

# ADITYA YADAVALLI

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## EDUCATION

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**International Institute of Information Technology, Hyderabad (IIIT-H)** 2017 – 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

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### **Karya**

Jun 2022 – Present

*Speech Engineer, Mentor: [Dr. Vivek Seshadri](#)*

*Bengaluru, India*

- Building tools and models to estimate the quality of the crowdsourced corpora.
- Building assistive models for crowdsource workers

### **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 commonalities 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

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### **ASR Track in AmericasNLP at NeurIPS 2022**

Sep 2022 – Nov 2022

Advisor: [Dr. Kalika Bali](#), [Dr. Sunayana Sitaram](#) [Dr. Vivek Seshadri](#)

- Part of the Karya-MSRI team that participated in AmericasNLP 2022 Shared Task
- Explored various feature fusion techniques and utilized language models to select best the ASR model
- 3rd best performance in ASR track 1

### **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

## 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

## SELECTED PUBLICATIONS

(C=CONFERENCE, W=WORKSHOP)

- [C.1] **Aditya Yadavalli\***, Alekhya Yadavalli\*, Vera Tobin, “SLABERT Talk Pretty One Day: Modeling Second Language Acquisition with BERT”, In Proceedings of the 61th Annual Meeting of the Association for Computational Linguistics, July 9-14, 2023.
- [C.2] Mehrad Moradshahi\*, Tianhao Shen\*, Kalika Bali, Monojit Choudhury,..., **Aditya Yadavalli**, Chaobin You, Deyi Xiong, Monica Lam, “X-RiSAWOZ: High-Quality End-to-End Multilingual Dialogue Datasets and Few-shot Agents”, In Findings of the Association for Computational Linguistics: ACL 2023, July 9-14, 2023.
- [C.3] Shelly Jain\*, **Aditya Yadavalli\***, Ganesh S Mirishkar, and Anil Kumar Vuppala, “How do Phonological Properties Affect Bilingual Automatic Speech Recognition?”, IEEE Spoken Language Technology Workshop (SLT), January 9-12, 2023.
- [C.4] **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.5] **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.6] 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.

## TEACHING EXPERIENCE

### Alternate Religious Traditions in Indian History

Teaching Assistant, Instructors: *Prof. Nilam Kakati, Prof. Aniket Alam*

Spring 2021

Hyderabad, India

### Speech Signal Processing

Teaching Assistant, Instructor: *Prof. Anil Kumar Vuppala*

Monsoon 2020

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, ACL 2023

### Volunteer

Clinical Speech Group@Masakhane