ADITYA YADAVALLI

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EDUCATION

International Institute of Information Technology, Hyderabad (IIIT-H) *Jul 2017 - Jun 2022*
B.Tech. in Computer Science (Honours)
M.S in Computational Linguistics

Advisor: Prof. Anil Kumar Vuppala
Thesis: Leveraging Language Relatedness to Improve Language Models in Speech Recognition Systems

(WORK + RESEARCH) EXPERIENCE

Karya Inc. Jun 2022 - Present
Speech Engineer, Mentors: Dr. Vivek Seshadri *Bengaluru, India*

- Building tools and models to automatically validate crowdsourced corpora.
- Constrained Natural Language Generation

Dept. of Cognitive Science, Case Western Reserve University Oct 2021 - Present
Research Associate, Mentor: Prof. Vera Tobin *Cleveland, OH*

- Collect and curate age-ordered Child Directed Speech (CDS) for 5 different languages
- Analyse whether Language Models (LM) pretrained on CDS can acquire languages efficiently
- Explore commanilities across CDS of various languages and cultures to train efficient LMs

Speech Processing Lab, IIIT-H May 2019 - May 2022
Researcher Assistant, Mentor: Prof. Anil Kumar Vuppala *Hyderabad, India*

- Analysed how dialect mismatched LMs adversely affect Automatic Speech Recognition (ASR). Further, removed the need for dialect-specific LMs by developing multi-task End-to-End multi-dialect ASR.
- Explored various subword tokenising methods to exploit the shared grapheme space to build superior multilingual LMs and applied them on multilingual ASR task.
- Part of the team that developed IE-CPS Lexicon: An Automatic Speech Recognition Oriented Indian-English Pronunciation Dictionary.
- Analysed how phonotactics are modeled by multilingual HMM-based and End-to-End ASR models.

SELECTED PROJECTS

MUltilingual and Code-Switching ASR Challenges (MUCS) *Feb 2021 - Apr 2021*
Advisor: *Prof. Anil Kumar Vuppala*

- Part of the IIIT-H team that participated in the MUCS challenge
- Achieved best Telugu WER by an absolute margin of 4.88%
- 11th overall in the multilingual ASR subtask

Comparative Analysis of Various Approaches for English-Telugu MT *Feb 2021 - Apr 2021*
Advisor: *Prof. Manish Srivastava*

- Predicted outputs under various settings for both PBSMT and NMT systems were compared and evaluated from a linguistic and quantitative point of view
- Various subword tokenisers were explored to split agglutinative Telugu words to overcome data sparsity

Performance Measurement for Broadcast Speeches *May 2019 - April 2020*
Principal Investigators: *Prof. Rajeev Sangal*, *Prof. Dipti Sharma*, *Prof. Anil Vuppala*

- Part of the bigger National Language Translation Mission for Indian Languages funded by Ministry of Electronics & Information Technology (MeitY), India.
- Part of the IIIT-H Team that evaluated the existing ASR, MT, and TTS systems

PUBLICATIONS (C=CONFERENCE, W=WORKSHOP)

[C.1] **Aditya Yadavalli**, Ganesh S Mirishkar, and Anil Kumar Vuppala, "Multi-Task End-to-End Model for Telugu Dialect and Speech Recognition", Interspeech, Korea, September 18-22, 2022.

[W.1] **Aditya Yadavalli**, Ganesh S Mirishkar, and Anil Kumar Vuppala,"Exploring the Effect of Dialect Mismatched Language Models in Telugu Automatic Speech Recognition", Proceedings of the 2022 Conference of the North American Chapter of the Association for Computational Linguistics: Student Research Workshop, Seattle, July 10-15, 2022.

[C.2] **Aditya Yadavalli**, Shelly Jain, Ganesh S Mirishkar, and Anil Kumar Vuppala, "Investigation of Subword-Based Bilingual Automatic Speech Recognition for Indian Languages", 2022 Fourteenth International Conference on Contemporary Computing (IC3-2022).

[C.3] Shelly Jain*, **Aditya Yadavalli***, Ganesh S Mirishkar*, Chiranjeevi Yarra, and Anil Kumar Vuppala, "IE-CPS Lexicon: An Automatic Speech Recognition Oriented Indian-English Pronunciation Dictionary", Proceedings of the 18th International Conference on Natural Language Processing (ICON), NIT Silchar, December 2021.

[C.4] Ganesh S Mirishkar, **Aditya Yadavalli**, and Anil Kumar Vuppala, "An Investigation of Hybrid architectures for Low Resource Multilingual Speech Recognition system in Indian context", Proceedings of the 18th International Conference on Natural Language Processing (ICON), NIT Silchar, December 2021.

[C.5] Nayan Vats, **Aditya Yadavalli**, Krishna Gurugubelli, and Anil Kumar Vuppala, "Acoustic Features, BERT Model and their Complementary Nature for Alzheimer's Dementia Detection", 2021 Thirteenth International Conference on Contemporary Computing (IC3-2021), August, Noida, 2021.

TEACHING EXPERIENCE

Alternate Religious Traditions in Indian History Spring 2021
Teaching Assistant, Instructors: Prof. Nilam Kakati, Prof. Aniket Alam *Hyderabad, India*

Speech Signal Processing Monsoon 2020
Teaching Assistant, Instructor: Prof. Anil Kumar Vuppala *Hyderabad, India*

MISCELLANEOUS

Computer Languages	Python, C/C++, Bash, Swift, Javascript
Frameworks	PyTorch, HuggingFace Transformers, React
Toolkits	ESPnet, Kaldi, Moses
Awards/Honours	Deans List in S-20, Merit List in M-20, S-21; NAACL SRW Travel Grant
Reviewer	DravidianLangTech@ACL 2022