Ambar Chakraborty

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TECHNICAL SKILLS

Languages: Python, Javascript, R, SQL, C, C++, MIPS, HTML, CSS
Libraries: Python – Keras, Django, Flask, Pytorch, Scikit-Learn, Matplotlib, Tensorflow, Dash
Javascript – React, MongoDB, Material-UI
Tools: Git, Tableau, Power BI

PROJECT PORTFOLIO

Better Call Paul

- Built a **personal AI lawyer** chatbot, with backend built using **Flask**, capable of providing legal advice, explaining laws and build defense strategy, trained on documents of provincial and federal laws
- Used Open AI **GPT-4 LLM** to train the model and **Langchain** to build pipeline between dataset and servers

Ask Me Anything

- Developed an application which trains a chatbot using **GPT-3 Large Language Model (LLM)** on user provided documents, allowing the user to ask any questions from the documents interactively
- Built backend using **Django**, adding user authentication

Trash Talk

- Developed an application educating users on waste segregation, allowing users to describe objects using text, speech, or images
- Built **Multi-class Classification Convolutional Neural Network (CNN)** using **Keras** to categorize images
- Trained **NLP model** to determine garbage category from vague descriptions

Second-Hand Bookstore

- Using **React**, designed a **RESTful API** allowing users to navigate and purchase books from an online store
- Designed a responsive webpage using **Material-UI** in the frontend
- Integrated application with **MongoDB** to allow user to perform **CRUD** operations

Chest X-ray Pneumonia Detector

- Trained a **Binary Classification Convolutional Neural Network** which detects presence of pneumonia using chest X-ray images, using **Tensorflow, Keras** and **OpenCV**
- Used over 5000 images to train the model with a train : test : validation split of 70 : 20 : 10
- Achieved **95.6 % accuracy** when tested using over 580 images

Apple Stock Price Forecasting

- Utilized **quantmod** library in **R** to web scrape historical daily AAPL prices from 2008 to 2020 as **xts data**
- Implemented **Facebook prophet** library to create a model to forecast daily prices for 2021
- Projected data depicted 82.7 % accuracy to actual 2021 AAPL price

Toronto Precipitation Prediction

- Converted monthly precipitation **csv data** from 1939 to 2021 into **time series** data in **R**
- Subset data from 1939 to 2015 to create two prediction models for precipitation between 2016 and 2021: An **ARIMA model** and a **Holt-Winters Exponential Smoothing model**
- ARIMA model achieved 95.5 % accuracy while the Holt-Winters model achieved 96.9 % accuracy to actual data