ASHWIN RACHHA

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EDUCATION:

Virginia Tech, *M.S. in Computer Science*, Blacksburg, VA | GPA 4.0/4.0 — Aug 2021 - May 2023(Expected)

PICT, *B.E. in Computer Science*, Pune, India | GPA 8.70/10.00 — July 2016 - November 2020

SKILLS:

Programming Languages and Databases : Python, Go, C++, Bash, MySQL, MongoDB.

Frameworks and Tools : Git, Github, Docker, Kubernetes, CircleCI, Mlflow, Pytorch, Tensorflow, Numpy, Pandas.

Web Development : HTML, CSS, Django, Flask, FastAPI, Streamlit.

EXPERIENCE:

***Outreach, Seattle , Washington* | Machine Learning Engineering Intern** — May 2022 – Aug 2022

● Delivered an Online Inference Solution with a gRPC based Microservice in Golang serving NLP based models viz. BERT, ROBERTA and DISTILBERT for topic detection, question detection, action analysis and sentiment analysis.

● Wrote Python pipelines for ingesting data, preprocessing, tokenization, prediction and postprocessing of text data.

● Wrote Bash scripts to instantiate NLP model binaries in the ONNX format on the NVIDIA Triton Inference Server and alternatively wrote a Go based microservice to communicate with the server via protobuf request and responses. Dockerized the solution.

● Wrote tests for the application service as well as the inference service via CircleCI configuration files.

● Deployed the application online via Kubernetes manifests on Outreach Staging Environment.

● Templatized the entire project to be generically applied by Data Scientist to any online inference service reducing the time for development to deployment from 3-4 days to 2 Hours.

***Mindbowser Inc, Pune , India* | Software Engineering Intern (Machine Learning)** — December 19 – May 2020

● Implemented a Facial Expression recognition application to detect and classify expressions during an ongoing meeting for CRM.

● Trained a Proof of Concept Convolutional Neural Network VGG-19 transfer learning model as the final classifier in Pytorch achieving an accuracy of 73% on the validation set. Integrated the application with a MongoDB database to store meeting metadata.

● Packaged the code in a python based executable which could be instantiated with a button click on the desktop as an application as well as bundled the code with a Flask application and docker for deployment as a web application.

● The project is in beta testing at Volkswagen and Bajaj India.

PROJECTS:

Virginia Tech Web Search Engine. ***[Python, Flask]*** **[CODE]** — December 2021

● An Inverted Index based data structure similar to Elastic search allowing fast full-text search over the Virginia Tech Webpage corpus. Uses a compression index to store key terms reducing index memory usage by 73%.The application was integrated with a Flask UI. The project was selected as the top 3 projects in the class CS5604 (Information Retrieval).

HemingWay ***[Python, Pytorch, Streamlit, Numpy, Transformers]*** **[DEMO] [CODE]** — March 2022

● A one stop NLP web application to summarize, analyze and paraphrase text written using Python, Transformers, Streamlit.

COVID-19 GPT-2 Discord Chatbot. [Python, Discord API, Transformers, Pytorch] [CODE] — January 2022

● A Covid-19 Doctor-like chatbot with GPT2 Transformer (DialoGPT) fine tuned on Pytorch to aid people seeking information for covid related queries. Wrote scripts for deploying the application on a discord server

PUBLICATIONS:

Detecting Insincere Questions From Text - A Transfer Learning Approach | Arxiv.org | **[PAPER]** — December 2021

- Trained and evaluated the performance of Transformer models to detect insincere user queries and prevent them from subsisting on content based websites such as Quora, Stackoverflow, Reddit etc. Validated the model with real world data.

COVID-19 Chest-X Ray Detection - A Transfer-Learning Approach | IRJET | [PAPER] — November 2020

- Created a custom COVID-19 Chest XRAY dataset from open sources and evaluated 8 different architectures of CNN regarding classification performance on the custom COVID-19 dataset.