Kanhaiya Kumar

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EDUCATION

Indian Institute of Technology, Bombay | *CPI: 9.05/10.0*   *Mumbai, India*
Dual Degree: Bachelor's (Major Electrical & Minor Computer Science)+Master's (Speech Processing)   2013-18

AWARDS & ACHIEVEMENTS

- Super Tripper of the Quarter for hotel's dynamic discounting and pricing initiatives   *Aug'24*
- Samsung excellence and Project Incentive awards for software contributions   *Sep'21, Feb'22*
- Twice cleared Samsung's Software competency test (professional level, $\sim 1\%$ pass-rate)   *Sep'19*
- Published two research papers at Interspeech conference and one at NCC 2018   *Sep'18*
- Only recipient of **AP grade** for exceptional performance in a core course among 143 students   *Apr'15*
- Secured **All India Rank 535** out of 1M students in JEE Advance 2013 (IIT-JEE)   *June'13*

CORPORATE WORK EXPERIENCE

MakeMyTrip | *Lead Data Scientist*   *Apr'23-present*

- **Dynamic Discounting:** Engineered price elasticity model for hotel discounts, generating **12M** INR monthly incremental gain. Collaborated with Revenue and Product teams to scale across domestic & international traffic on MMT & GIB platforms.   (PySpark, Databricks, MLFlow, Redash, AWS)
- **Travel-plex Chatbot:** Constructed LLM-based system retrieving data from multiple LoB databases. Improved latency **5x** using Gliner and led POC to production through cross-team collaboration. Established centralized entity-linking system with <0.2% false positives.   (GPT-4o-mini, FAISS, Kafka)

Mohalla Tech(ShareChat) | *Machine Learning Engineer-2*   *Aug'22-Mar'23*

- **Ads Monetization**: Created a Lookalike audience model for targeted campaigns, expanding the user set based on past conversions. Implemented across multiple live ad campaigns, boosting CTR by **25%**. Led modeling, data pipelines, and A/B testing.   (BigQuery, Airflow, Docker, GCP)

Samsung R&D Bangalore | *Lead Software Engineer*   *Aug'18-Aug'22*

- **Offline Commands**: Built entity normalizer supporting voice commands for multiple apps in on-device setting, integrated on S22 flagship for English & Korean languages.   (Android,Java)
- **Contextual NLU**: Incorporated partial utterance matching within the visual device NLU system, impacting 1M+ daily active users and improving voice command recognition accuracy by 20%.   (VSCode, C++)
- **Named Entity Correction**: Designed multiple fuzzy matching solutions utilizing ULA and FAISS technology that effectively corrected approximately 30% of ASR errors on 20K test samples.   (Python, Lucene)

Samsung Electronics(South Korea) | *Senior Software Engineer*   *Jan-Mar'19*

- REDI Robot: Developed 2D navigation module using Dynamic-Window Approach (DWA) for velocity vector generation, simulated in Unity, and validated via hardware testing; **Best Contributor** award.   (C#)

Tessact | *Machine Learning Intern*   *Dec'16- Jan'17*

- Vehicular Licence plate recognition system: Formulated RPN(Region Proposal Network) like architecture to generate proposals, integrated pre-trained LSTM network to recognize alpha-numeric sequences. (TensorFlow)

Walt Disney India | *Research Intern*   *May-June'16*

- Revenue prediction system, to better align product orders from multiple vendors   (MySQL, Python, LSTM)
- Proposed personalized product recommendation using collaborative and content-based filtering techniques.

LIST OF PUBLICATIONS

- K. Sabu, **K. Kumar**, and P. Rao, "Improving the Noise Robustness of Prominence Detection for Children's Oral Reading Assessment", Proc. of NCC, Feb 2018, Hyderabad, India.   *Feb'18*
- K. Sabu, **K. Kumar**, and P. Rao, "Automatic detection of expressiveness in oral reading", Show & Tell demonstration, Interspeech, Hyderabad, India.   *Sep'18*
- P. Rao, M. Pandya, K. Sabu, **K. Kumar**, and N. Bondale, "A Study of Lexical and Prosodic Cues to Segmentation in a Hindi-English Code-switched Discourse", Interspeech, Hyderabad, India.   *Sep'18*

KEY PROJECTS

- **Children's speech assessment**: Designed garbage model to handle miscues in speech, achieved 74.03% miscue detection rate compared to only 43.4% with Google's Speech API.   *Jan-June'18*
- **Audio Visual Speech Recognition**: Combined visual cues with audio features and trained an LSTM network with CTC loss; improved WER by **5%** compared to audio only network.   *Jan-Apr'17*
- **Video Stabilization**: Employed SIFT for salient features and RANSAC for estimating the motion model between consecutive frames; ranked amongst **top 3** in a batch of 43 groups.   *Jan-Apr'16*
- **Inverted Pendulum**: Improvised LQR feedback controller, fabricated a PCB to stabilize the pendulum, reducing hardware cost **500 times**, deployed in Control Systems Lab as regular curriculum.   *Jan-Apr'16*
- **Configurable piano**: Designed and developed GUI based paino with keyboard input for modular audio synthesis using Python

SKILLS AND ACADEMIC INTERESTS

- **Courses**. Building Multimodal Search and RAG, Building Agentic RAG with Llamaindex, Vector Databases: from Embeddings to Applications, Bayesian Methods for Machine Learning, Advanced Machine Learning, Data Structures and Algorithms, Applied Linear Algebra, Data Analysis and Interpretation, Automatic Speech Recognition, Computer Vision, Medical Image Processing.
- **Tools & Languages**. Windsurf, Grafana, Scalyr, Kafka, Redash, SageMaker, Postman, VS Code, Android, GitHub, Jupyter, Java, Python, C++, MySQL, TensorFlow.