





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 (Signal Processing) 2013-18

AWARDS & ACHIEVEMENTS

- Project Incentive Award for extra productization effort in two commercial product releases Feb'22
- Received Samsung's excellence award for enhancing software development ecosystem Sep'21
- Cleared Samsung's Software competency test, professional level, ~ 1% pass-rate, twice in a row Sep'19
- Only one to get **AP grade** for exceptional performance in a core course (out of 143 students) Apr'15
- Secured **All India Rank 535** in JEE Advance 2013 (IIT-JEE) among 150,000 selected students June'13

CORPORATE WORK EXPERIENCE

Samsung R&D Bangalore | Lead Software Engineer

Aug'18-present

- Offline Commands: Slot normalizer for multiple capsules(apps), fully offline/on-device solution, successfully deployed on latest flagship mobile device(S22), for both English & Korean languages. (Android, Java)
- Contextual NLU: Partial utterance matching on dynamic contextual data for visual devices. Deployed for English, Korean & European languages after clearing all release cycles. (VScode, C++)
- Named Entity Correction: Developed multiple fuzzy matching solutions using ULA(Universal Levenshtein Automata) and FAISS by facebook, corrected ~ 30% ASR mistakes on a 20K test data-set. (Jupyter)

Samsung Electronics(South Korea) | Senior Software Engineer

Jan-Mar'19

- REDI Robot: Developed 2D Navigation module, used Dynamic-Window Approach(DWA) to generate velocity vectors for 2 wheels, simulated on Unity and did hardware testing, **Best contributor** award. (C#)

Tessact | Machine Learning Intern

Dec'16- Jan'17

- Vehicular Licence plate recognition system: Developed RPN(Region Proposal Network) like architecture to generate proposals, used 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, LSTM, Tkinter)
- Proposed personalized product recommendation, used collaborative & content based filtering techniques.

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-April'17
- **Video Stabilization:** Used 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-April'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-April'16

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

SKILLS AND ACADEMIC INTERESTS

- **Courses.** Advanced Machine Learning, Data Structures and Algorithms, Applied Linear Algebra, Data Analysis and Interpretation, Automatic Speech Recognition, Computer Vision, Medical Image Processing.
- **Tools & Languages.** VS Code, Android, GitHub, Jupyter, Java, Python, C++, MySQL, TensorFlow.