

# MADHAN JEGANATHAN

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## EDUCATION

**University of California, Santa Barbara (UCSB)**, Santa Barbara, CA

September 2021 - June 2023

**Bachelor of Science (BS), Statistics and Data Science**

- **Relevant Coursework:** Statistical Machine Learning, Big Data Analytics, Regression Analysis, Bayes Data Analysis, Design of Experiments, SAS Base Programming, Stochastic Processes, Time Series, Probability and Statistics

## PROJECT EXPERIENCE

**Playlist Breakdown**, Los Angeles, CA

March - June 2024

- Created a unique dataset from a large, diverse, personal playlist by utilizing Spotify's Web API to extract relevant audio features from songs in a playlist.
- Implemented a clustering algorithm to group similar songs together and tested different k values to find the optimal number of clusters.
- Conducted a principal component analysis to reduce dimensionality and visualize differences between each cluster.
- Ensured a more organized listening experience by curating 6 smaller, more cohesive playlists from one large playlist.

**World Happiness Analysis**, Los Angeles, CA

October 2023 - January 2024

- Analyzed a World Happiness Report dataset containing data from 165 countries from 2005 to 2022 to identify trends in national happiness levels over time.
- Employed statistical analysis techniques such as correlation matrices and principal component analysis to determine key drivers of happiness across nations.
- Drew insights into how GDP, social support, corruption, and other factors relate to national happiness.
- Created an interactive dashboard with Tableau in which filters like region, country, and column simplify comprehension of the multi-dimensional dataset.

**Voter Turnout Predictors**, UCSB, Santa Barbara, CA

January - March 2023

- Analyzed US voter participation trends across over 40 million rows of data from national voter files using PySpark and Google Cloud Platform.
- Trained a machine learning model with logistic regression and another with decision trees to predict voter turnout based on education level, income, and other variables.
- Compared feature importances between historically Democratic and Republican states using the model with greater accuracy.
- Drew insights about how state political affiliation and factors such as education level affect voter turnout.

## VOLUNTEER EXPERIENCE

**Volunteer Staff**, Shooting Stars Foundation, Thousand Oaks, CA

July 2024

- Helped facilitate the 2024 Amgen STEM Entrepreneurship Program by actively participating in daily team meetings discussing program planning and organization.
- Assisted teams of students with their entrepreneurship ideas and presentations by providing feedback and resources.
- Created daily feedback surveys to collect data crucial for program improvement.
- Produced and communicated insights each day by analyzing collected data, resulting in an increase in overall rating throughout the event by over 15%.

**Volunteer Judge**, LA County Science and Engineering Fair, Los Angeles, CA

March 2024

- Collaborated with two other judges to evaluate and score 20 middle school math and computer science projects.

## WORK EXPERIENCE

**Flex Associate**, Amazon Fresh, Northridge, CA

November 2020 - February 2022

- Utilized order-processing software to complete and organize online orders.

## SKILLS

- **Programming Languages:** Python, R, SQL, SAS, JavaScript, C++, Java
- **Other Tools:** pandas, scikit-learn, PySpark, Tableau, GCP, Vertex AI, HTML, CSS, Jupyter Notebook, Excel, LaTeX