PRANAV TYAGI

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PROFESSIONAL EXPERIENCE

SAP **Walldorf, Germany**
Working Student *March 2023 to present*
- Developed innovative algorithms for the evaluation of real-world applications, with a focus on sentiment preservation and authorship attribution attacks.
- Led the design and implementation of an evaluation framework incorporating cutting-edge methodologies for solution efficacy and performance measurement.
- Integrated Quantum Machine Learning APIs for experimental use cases, advancing applications in quantum computing.
- **Technologies:** Python, Pytorch, LLMs, NLP, Deep Learning, Machine Learning, SAP Business Technology Platform (BTP), Docker, AWS, Git, RESTful APIs, Kubernetes

Universität Mannheim **Mannheim, Germany**
Research Assistant *December 2022 to February 2023*
- Optimized the training of Knowledge Graphs by implementing advanced data parallelization techniques, significantly enhancing model training efficiency.
- **Technologies:** Python, Pytorch, Deep Learning

SparkTG **Noida, India**
Data Scientist *September 2021 to August 2022*
- Trained and tested NLP models for Hindi speech, focusing on sentiment extraction and topic identification.
- Automated and improved the efficiency of large-scale data analysis, providing scalable solutions for operational systems.
- **Technologies:** Python, NLP, Machine Learning, Linux, Apache Spark, SQL, Pandas, Numpy, Seaborn, Plotly

SparkTG **Noida, India**
Data Science Intern *April 2020 to September 2020*
- Enhanced decision-making processes through interactive dashboards developed from complex datasets.
- Applied data cleaning and visualization techniques to extract actionable insights, preparing the groundwork for larger-scale ML pipelines.
- **Technologies:** Python, SQL, Pandas, Numpy, Seaborn, Plotly

EDUCATION

Universität Mannheim **Mannheim, Germany**
Mannheim Master in Data Science *September 2022 - present*
- **Relevant coursework**: Machine Learning, Deep Learning, Advanced Text Analytics, Higher Level Computer Vision, Industrial Applications of AI, Generative Computer Vision Models, Large Scale Data Management
- **Master Thesis (Ongoing)**: Visual Impact on Sentiment: Climate Change Tweets Analysis
  - Investigating the visual elements within social media posts that impact sentiment perception, using a multimodal approach that integrates Computer Vision and NLP.
  - **Technologies**: Computer Vision, Python, PyTorch, Vision Transformers (ViT), Multimodal Learning

University of Mumbai **Mumbai, India**
Bachelor of Science (Statistics), Grade: 1.25 *July 2018 - July 2021*
- **Major coursework**: Probability, Estimation, Hypothesis testing, Numerical Methods, Operations research, Sampling, Stochastic Processes, Linear Algebra, Calculus, Ordinary Differential Equations
- **Minor**: Mathematics

PROJECTS

Personal Project
RAG Question-Answering System *September 2024*
- Developed a system to extract answers from PDF documents using Retrieval Augmented Generation (RAG) with Apache Cassandra and DataStax's Astra DB as a vector database.
- Integrated LangChain, Python, and GPT-3.5 to deliver accurate, context-aware responses to user queries.

Master Project
Ankinator: Automatically generating flashcards from lecture slides using transformers *March 2023 - August 2023*
- Applied advanced transfer learning techniques using T5 and LLaMA-2 models to automatically generate contextually accurate flashcards, improving study efficiency.
- Focused on transformer-based architecture with strong alignment to medical domain text processing and summarization.

Project
Multilingual Document Retrieval System *October 2022 - December 2022*
- Designed a cross-lingual document retrieval system leveraging aligned word embeddings to enhance retrieval accuracy in multilingual queries, an approach useful for medical document indexing.
- Integrated end-to-end pipelines, focusing on document relevance ranking and user interaction.

Master Seminar
Multilingual Document Retrieval System *October 2022 - December 2022*
- Researched challenges in deep learning models for recognizing accented speech and dialects in Automatic Speech Recognition (ASR) systems.
- Conducted a comprehensive review of existing ASR techniques, analyzed a novel adaptation approach for accented speech and evaluated its effectiveness using benchmark datasets.

EXTRACURRICULAR ACTIVITIES

Hackathon Winner **Kreuzlingen, Switzerland**
JiVS Hackathon (2024)
- Developed an innovative AI solution for Cross-Database Schema Matching, simplifying integration across diverse database systems.
- Designed a pipeline using SentenceBERT and Retrieval-Augmented Generation (Llama, GPT) to display potential schema matches with detailed explanations.

Hackathon Top 5 Finalist **Munich, Germany**
Eclipse SDV hackathon (2023)
- Developed a driving aid system with collision detection and automatic braking to enhance road safety.
- Implemented a car-to-car communication system to alert vehicles of potential crashes or road hazards ahead.

OTHER SKILLS AND CERTIFICATES

- **Languages:** English(Fluent), Hindi(Native)
- **Software:** Office 365, R, GitHub, Docker, Kubernetes, AWS, SAP BTP
- **Certificates:** Google Data Analytics Specialization, Data Structures and Algorithms Specialization, Machine Learning