GAURAV SOOD

Sr. Data Scientist

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Data science professional with 8 years of experience in building machine learning models, translating complex data into actionable insights that directly improve operational efficiency. Possessing 14 years of industry experience, I excel at collaborating with cross-functional teams to pinpoint critical business needs and align data science solutions to achieve optimal results.

SKILLS

`Python` `PyTorch` `TensorFlow/JAX` `Julia` `Flux/Lux` `NumPy` `SciPy` `Matplotlib`

`Large Language Models` `Generative AI` `Probabilistic Modelling` `Reinforcement Learning` `Time Series Forecasting`

`Communication` `Leadership Skills`

EXPERIENCE

Sr. Data Scientist

HP Inc. May 2021 – Ongoing

📅 Bangalore, India

- Created Large Language Models(LLMs) Based application for webpage content filtering and topic recommendation, adhering to key NFRs which helped in acheiving **Net Promoter Score of 65** during beta testing of HP's PrintAI program
- Benchmarked LLM based application's performance on accuracy, cost(token usage) and latency, comparing OpenAI, Llama and Mistral, reducing cost by **30%**.
- Mentored **3** data science interns on automated triaging using Graph Neural Networks and LLMs, completed within an expedited time frame of **2 months**
- Supervised Small Language Models(SLMs, less than **3B** parameters, **4bit** quantized) exploration and **instruction fine-tuning** initatives using PEFT acheiving an accuracy of **95%**
- Created Telemetery data analysis pipline processing **0.5** milllion customer record using LLM embeddings, BERT, dimensionality reduction(UMAP, Variational AutoEncoder) and clustering HDBScan, enhancing operational efficiency by **20%-30%**.

`Prompt Engineering` `GPT2` `TinyLlama` `FineTuning` `Embedding Models` `Graph Nerual Networks`

Sr. Software Engineer Machine Learning

HP Inc. July 2017 – May 2021

📅 Bangalore, India

- Analyzed the effects of key macro economic indicators on long and short term forecasts of product sales data which helped in acheiving on-time delivery rate of **90-95%**, working with HP's Digital Transformation Office across US and Brazil
- Implemented Hyperparameter Tuning module for Time Series models using Optuna reducing the AutoML framework execution time by **20%-25%**
- Worked on HP Personal Systems User Behavior Modelling using Tree Based Models, SHAP, UMAP, HDBScan for targeted market campaigning
- Developed simulator environment for online Reinforcement Learning for automated hardware diagnostics, as an alternative to Sequence Based Modelling
- Mentored **4** interns on Sequence Tagging Models using BERT, LSTMs, Conditional Random Fields for discovering insights in call center records which lead to **25%-30%** increase in operational effcency.
- Analyzed **0.1 million** call center record using Bayesian Networks for predictive diagnostics as an aid to call center executives and evaluate their decision making process

`Time Series Analysis` `Regression` `Reinforcement Learning` `Probabilistic Graphical Models` `Data Annotation`

PUBLICATIONS

- Gaurav Sood, Ranjith Kumar Gopa, Nandan Kumar Nidhi(May 2024) "Representing Tabular Data using Large Lanugage Models" https://www.tdcommons.org/dpubs_series/6998/
- Gaurav Sood (Feb 2021) "A Reinforcement Learning Approach to Printer Diagnostics" https://www.tdcommons.org/dpubs_series/4244/
- Gaurav Sood, Pavleen Kaur Brar, Raghu Anantharangachar (April 2019) "Sequence Prediction for Print/Scan Issues using Bayesian Networks" https://www.tdcommons.org/dpubs_series/2117/

EDUCATION AND CERTIFICATIONS

Deep Learning Specialization

DeepLearning.ai Oct-2021

Reinforcement Learning Specialization

University of Alberta - Alberta Machine Intelligence Institute Sept 2021

MSc Research Machine Learning

Indian Institute of Science Bangalore 2006-2009

- Speech Recognition using Support Vector Machines