

Smritika Sadhukhan

Senior Machine Learning Engineer

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Microsoft Certified Azure Data-Scientist (DP-100) having **4 years** of experience leading the Machine learning team with excellent communication, pressure management, team management skills



Technical Skills

Programming - Python, SQL, BigQuery
Deploy - Flask, docker, FastApi, Triton
Cloud - Azure, Heroku, GCP, NGC
Data Analysis - Pandas, Numpy, Matplotlib, seaborn. Feature engineering, EDA
ML Toolbox - Sklearn, SciPy, NLTK, Keras, Tensorflow.
NLP - RAG, Function calling, Langchain, Guardrails, Classification, NER, topic extraction, Q&A using LLM, Conversational AI, Recommendation System



Work History

Jul 2022 -
Current

Senior Machine Learning Engineer

Quantiphi, Bangalore, India

Drink Recommendation system and cart management Tokkio Digital Avatar - Managed the ML team and build the architecture to recommend 3 drinks based on user preference and managed cart for available and new invented drinks along with customization and helped in expanding store menu using LLM

- **Guardrails** - To control and secure conversation flow by 100%
- **Botmaker** - Train intent slot model for Intent and entity classification with 0.85 F1-score
- **Function calling** - Identify relevant entities from user query and process it to manage cart with 100% accuracy
- **RAG** - Used relevant entities as metafilters to improve relevance and accuracy of filtered drinks by 99%
- **Generator** - Used llama-13b-chat to generate responses and post process the responses
- **Deploy** - deployed llama-13b-chat on NeMo FW Inference Container using tensor parallelism on 2 A100 GPU to reduce latency by 50%.
- Skills - Prompt engineering, P-tuning, Botmaker, Flask, Docker, Triton, function calling, Guardrails, Riva ASR, TTS

Telecom Tokkio Digital avatar - Help technician to resolve customer query and provide step by step solution using fine-tuned Retriever Augmented Retriever and p-tuned Large Language Models and deploy on Triton using TensorRT Inference Server from Nvidia

- **Fine-tuned Retriever Augmented Generative** : Utilized Haystack framework to index processed documents and extract relevant text, images and tables.

- **Generator:** Leveraged models such as **NemoLLM- 43B** and **llama2-13B-chat** for generation, and enhanced model efficiency through prompt engineering, p-tuning and fine-tuning
- **Chatbot Integration and Training** : Build Botmaker to identify intents and entities and integrated with LLMs.
- **Deploy** : Developed Flask API and docker container, used NGC repository to do version controlling, converted the HuggingFace llama model into ONNX model format and deployed on Triton using TensorRT Inference Server
- Skills - RAG, Semantic search, Prompt engineering, P-tuning, Botmaker, Flask, Fast API, Docker, Triton

Equinix Public Sector -

- **Topic Extraction and Refinement** : Conducted topic extraction relevant to business from Deltek opportunities to Equinix corpus. Fine-tuned topic representations using semi-supervised BERTopic model.
- **Ontology Enhancement** : Refined existing ontology by focusing on topics relevant to Equinix, along with their associated keywords, using LLM approach.
- **Document Classification** : Accomplished 86% F1-score in classifying relevant documents on trained Deltek corpus of 100k entries. Achieved this notable performance using SetFit, with a minimal training set of just 50 samples.
- Skills - Bert , BERTopic, SetFit, keyBert, KeyVectorizer.

Hiring and Mentoring -

- Helped in hiring and provide external training and mentorship to junior.

May 2021 -
Jul 2022

Associate Data Scientist

Techigai, Hyderabad, India

Healthcare chatbot -

- Deployed Chabot created using Dialogflow API to ask relevant questions and predict disease based on symptoms and help user to book appointment with doctors

Recommendation system -

- Recommendation system on Amazon products using **unsupervised learning** and **similarity matrix** and got similar results when compared with Amazon
- Skills – Python, SOM, Gaussian mixture, Cosine similarity, flask, heroku

Voice Assistant -

- SAAS where any non technical person can create data in CSV format and leverage benefit of dialogflow and Rasa by single click without even using them and get voice assistant instantly and used open source models, Google recognition,etc for Speech to text and text to speech conversion
- Skills – Python, Heroku, Flask ,Rasa, Dialogflow , Docker, STT, TTS

Face recognition -

- Performed image augmentation. Using dlib face recognition model extracted face embedding and trained on **(Random Forest)** machine learning model. Successfully handled twin classification problem. Got 95% accuracy on current employee of our organization
- Skills – Python, Heroku, Face recognition, facemesh

May 2020 -
Apr 2021

Data Science Trainee

GenieTalk Private Limited Company , Indore, India

Effortless Travel buddy and SAAS model for voice-bot Built

- Advanced multilingual **Natural Language Processing** and **Natural Entity Recognition model** for multi-purpose
- Skills -Single handedly created script for Data creation, Data processing, LSTM, Bidirectional-LSTM,CNN,CRF, Embedding, Packaging, flask, tensorflow serving, Docker, API ,postman, MURIL, YOLO5

Apr 2020 -
May 2020

Machine Learning Trainee

Friend App , Kolkata, India

Recommendation system

- Designed, implemented and evaluated new recommendation model for friends, followers and post suggestions using **content and collaborative method** or Social Media Platform Friend App and increased customer engagement by 30%

May 2019 -
Jun 2019

Machine Learning Intern

Stir Research Company , Kolkata, India

Prediction of alloy ratio

- Implemented and evaluated **machine learning algorithms** and **neural networks** to reduce manual human effort and further tuned systems to boost performance by increasing engine performance and its durability by 60%



Education

May 2016 -
May 2020

B.Tech: CSE

University of Engineering And Management - West Bengal. India



Certifications

Dec 2021

Microsoft Azure Certified Associate Data Scientist DP-100

Jun 2020

Infosys Certified software programmer-2019

Mar 2020

Certificate of completion of Applied AI Machine Learning course