Nitharsan (Nith) Sivakanthan

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OBJECTIVE

I am pursuing a PhD in Statistics. My goal is to become a research scientist, working on important problems that positively impact society.

SUMMARY

- Data Science Fellow at Bureau of Labor Statistics through Coding it Forward, applying knowledge and skills gained from data science studies in a research role.
- Led healthcare services startup company from concept to the rollout of the final product into doctor's offices in Florida and Georgia. Leadership role in fundraising over $100,000, design & development of software, marketing & sales, accounting, operations & logistics planning, contract negotiation with suppliers and customers, and public speaking.
- Taught mathematics at a Title 1 school in Las Vegas, Nevada through a national ARL licensure program focused on educational equity for low-income populations. Continued teaching higher level math part time at a tutoring company in Redmond, Washington.

TECHNICAL SKILLS

- Python - Numpy, Pandas, Matplotlib, Scikit-learn, TensorFlow, Altair, Fastai, Pytorch
- R - Tidyverse, Ggplot2, Plotly
- SQL - MySQL, Oracle, Relational Databases
- Jupyter Notebooks, JupyterLab, Google Colab, Spyder, IBM Watson Studio, Kaggle Notebooks
- AWS - S3 storage, EMR, Sagemaker
- Java, Linux command line, LaTex, PySpark - working knowledge
- Microsoft Excel, Excel Linear Programming, IBM Python Data Science Certificate by edX

EDUCATION

Florida State University

PhD in Statistics, *Department of Statistics* — Present

Seattle University

Master of Science in Data Science, *College of Science and Engineering* — June 2023

University of Florida

Master of Business Administration, *Hough Graduate School of Business* — May 2020

Bachelor of Science in Statistics**,** *College of Liberal Arts and Sciences* — May 2018

Bachelor of Arts in Mathematics**,** *College of Liberal Arts and Sciences*

Minors in Actuarial Science and Business Administration

WORK EXPERIENCE

Data Scientist Capstone Project, *Costco, Seattle, Washington* — January 2023 - May 2023

Working for the Costco Marketing Analytics Team, we were tasked with developing models to predict customer renewal and discover factors that may help with customer acquisition.

- Cleaned and wrangled with customer data including millions of transactions of new Costco members over a two year period
- Compared models from several machine learning algorithms to classify customer renewal behavior: logistic regression, neural networks, decision trees.
- Discovered factors and trends that contribute to customer renewal and acquisition behaviors that can help Costco target advertising more efficiently.

- Presented findings to the public at capstone project day event and to the Costco Marketing Analytics Team at their corporate headquarters.

Mathematics Teacher, *C2 Education, Redmond, Washington* August 2021 - May 2023

Part-time, after school mathematics teaching, mainly SAT/ACT prep, Precalculus, AP Calculus, and AP Statistics.

- Planned for two-hour teaching sessions with one to three students at once.
- Tailored sessions for each student using curriculum provided by C2 Education and outside resources
- Collaborated with other teachers and students to determine plans for student's learning paths

Data Science Fellow, *Bureau of Labor Statistics, Remote* June 2022 - August 2022

Coding It Forward Data Science Fellow for the BLS in the International Price Program (IPP); Research Assistant.

Divestitures Research using R:

- Processed and transformed administrative trade data and public data on Divestitures dealing primarily with structured data.
- Matched data between large datasets, conducted exploratory data analysis using R analytical tools, and performed data analysis in the form of a Difference in Differences research design.
- Developed visualizations for research papers using LaTex.
- Informed economists with valuable insights about Divestitures which can potentially impact legislation and decisions made across different antitrust agencies such as the DOJ and FTC in addition to the BLS.

IPP Import and Export Index Research using Python:

- Using existing code to update export indexes making use of administrative trade data.
- Adapting the existing code to perform the same tasks except for the import indexes.
- Matched large amounts of data between datasets, conducted exploratory data analysis using tools in Python, and performed data analysis in the form of Difference in Differences research design.
- Developed visualizations for research papers and presentations.
- Research significant for IPP to rollout the use of administrative trade data in publishing indexes to the public
- Presented research to Department of Labor of over 200 people and IPP Big Data Team of 20 experts

Mathematics Teacher, *Clark County School District, Las Vegas, Nevada* July 2020 – Mar 2021

Teaching mathematics via a national alternative route to teaching licensure program.

- Implemented lesson plans utilizing multiple technologies during distance learning.
- Taught, assessed, and managed four classes of 25-35 students.
- Communicated with families and collaborated with teachers and administrators to improve teaching strategies and student achievement.

Co-Owner; Managing Partner, *Precision One Health, Inc* October 2017 - April 2020

A startup company founded in 2017, Precision One Health, Inc. provided a patient engagement and health education platform to orthopedic practices and clinics. The software platform was loaded onto tablets placed into exam rooms of partnering clinics. Partnering clinics paid for SaaS subscriptions while screens inside clinics were leveraged as a targeted advertising opportunity for pharmaceuticals, life science companies, non-profit organizations, etc.

- Leadership role in most areas of the company; Liaised with the CEO on long-term strategy and day-to-day operations of the company
- Raised $130,000+ in equity capital investment by developing trust-based relationships; Persuaded investors to value the company at $2 million pre-revenue
- Conducted an A-B-A designed experiment to nudge patients to provide feedback to our clients. Recommendations were made to clients to improve the effectiveness of the services our company provided based on the experiment.
- Analyzed patient engagement data using R to summarize engagement data and create reports for clients and internal use; The reports helped clients understand the effectiveness of our software and improved our product by understanding patient behavior
- Constructed financial models and yearly financial statements including pro-forma financial statements using predictive modeling that forecasted revenues and costs using public information on competitors and population data.

- Performed all accounting duties including billing, accounts receivable, procurement, and accounts payable on self-made accounting system using Excel, later transferring to QuickBooks
- Presented products and services to 20+ physicians and hospital administration at conferences and board meetings
- Competed in 5 startup competitions and presented business plans to prominent investors.
- Developed, organized, and implemented sales strategies through email, cold-calling, and attending conferences with office and hospital administration
- Managed adoption of product and services into four clinics in Florida and Georgia by organizing and installing all hardware and software into waiting and exam rooms
- Budgeted, purchased, and inventoried supply chain of over $30,000 of hardware
- Created deals with advisors, advertising agencies, and non-profit organizations by building trust-based relationships
- Managed website design and used design software, GIMP, to produce graphics for the website and company software
- Supervised sales intern over a semester-long learning experience; provided tasks, training, and performance feedback
- Represented company at Y-Combinator's Startup School; exchanged ideas with entrepreneurs around the nation

DATA SCIENCE PROJECTS & RESEARCH

Python Projects:

NeuroAI Sound Localization Research with Dr. Brian Fischer -

- Generated testing data using python consisting of cochleagram images by creating sounds from different directions using several parameters that add variation to the sounds.
- Trained neural networks on the generated data using Fastai and Pytorch that optimize localizing sounds (determining the direction the sound originated from).
- Created tests in python that help determine and compare the learning process of trained neural networks to the biological learning process of barn owls and humans. Adjustments to the generated data are made in an attempt to train the neural network to learn in a manner that resembles barn owls and humans.

Classification for Math Problems -

- Used natural language processing to process and transform data from a large, synthetically created data set of math problems and conducted exploratory data analysis using python tools.
- Used machine learning decision tree models to classify math problems into topics.

Predicting Heart Disease Big Data Project -

- Used Pyspark big data tools to process large amounts of Heart Disease Data from the CDC.
- Performed machine learning algorithms (random forest classifier and logistic regression) using Pyspark to classify risk of heart disease from several factors.
- Performed exploratory data analysis using python tools and created visualizations.

Predicting COVID-19 Hospitalizations using the Kalman Filter -

- Presented full mathematical proof of the Kalman Filter.
- Applied the Kalman Filter using python tools to predict COVID-19 Hospitalizations using data from the Washington State Department of Health.

Public University Tuition Project -

- Performed exploratory data analysis, statistical analysis, and created visualizations of Public University Tuition Data over time.

Effects of Climate Change on Natural Disasters (Data Visualization Group Project) -

- Combined data on CO2 emissions and natural disasters to create visualizations that tell a story.
- Wrote a research paper on the findings from data exploration.
- Used the python package, altair, to create visualizations.

R Projects:

Classification of Water Potability -

- Conducted and wrote a research paper on classifying water potability from a series of tests conducted on water

- Performed exploratory data analysis and Principal Component Analysis machine learning techniques to transform and analyze the data.
- Used machine learning algorithms (Logistic Regression, Random Forest Classifier, K-Nearest Neighbors Classifier) to classify potability of water.

Classifying Homeownership using Decision Trees -

- Conducted and wrote a research paper on whether someone owns a home using data from the American Housing Survey
- Used Decision-tree based machine learning algorithms to perform classifications.

Predicting Major Depressive Episodes and Substance Use Disorder in Youth -

- Conducted and wrote a research paper on determining whether a child experiences a major depressive episode or substance use disorder using data collected from the 2020 National Survey on Drug Use and Health.
- Used machine learning (support vector machine classifiers) to conduct research.

Image Classification of Species of Birds -

- Conducted and wrote a research paper on classifying images of birds into their species using public data.
- Used a convolutional neural network to perform and analyze classification results.

SQL Projects:

Airlines Project -

- Created a database from scratch using US flight data from the Bureau of Transportation Statistics.
- Performed queries to discover interesting insights from the data; created visualizations using R.