy in Microbiology, Immunology, and Pathology Dec 2021
Colorado State University, Fort Collins, CO

Bachelor of Science in Bioengineering May 2017
Rice University, Houston, TX

SELECTED AWARDS AND FELLOWSHIP

2021 22nd Annual CVMBS Research Day, **3rd Place Outstanding Poster Presentation Award**
2020 21st Annual CVMBS Research Day, **2nd Place Outstanding Oral Presentation Award**
2019 National Science Foundation, **Gaussi Fellowship**
2019 International Society for Advancement of Cytometry Conference: **Outstanding Poster Award**
2017 Rice University Bay Area Showcase: **Most Investable Design Award**
2017 School of Engineering Design Showcase and Poster Competition: **People's Choice Award**
2016 Eighth Annual Elevator Pitch Competition: **1st Place**

SELECTED PUBLICATIONS

1. **Fox A**, Dutt T, Karger B, Obregon-Henao A, Anderson B, Henao-Tamayo M. Acquisition of High-Quality Spectral Flow Cytometry Data. *Current Protocols in Cytometry*. 2020; 93(1).
2. **Fox A**, Dutt T, Karger B, Rojas M, Obregon-Henao A, Anderson B, Henao-Tamayo M. Cyto-feature engineering: A pipeline for flow cytometry analysis to uncover immune populations and associations with disease. *Scientific Reports*. 2020; 10.