DIKSHA SETH

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Education

M.Tech. in Computational and Data Science , *Indian Institute of Science Bangalore*(2023-present) CGPA 7.6/10
B.Tech. in Instrumentation and Control Engineering , *NIT Jalandhar*(2015-19) CGPA 7.56/10
Class 12th, *Rainbow School, Saharanpur*(2014-15) Percentage 94.60
Class 10th, *Rainbow School, Saharanpur*(2012-13) CGPA 10/10

Experience

1. **Indian Oil Corporation Ltd.** , *Panipat, Haryana (Instrumentation Engineer)* **Dec 2022 - July 2023**
   - Issued work permits for smooth operation of Swing Unit in PNC, and ensured the safety of the working personnel
   - Enhanced Data Accessibility by identifying the bottleneck of **machine unreadable files** and developed a solution to convert them to **machine readable format by using pytesseract**
2. **Nuclear Power Corporation Of India Ltd.**,*Tarapur, Maharashtra (Executive Trainee)* **July 2022 - Dec 2022**
   - Studied about the functioning of Nuclear Power Plants, and topped the class among Instrumentation students
3. **Capgemini Pvt.Ltd.** , *Pune, Maharashtra* ***(Senior Software Engineer)*** **July 2019 - June 2021**
   - Developed an **Automation script for data retrieval from MongoDB** and processing, thus eliminating 100% manual intervention. Implemented automated progress sharing with cross functional teams and deployed the script on Autosys for periodic migration of workflows and scripts

Projects

Evaluating Small Language Models as Reasoners for Personalized Physics Education* M.Tech.Thesis
- Developing a system using **Small Language Models (1.5B-7B parameters)** to **assess students' reasoning responses** and provide **feedback, critiques, or grades for each step**, aiming to enhance **automated evaluation** in physics education
- Created a dataset of **1,300+** high school-level physics problems by utilizing an open-source physics textbook as the source material, converting **images with mathematical equations into LaTeX format** using the pre-trained 'sumen-base' model from HuggingFace and compiling the text and the converted equations into a comprehensive dataset
- Implemented **inferencing** and obtained **reasoning responses** from **decoder-based** small language transformer models, including Qwen2.5 Math, Gemma 2, Phi 3.5 mini, and Phi 3 small Instruct models
- Evaluating the reasoning responses and implementing ways to improve it* *Ongoing

Vision Transformer-based Image Classification Model
- Implemented ViT from scratch on CIFAR-10 dataset, exploring diverse patch sizes with overlapping/non-overlapping division, varying the number of attention heads, and utilizing the CLS token with 72.1% accuracy

News Article Summarization with Text-To-Text Transfer Transformer
- Fine-tuned **Text-To-Text Transfer Transformer (FLAN T5-small)** for **abstractive summarization** of news articles. The resulting model achieved improved **ROUGE scores and BERTScores**, producing coherent summaries that accurately captured key information

Credit Card Fraud Detection
- Mitigated **class imbalance via SMOTE**, and compared performances of different Machine Learning models such as **Logistic Regression, Random Forest and XGBoost**

Academic Assignments

- Implemented **Principle Component Analysis** from Scratch
- Built system for Image Compression using **Singular Value Decomposition**
- Implemented **Logistic Regression** from **scratch** on Diabetes Prediction Dataset and achieved an **accuracy of 89%**
- Implemented **Backpropagation** in a **Deep Neural Network from scratch** with 1 hidden layer

Relevant Coursework

- Natural Language Processing
- Deep Learning (by Mitesh Khapra)
- Numerical Linear Algebra
- Mathematical Models for Machine Learning
- Stochastic Models and Applications
- Introduction to Data Science

Technical Skills

Languages and Tools: Python, Numpy, Sci-kit Learn, NLTK, Seaborn, Pandas, Matplotlib, PyTorch, HuggingFace, LaTeX

Academic Achievements, Position Of Responsibilities and Hobbies

- Awarded prestigious **Mallika Women M.Tech Fellowship** for excellent academic performance
- Achieved All India Rank **(AIR)88 in GATE 2022 (IN)**, scoring in the **top 0.77%** of the candidates
- Head of Discipline Committee of NIT Jalandhar and Executive member of Marketing and Publicity teams of the fest Utkansh
- Hobbies: Playing ukulele, singing and running