

PROFESSIONAL PROFILE An accomplished data scientist, engineer, and published research mathematician with 8 years of professional experience, strong engineering and leadership skills, as well as a thorough mathematical and statistical background. Extensive experience working with product teams to design data science systems that solve customer problems. Experience in both cloud and on-prem infrastructures and model types ranging from statistical mixed models to modern transformer based natural language models.

WORK HISTORY AND SELECTED PROJECTS

Next Insurance

Data Scientist, Machine Learning September 2023 - Present

Mutiny HQ

Data Science Lead August 2022 - June 2023

Implemented our data science stack from scratch using AWS, Databricks, Github, and MLflow as the first data scientist at the company. Worked with the Guidance team to build recommendation systems that help customers more effectively personalize and A/B test their marketing websites.

Marketing Strategy Recommendations

Data science lead on a small team that utilized LLMs to generate useful and specific strategies for how customers could better personalize marketing websites. Conducted fast experimental iterations, working directly with customers to tune and evaluate our methods. Improved customer usage of in-app recommendations by 20%.

Intent Modeling

Designed, built, and deployed training and batch inference pipelines for website visitor intent models. The models themselves were out of the box (xgboost), but the complexity was in managing and tracking hyper-parameter tuning for models trained on each individual customer's data.

Website Copy Rewriting

Implemented and deployed natural language classifiers to enhance the effectiveness of GPT-3 powered marketing copy generation and re-writing features.

Mailchimp

Principal Data Scientist Feb 2022 - Aug 2022

Architected data science systems to organize and maintain the growing number of production models at Mailchimp. Implemented a "maintenance rotation" program to maintain quality of models already in production.

Staff Data Scientist April 2020 - Feb 2022

Worked with cross-functional product teams to design data science services that fit product needs. Act as a technical lead for projects on the Data Science team. Represent Data Science as a tech lead in the Engineering organization. Provide technical and professional mentorship to other Data Scientists.

Content Optimizer

<https://mailchimp.com/help/content-optimizer/>

Technical lead on a small team building models and services to provide customers with better personalized Content Optimization recommendations as well as offer new, more actionable, insights into the language used in marketing copy.

Smart Recommendations

<https://mailchimp.com/features/smart-recommendations/>

Technical lead on a small team that built models and services that power next best action recommendations. These models ingest user behavior daily and generate batch output that help ensure users are seeing new and helpful recommendations for actions that we believe have correlated positively with past marketing engagement for similar users.

Sr. Data Scientist October 2018 - April 2020

Developed data science applications in the (Google) cloud. This included model training, testing, monitoring, and other productionalization tasks. Worked closely with Machine Learning Engineering to build tools to automate these processes and stand up some of the first production cloud services at Mailchimp. Co-created and co-taught an introductory course in statistics for Mailchimp employees.

Customer Value Segmentation

<https://mailchimp.com/help/about-customer-lifetime-value-and-purchase-likelihood/>

Part of a small team that built, deployed, and maintained models and services that power the Customer Lifetime Value and Purchase Likelihood segmentation features. This system fits hundreds of thousands of personalized models for Mailchimp users every day and generates batch segmentation information for each user. There are extensive processes in place to keep track of these models and ensure we only serve accurate results for each user over time and fallback measures for cases where accurate results were not possible.

Send Time Optimization

<https://mailchimp.com/help/use-send-time-optimization/>

Main contributor to building models and services that power the Send Time Optimization feature. This statistical model aims to find an optimal time for a user to send a marketing email to their audience based on the past engagement of the audience members across Mailchimp.

Data Software Engineer July 2015 - October 2018

Full stack data science Python engineering. Built and maintained stand alone applications to provide data science insights to the Mailchimp application via APIs.

Wake Forest University, Winston-Salem, NC

Teacher-Scholar Postdoctoral Fellow January 2013 - July 2015

Recipient of an internal grant to explore the application of data science techniques to mathematical research. Taught undergraduate and graduate (Masters) courses including statistics, linear algebra, discrete mathematics, and numerical methods.

SELECTED **Southern Data Science Conference**

EXTERNAL **The Evolution of a Data Science App** Atlanta, Georgia 2018

PRESENTATIONS Lessons learned from inheriting and maintaining a legacy data science application.

Messaging Malware Mobile Anti-Abuse Working Group (M3AAWG)

Panel on Email Engagement and List Pruning Lisbon, Portugal 2017

Data shows that list members who are not engaged with email can still be valuable customers, but this must be balanced with healthy list habits for inbox deliverability.

I'll Take Purchased Lists for 500 Paris, France 2016

A summary of how Mailchimp detects and prevents sending email to suspected purchased or stolen address lists.

EDUCATION **The University of Georgia, Athens, GA**

Ph.D. in Mathematics July 2012

Dissertation: *Symmetries of Composite Knots*, Adviser: Dr. Jason Cantarella

M.A. in Mathematics August 2011

Southern Polytechnic State University, Marietta, GA

B.S. in Mathematics, Magna Cum Laude December 2005

B.S. in Physics, Magna Cum Laude December 2005

Minor, Computer Science December 2005

LANGUAGES **Languages**

AND TOOLS SQL, Python, bash, R, L^AT_EX

WITH **Infrastructure / Data Tools**

PROFESSIONAL Postgres, ElasticSearch, Redis, Airflow, Databricks, MLflow, LangChain,

EXPERIENCE Google Cloud / AWS tools (BigQuery, Dataflow, Athena, etc...)

Mathematical Software

Mathematica

LANGUAGES **Languages**

AND TOOLS C, C++, Ruby (on Rails)

WITH **Mathematical Software**

HOBBYIST Maple, Matlab, Sage, Magma

EXPERIENCE