Ankita Behura

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Experience

Research Student *Semvox GmbH*   *Limbach, Saarland Dec 2021 – Present*

- **Developed Advanced RAG-based QA Systems:** Engineered an in-vehicle assistant for Audi's car functionalities by leveraging **Large Language Models (LLMs)** and **Retrieval-Augmented Generation (RAG)**. Integrated **LangChain, vector search (ChromaDB), and hybrid retrieval techniques** to enhance context understanding and significantly improve response accuracy from automotive manuals.
- **Optimized ML Model Performance & Corrective RAG:** Fine-tuned **transformer-based architectures (e.g., BERT)** on a proprietary Q&A dataset, iteratively optimizing **hyperparameters**. Applied **corrective RAG techniques** to significantly improve context relevance, boosting overall QA accuracy and reducing latency compared to vanilla RAG approaches.
- **Streamlined Data Ingestion & Parsing for AI:** Designed and implemented scalable **ETL pipelines** and robust **parsers for LIVAS and COSIMA formats**. This ensured efficient extraction, cleaning, and structured annotation of vehicle-manual texts from Audi, Porsche, and Volkswagen, significantly enhancing data readiness and quality for downstream AI models.
- **Enhanced Information Retrieval & Integrated SOTA Research:** Investigated and applied **State-of-the-Art (SOTA) NLP/NLU techniques**, including **dense passage retrieval (DPR), BM25 ranking, and entity resolution**, to improve answer precision and contextual understanding. Distilled complex findings into actionable reports, contributing to strategic AI development within the team.
- **Implemented Scalable MLOps & Production Pipelines:** Built **containerized, production-ready NLP pipelines with Docker**, utilizing Python, SpaCy, and LangChain. Contributed to **Terraform- and Docker-based Continuous Delivery (CD) pipelines on Azure Cloud**, alongside developing supporting **scripts, services, and RESTful APIs** for both development and inference, ensuring robust and scalable AI solution deployment.

Project Engineer *Wipro Technologies Pvt Ltd*   *Bangalore, India Aug 2016 – Sep 2019*

- **Automated Ford Infotainment Systems (Ford Sync Gen3/Gen4):** Designed and developed comprehensive **Python-based automation frameworks, APIs, and test scripts** for Voice Recognition, Navigation, and Multimedia modules. Enhanced testing efficiency, reliability, and reduced manual efforts, ensuring robust product quality and addressing client requirements.

Education

University of Saarland   *Sept 2021 – Feb 2025*
Master of Science in Embedded Systems, Saarbrücken, Germany
GPA: 1.9 (German grading system)
Relevant Coursework: Machine Learning, Neural Networks, High level Computer Vision, Image Processing

Projects

Master Thesis: Enhancing Biomedical QA System with Keyphrase Filtering (IML, DFKI)
Developed an end-to-end biomedical Question Answering system leveraging **BioBART** for diverse Q&A formats. Integrated **pointer networks** and **interactive keyphrase filtering** to significantly improve answer selection accuracy and interpretability in biomedical contexts.

Technologies

Languages: Python, C, SQL
Libraries: PyTorch, Scikit-Learn, SciPy, NumPy, Pandas, Matplotlib, OpenCV, Hugging Face Transformers, Fairseq, LangChain, ChromaDB, NLTK, SpaCy
Tools: Git, WandB, LaTeX, Docker, AWS, Azure, Terraform, Kubernetes