

Rohan Saxena

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CAREER SYNOPSIS

Philomath and AI specialist with over **two years of experience** in developing production-grade AI systems, including Large Language Models (LLMs), **intelligent agents**, Text-to-speech (TTS), and Speech-to-Text (ASR) modules. Possess a robust background in data science and analytics, with proficiency in Python and expertise in design and integration.

TECHNICAL SKILLS

- **Certifications** : *Deep Learning Specialization, Machine Learning, Data Structures and Algorithms, Python, Natural Language Processing*
- **Skills**: Python, C, SQL, PyTorch, Tensorflow, Next Gen Kaldi, Coqui-TTS, SpeechBrain, NVIDIA NeMo, DeepSpeech, Transformers, Crew-AI, Langchain, torchserve, Flask, Django

WORK EXPERIENCE

Navana Tech

AI Scientist

July 2022 to Present

- Developed a **Context Biasing LM algorithm** for ASR systems, enabling faster text-based improvement cycles with **negligible added latency**.
- Developed a real-time **TTS system**, optimized with **torchserve** to efficiently handle high concurrency on GPU with less than **5% RTF** and **latency under 200 ms** for a single request.
- Led the technology stack migration by developing production grade state of the art **ASR systems for 8 Indian languages**, Achieving streaming inference latency of **200 ms on CPUs** and non streaming **RTF of less than 5%**.
- Developed a production grade **Speaker Diarization Pipeline** with Nemo and Next-Gen Kaldi, leveraging experience from the **BMGF project**.
- Spearheaded the development of **LLM-Powered RAG based WhatsApp smart chat agents** for renowned clients including **Scitron, Firebolt**. Significantly enhancing their customer engagement and support capabilities.
- Contributed to the prestigious **Bill and Melinda Gates Foundation (BMGF)** project by designing a cutting-edge voice parameter system to detect and mitigate fraudulent speaker metadata with over **95% accuracy** and developing dataset creation algorithms to ensure high-quality data division for 38 dialects across 8 major Indian languages, enhancing linguistic diversity and data integrity.
- Led the development of **WhatsApp-based smart chat agents** for top clients like **Asian Paints, Okhai, Boat, 91cycles, Waycool and Flo Mattress**, boosting customer engagement and support.
- Assisted in developing LLM based product search algorithms, using **Contrastive Learning** and **LLM Finetuning**.

PUBLICATIONS & ACHIEVEMENTS

Model Adaptation for ASR in low-resource Indian Languages

IISC, Bangalore

July 2023

- The paper investigates enhancing ASR for low-resource Indian languages by adapting techniques from well-resourced languages, emphasizing acoustic and text data roles. Research accepted in **ASRU arxiv**.

CQFaRAD: Collaborative Query-Answering Framework for Research Article Dataspace

BIET, Jhansi

September 2023

- The paper introduces CQFaRAD, using BERT to enhance dataspace query answering and improve research article search relevance. Research accepted in **International Journal of Information Technology arxiv**.

An Intelligent Recommendation-cum-Reminder System

IIT, Indore

August 2021

- The paper introduces an email parsing system using NER and web retrieval to generate recommendation and reminder lists, surpassing existing methods in reminder extraction. Research accepted in **Cods-COMAD: ACM, 2021 arXiv**.

ASEAN-India Hackathon

- Grand Finalist of **ASEAN-India Hackathon**, held between **11 countries**. Developed a **image segmentation** model to identify ships from satellite images to solve **Marine Traffic Management** under the Blue Economy.

Winner of Smart India Hackathon

- Developed a **Face Detection and Identification model** to spot criminals from low quality CCTV footage, **old Images, Sketches** etc.

EDUCATION

Bundelkhand Institute of Engineering and Technology, Jhansi, India

ranked under 2% in AKTU

August 2018 - July 2022