Ambar Chakraborty

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TECHNICAL SKILLS

Languages: Python, Javascript, R, SQL, C, C++, BASH, MIPS, HTML, CSS
Libraries: Python – Keras, Django, Flask, Pandas, Numpy, Pytorch, Scikit-Learn, Matplotlib, Tensorflow, Dash
Javascript – React, MongoDB, TensorflowJS, Mediapipe, Material-UI
Tools: Docker,Git, Jira, Confluence, 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

Doom AI

- Developed an AI bot using **Reinforcement Learning** to play the shooting game Doom
- Trained using a Proximal Policy Optimization (PPO) algorithm which analyzes game frames

Customer App Feedback Analysis

- Created **semantic embeddings** in **NLTK** to **cluster** customer reviews, allowing identification of topics mentioned most frequently, and used **sentimental analysis** to recognize topics with mostly negative reviews
- Used **few-shot prompting** with Mixtral-8x7B LLM to augment dataset of relevant comments
- Filtered out reviews which don't correspond to any of the topics using cosine similarity of word embeddings

Real Time Sign Language Detection

- Developed a web application utilizing **React** which generates text from hand signs captured from live webcam video, using **Mediapipe** to detect the palm and draw a box around it
- Trained a custom multi-classification CNN sign language detector capable of processing 60 FPS video

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