Mayuresh Oak

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PROFESSIONAL SUMMARY

Machine learning engineer specializing in Agentic AI and LLM-based automation, with over 8 years of experience in developing machine learning algorithms, speech, and Natural Language Processing (NLP). Proficient in programming languages such as Python, Java, and C++, as well as machine learning frameworks like TensorFlow, PyTorch, and Keras. I am legally eligible to work in Canada, **Canada PR holder** .

EXPERIENCE

Samsung Electronics   *Mar 2016 – Apr 2025*
Staff Engineer

- Built LLM automation workflows to preprocess and generate structured datasets from unstructured text, incorporating text preprocessing techniques such as tokenization, lemmatization, and stop word removal to enhance ASR training data.
- Leveraged large language models (LLMs) with Langchain and vector databases in Retrieval-Augmented Generation (RAG) setups, enabling efficient ingestion and transformation of raw data for ASR model training.
- Developed and optimized LLM prompts for zero-shot and few-shot learning settings to perform linguistic tasks such as Named Entity Recognition (NER) and Part-of-Speech (POS) tagging on noisy ASR outputs.
- Led AI lifecycle for US English Hindi, Turkish and Vietnamese ASR, including data collection, model training, evaluation, and deployment, improving multilingual performance across diverse dialects.
- Designed and deployed Kubeflow pipelines to streamline training, testing, and delivery of ASR models, accelerating iterative experimentation.

Chief Engineer

- Commercialized a state-of-the-art Conformer-RNNT algorithm for Automatic Speech Recognition, significantly enhancing the accuracy of Bixby.
- Spearheaded the commercialization of ondevice ASR for Vietnamese for S24 launch in a short span of 5 months, and successfully handed over the project to the Samsung Vietnam team.
- Explored various audio augmentation techniques for improving accent recognition, speed and reverberant speech recognition to improve ASR performance in real world.
- Led a team of data engineers and DevOps engineers to create tools for collaborative grading and data generation, reducing turnaround time for ASR market issues by 50%.
- Directed a team of ML engineers in developing NLP models for ASR hypothesis correction, using dependency parsing and semantic structure modeling to enhance user experience.
- Researched LLM-based approaches for ASR post-processing, including domain-specific prompt engineering and hypothesis reranking using GPT-style models.

Lead Engineer / Senior Software Engineer

- Enhanced ASR model accuracy and performance by conducting thorough testing, evaluation, and issue resolution.
- Accelerated model training speed by 70% through the development and implementation of automated distributed pipelines for ASR model building.
- Trained, validated and deployment of ASR models for US and British English working closely with Language experts to cater to Samsung's Bixby users across devices.
- Optimized ASR model training by implementing ETL data pipelines to periodically integrate trending data.
- Implemented ASR evaluation processes by designing distributed pipelines, resulting in 50% improvement in evaluation speed.

ASHIDA Electronics PVT. LTD   *Jan 2013 – Jul 2014*
Software Engineer

- Designed and developed in-house TCP/IP communication library with support to different International communication standards like IEC-103, IEC-104 for SCADA system.

TECHNICAL SKILLS

Languages/Frameworks : Python, C++, SQL, JavaScript, HTML, XML, JSON, CSS, Flask, tensorflow, PyTorch,m scikit-learn
DevOps and API Tools : Git, Docker, Kubernetes, Kubeflow, Airflow, Postman, Microservices
Others : Natural Language Processing, Agile, Automatic Speech Recognition (ASR), Design Patterns

EDUCATION

Rochester Institute of Technology   *Artificial Intelligence and NLP*
MS in Computer Engineering   *Aug 2014 – May 2016*
University of Mumbai   *ECE*
B.E. in Electronics and Telecommunication   *August 2009 – May 2012*

PUBLICATIONS

Rapid Enhancement of NLP systems by Acquisition of Data in Correlated Domains, INTERSPEECH 2020: Show Tell Contribution

Mayuresh Oak, Anil K. Behera, Titus Thomas, R. Ptucha, C. Alm, Emily Prud'hommeaux, C. Homan submitted "Generating Clinically Relevant Texts: A Case Study on Life-changing Events" to Computational Linguistics and Clinical Psychology Workshop, 2016