# Prerak Jaimin Shah

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## EDUCATION

**Arizona State University (ASU)**, *Tempe, USA* — **GPA: 4.0/4.0**
*Master of Science in Computer Science* — **August 2021-May 2023***
**Pandit Deendayal Energy University (PDEU)**, *Gandhinagar, India* — **GPA: 9.86/10**
*Bachelor of Technology in Computer Engineering* — **June 2021**

## WORK EXPERIENCE

**Machine Learning Intern at Career Launcher** — **June 2020-August 2020**

- *Analyzed the stock prices of various small, medium, and large-cap companies with the help of Numpy, SciPy, Pandas, Matplotlib, and Sklearn.*
- *Performed Technical Analysis using Data Visualization and Fundamental Analysis (like Beta Calculation) using Regression.*
- *Forecasted Trade Calls using Classification and used clustering for Diversification analysis.*

**Machine Learning Intern at Smart Bridge Education Services Pvt. Ltd.** — **May 2020-June 2020**

- *Built a model for predicting the life expectancy of a country based on features like Economic circumstances, Sex Differences, Mental and Physical Illnesses, Education, and other demographic factors.*
- *Deployed this model through the help of IBM cloud services (like Watson Studio, Node-Red, Machine Learning Resources).*

## PROJECTS

**Pacman With Bi-directional Search** — **August 2021-December 2021**

- *Implemented a search algorithm given in the paper "Bidirectional Search That Is Guaranteed to Meet in the Middle" for the Pacman domain.*
- *Compared the performance of the search algorithm in Pacman environments of different tasks, sizes, and complexities.*
- *Carried out statistical analysis of the search algorithm using T-test and ANOVA test and compared it to that of DFS, BFS, UCS, A*, etc.*

**Stock Market Forecasting** — **August 2021-December 2021**

- *Built an ensemble model through the help of an LSTM and a GRU deep learning model which predicted stock prices based on input features like Close Price, Volume, News Sentiment of the stock, etc.*
- *Fetched time-series data of various stocks through the help of Alpha Vantage API, and gave them as an input to the LSTM model.*
- *GRU model worked on predicting the sentiment of news headlines fetched from finwiz.com by using VADER API.*

**Multimodal Sarcasm Detection** — **January 2021-May 2021**

- *Developed a hybrid model that could detect sarcasm from text and audio. The Dataset consisted of clips from TV series like Friends, TBBT, etc.*
- *Detected sarcasm from text using a CNN model. The text instances were converted into their respective vectors through the help of pre-trained word embeddings, which acted as an input to the deep-learning model.*
- *Preprocessed the audio files and extracted Mel Frequency Cepstral Coefficients from them which were given as input to the LSTM model.*
- *Combined the audio latent and text latent vectors, which together acted as an input for the hybrid model and achieved an F-Score value of **0.70**.*

**Music Recommendation Engine** — **July 2020-December 2020**

- *Designed and built a model that finds songs similar to the input song using content-based recommendations. Used the Free Music Archive dataset which contained 8000 songs along with their respective genres.*
- *Transformed the audio files into their respective Mel-Spectrograms, which were given as an input to the CNN model for training.*
- *Removed the SoftMax layer of the CNN model, to convert it into an encoder that can generate latent vectors. This encoder is used to measure the similarity between songs. Top N songs with the highest cosine similarity are returned.*

**Anime recommendation Engine** — **January 2020-May 2020**

- *Created an Anime Recommendation System by training the model on the dataset of over 76,000 reviews from myanimelist.net.*
- *Implemented dimensionality reduction techniques like PCA, and then implemented the KNN algorithm for clustering.*

**Tank Wars** — **January 2019-March 2019**

- *Created a physics-based two-player game of 2D tank battle by implementing real-life projectile equations in algorithms for the trajectory paths.*
- *Implemented the two-player mechanism by using concepts of client-server programming, socket programming, and Peterson's Algorithm.*

## INDEPENDENT COURSE WORK

- *Deep Learning Specialization (Coursera Certificate), Google Data Analytics Specialization*

## SKILLS

- **Programming Languages** – Python, SQL, JavaScript, HTML, CSS, C++, Java | **Operating Systems –** Windows, Linux
- **Technologies** – TensorFlow, MySQL, PostgreSQL, Git, Google Colab, Tableau

## VOLUNTEER EXPERIENCE

- *Acted as a global volunteer for AIESEC in Harbin, Heilongjiang, China for the project "Green Power Now". It was aimed at achieving Sustainable Development Goal 13 (Climate Action) of the United Nations. Here, we conducted offline and online campaigns to make people aware of the impact they have, directly or indirectly, on their surrounding climate.* **June 2018-July 2018**

## EXTRACURRICULAR ACTIVITIES

- *Participated in a Case Study Writing workshop to understand the principles of writing case studies organized by the incubation center at PDEU.*

## HONORS AND AWARDS

- *Received **New American University Scholarship** and **Engineering Graduate Fellowship** from **ASU** based on my **academic performance.***
- *Received a **Merit Cum Means Scholarship** from **PDEU** for **academic excellence** resulting in a 50% tuition scholarship.*