Alex Rosenblum *(he/him)*

Chicago, IL | arosenblum1@gmail.com | Portfolio (GitHub) | LinkedIn

Driven and passionate professional scientist with a history of project success and a diversity of experience on teams of all sizes. Looking to leverage 6 years of experience doing quantitative analysis in addition to my ongoing academic work to transition into the field of data science. Insatiably curious, eternal student.

Education

Data Science, MS | DePaul University | GPA 3.87 | Anticipated: November 2023
Chemistry, BA I University of Iowa | Spring 2016

Projects

Analysis and Optimization of an Automated Hydroponic Vertical Farm – *January 2023 - Ongoing*
- Used Python to build and implement a pipeline to process a dual-feed data stream from an Internet of Things network of sensors and pumps into a tidy rectangular format for visualizing, monitoring, and modeling.
- Leveraged time-series data collected in prototype phase to build a suite of regression models to estimate the piecewise contribution of each additive to the system's overall conductivity to inform nutrient dosage decision-making and forecast expected outcomes.
- Designed and executed scientific experiments to generate data for the aforementioned model.

Visualizing Music with Spotify's API – *January 2023 - Ongoing*
- Constructed exploratory visualizations for 8 years of personal Spotify listening history with Tableau, discovering my Top 25 Artists over all time as well as Top 5 Artists in each year through a dashboard of linked bar and line graphs.
- Pulled data describing track-by-track audio features like danceability and energy for certain top albums and artists using Spotify's Web API Used Seaborn to create a series of visualizations exploring the audio profiles of certain albums and artist discographies.
- *(Planned)* Combine listening history and audio feature analysis to algorithmically generate novel playlists based on recommendations seeded with my own top tracks, albums, and artists for certain moods and times of day, optimized by tweaking audio feature target value parameters.

Cluster Analysis of Billionaires – *March 2021*
- Used R programming to apply K-Means and DBSCAN clustering algorithms to analyze a dataset of the world's billionaires compiled and published by the Peterson Institute for International Economics in 2014.
- Engineered features to include data from multiple time points to minimize information loss without necessitating a time-series analysis.

Performing NLP on Fox News Newsletters – *November 2020*
- Used R Programming to apply the NLP techniques TF-IDF and VADER Sentiment Analysis to analyze a corpus of newsletters sent by a handful of Fox News publications.
- Employed Principal Components Analysis and Linear Discriminant Analysis on the NLP outputs to characterize the difference in Fox News' messaging trends before and after the start of the COVID-19 pandemic.

Regression Analysis of Chicago's Air Quality during the COVID-19 Pandemic – *June 2020*
- Used SAS programming to apply Simple Regression Analysis to quantify the change in Chicago's air quality due to traffic reduction caused by the shelter-in-place order issued at the onset of the pandemic.
- Reviewed literature to self-educate on the domain of air quality and wrote a summary of the research, with references, to introduce the project.

Technical Skills

Data Analytics, Machine Learning, Data Visualization, Big Data, Classification Algorithms, Supervised Learning, Clustering Algorithms, Unsupervised Learning, Regression Analysis, Natural Language Processing (NLP), Statistical Analysis, ANOVA, Feature Engineering, Data Processing, Data Cleaning, Data Wrangling, Experimental Design

Software/Programming Languages
- **SQL**: Oracle, MySQL, PostgreSQL
- **Python**: NumPy, Pandas, Matplotlib, Seaborn, Scikit-Learn, SciPy
- **R**: ggplot2, dplyr, tidyr
- **Big Data**: AWS, Hadoop, Hive, Pig, HBase, Spark, Storm
- **Tableau**

Work Experience *(continued on next page)*

Scientist I, R&D *(Contractor)*
Abbott Laboratories Diagnostics Division | Abbott Park, IL
March 2021 – December 2022
- Created a series of visualizations to model experimental and hypothetical calibration curves, informing next steps in the design of a photometric clinical chemistry assay.
- Designed and executed experiments to test various performance aspects of diagnostic assays in development.
- Routinely analyzed experimental data and presented key insights to both technical and non-technical audiences on cross-functional teams.

Analytical Chemistry Lead
Back of the Yards Algae Sciences (BYAS) | Chicago, IL
September 2019 - February 2021
- Developed analytical methods for UV-VIS Spectroscopy, HPLC, and Mass Spectrometry instrumentation to evaluate the results of experiments in biostimulation technology.
- Designed experiments and developed extraction processes.
- Managed lab supply ordering, inventory, lab cleanliness, lab safety enforcement, instrument installation, maintenance scheduling, and personnel training in a fast-paced, dynamic startup environment.

Associate Scientist, Design Verification *(Contractor)*
Abbott Laboratories Diagnostics Division | Abbott Park, IL
August 2017 – August 2019
- Reviewed experimental material stability data, interpreted outputs generated by the internal data management system, and verified that experimental data conformed to specifications outlined in study protocols.
- Conducted investigations into instances of nonconformance, often drilling down into data to help identify root cause.
- Identified instances in which data was not properly cleaned and communicated specific required data cleaning tasks to the responsible party.

Oligonucleotide Production Specialist *(Contractor)*
Luminex Corporation | Northbrook, IL
January 2017 - June 2017 (6 months)
- Operated AKTA OligoPilot and AKTA Basic intrumentation to faciliate oligonucleotide synthesis and purification.
- Analyzed crude and purified oligonucleotide using UV-Vis spectroscopy and HPLC.
- Maintained complete and accurate documentation for all production lots.

QC Laboratory Technician *(Seasonal Temp)*
Sherwin-Williams | Chicago, IL
August 2016 - December 2016 (5 months)
- Conducted various tests on samples of paint, including pH tests, viscosity tests, and color tests using UV-Vis spectroscopy.
- Cooperated with production line workers to correct errors in paint composition and approve samples within passing range of the tests listed above.