

PROFESSIONAL EXPERIENCE

Full-Stack Data Scientist

Sonova

Apr. 2022 - Feb. 2023

Alpaca - Retail Sales

Audiological Care US

Remote

- Advocated for a "[data democratization](#)" mindset, promoting greater transparency, accessibility, and data usability.
- Successfully implemented a cross-functional approach to data science, reducing analytics turnaround time from one week to same-day by collaborating closely with executives and stakeholders.
- Led an effort to verify source data integrity by conducting a review of third-party contractor work; recommended improvements to source code and documentation practices, and presented detailed contingency plans to executives.
- Collaborated with a cross-functional team to increase sales capacity resulting, in a 10% increase in pilot clinic revenue.
 - Using Causal Inference techniques (Diff-in-Diff with Bayesian IPW using the DRDID package), I determined that the intervention resulted in an average one million dollar (10%) increase in monthly pilot clinic revenue.
- Built a well-documented data warehouse/data lake in Azure using dbt, Prefect, and Airbyte, improving data reliability and reducing our reliance on third-party partners.
- Developed dashboards using PowerBI, including a report presented to executives comparing PowerBI and Tableau.
- Developed predictive models for KPIs using scikit-learn, and XGBoost, including a BG-NBD BTYD lifetime value model.
- Utilized fast.ai to prototype a computer vision project that predicts the likelihood of a sale based on patient audiograms, allowing for better targeting of sales efforts.
- Designed and developed a geotargeting mapping application using TypeScript, Leaflet, Vue.js(Nuxt), and MongoDB, allowing for the identification of in-need areas with precise counts of individuals with hearing difficulty at the census tract level.

Research Fellow

Stanford University

Jun. 2019 - Jun. 2021

Economics / Finance / Experimentation

Graduate School of Business

Stanford, CA

- Worked on Economics, Finance, and Experimentation research with Dr. Susan Athey, Dr. Paulo Somaini, and Dr. Matteo Maggiori.

Dr. Susan Athey

Sep. 2020 - Jun. 2021

- Designed, developed, and maintained an API using Python and Flask for an adaptive experiment using Facebook chatbots that treated over 10,000 individuals with a Contextual Linear Bandit model (with Thompson Sampling).
- Maintained the API's functionality and ensured its continued efficacy throughout the experimentation phase.
- Authored internal wiki, blog post, and documentation for the GitHub repository for others to use internally. The applications include marketing, web traffic generation, A/B testing, and social science research.
- As TA for an MBA course, I guided MBA students in designing, running, and analyzing experiments.

Dr. Paulo Somaini

Jul. 2019 - Jun. 2021

- Utilized STATA, R, and MATLAB on high-performance computing Linux clusters to work with CMS Dialysis data.
- Streamlined the process of generating research project assets, allowing multiple projects to spawn from the same source code, including write-ups, data construction, analysis, and publication-worthy graphs and charts.
- Produced complex geospatial graphs using ArcGIS.
- Maintained code to implement Gibbs Sampling in Matlab and JAGS.
- Conducted data analysis to generate hypotheses about the dialysis market, directly leading to models in research papers.
- Constructed datasets by merging and cleaning various raw datasets. The resulting datasets were used in the Gibbs sampler for a paper on estimating constrained demand in the market for Dialysis.

Dr. Matteo Maggiori

Jan. 2020 - Sep. 2020

- Developed automation solutions to eliminate manual data acquisition tasks for research projects.
- Achieved significant time and resource savings by automating mass downloads of insurer asset holdings datasets.
- Enabled downloading the entire data universe of insurance companies through automation, eliminating the need for two full-time Research Assistants.
- Leveraged APIs, such as Bloomberg's OpenFIGI API, to automate the downloading of various datasets.

Research Assistant

Dr. Bart Hobijn

Arizona State University

Economics Department

Jan. 2018 - May. 2019

Tempe, AZ

- Translated complex economic models into working code in python and MATLAB.
- Developed a Python application that downloads and manipulates data from the Survey of Professional Forecasters and the FRED database and then creates stylized plots, enabling effective presentation of data insights.
- Successfully ported Christopher A. Sims' GENSYS code for solving linear rational expectations models from MATLAB to Python.
- Wrote Python code to solve a search and matching model.

EDUCATION

Postgraduate Research Fellow

Economics / Finance / Experimentation

Stanford University

Graduate School of Business

Jul. 2019 - Jun. 2021

Stanford, CA

- **GPA:** 4.0/4.0
- **PhD Coursework:** Statistics, Econometrics, Machine Learning & Causal Inference

B.S. Mathematics & Economics

Double Major

Arizona State University

College of Liberal Arts and Sciences

Aug. 2015 - May. 2019

Tempe, AZ

- **GPA:** 4.0/4.33, Mouer Award(4.0+), Dean's List, Summa Cum Laude
- Top Seniors in Mathematics & Top Juniors in Mathematics

TECHNOLOGIES AND SKILLS

- **Programming Languages:** Python (5 years), TypeScript/JavaScript (2 years), R, SQL, Rust (Learning), STATA, MATLAB, Java
- **DevOps:** Docker, git, GitHub Actions (CI/CD)
- **Cloud Deployment:** Microsoft Azure, Netlify, Heroku, Cloud Functions
- **Data Engineering:** dbt, Prefect, Airbyte, MongoDB, PostgreSQL, Azure Synapse

Web Development

- **Front-end:** Svelte, Vue.js/Nuxt.js, tailwind, HTML, CSS(SCSS)
- **Backend-end:** Node.js, trpc, Express.js, Flask, Serverless Functions, Rest APIs, Linux

Data Science

- **Libraries:** Kedro, Pandas, Polars, MLflow, scikit-learn, fast.ai, XGBoost, PyTorch, Numpy, SciPy
- **Skills:** Uplift Modeling, Forecasting, Data Analysis, GLM, Classification, Dim Reduction, Clustering, Ensemble Methods, Regularization, Random Forests, SVM, Neural Networks, Naive Bayes
- **Visualization:** Tableau, Power BI, Matplotlib, Plotly, Seaborn, arcGIS

Statistics/Econometrics

- **Causal Inference:** Propensity Score, Matching, IV, RDD, HTE, ML Methods
- **Panel Data Methods:** Difference-in-Differences, Synthetic Control, FE
- **Statistics:** Hypothesis Testing (Classical and Bayesian), Statistical Inference (Classical and Bayesian), MCMC Methods
- **Research Design:** Adaptive Experiments, Multi-armed bandits, A/B Testing, Hypothesis Testing, Pre-analysis Plans

PROJECTS

adainference

Adaptive Experimentation Made Easy

Closed Source Until Beta

Present

Python

- Building a general pipeline for running experiments with adaptive inference.
- *Had development credits provided by AWS*
- **GOALS:**
- Modular Design
- The hope is for someone to be able to start up the pipeline in 1-2 hours.
- Minimize cost of deployment

Knowledge Box

A personal search engine

Closed Source Until Beta

Present

Rust/Svelte

- uses sentence embeddings, and a vector database to allow me to search my personal "knowledge base" with natural language.

Personal Website

Portfolio and Blog

- Built with TypeScript, Astro, and Svelte.

2021 - Present
Svelte/Astro/TypeScript

Stripe Subscription Verification Bot

Freelance

Dec. 2021

Discord Bot

TypeScript

- Built a subscription verification bot using Node.js, OAuth 2.0, the Stripe API, and the Discord API.

RELEVANT COURSES

Statistics

- Machine Learning & Casual Inference - Susan Athey - Stanford [Graduate Course] [P]
- Machine Learning - CS229 - Stanford [P]
- Stochastic Processes [A+]

Mathematics

- Intermediate Real Analysis 2 [A+]
- Intermediate Real Analysis 1 [A+]
- Group Theory [A+]
- Intro to General Topology [A+]
- Applied Linear Algebra [A+]

Economics

- Intermediate Econometrics 2 - Guido Imbens - Stanford [Graduate course] [A-]
- Microeconomic Analysis 1 [Graduate course] [B+] - **Taken as undergraduate**

STUDYING

Machine Learning

- Natural Language Processing (Actively Studying)
- Computer Vision (Actively Studying)

Statistics

- Causal Graphical Models (Significantly Studied)
- Hierarchical Models

Mathematics

- Functional Analysis

Economics

- Quantitative Finance