

Ramesh Gundluru

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RESEARCH INTERESTS

Speech Information Processing, Machine Learning, Deep Learning, Artificial Intelligence.

EDUCATION

Indian Institute of Technology, Hyderabad (IITH) , India	January 2024 — Present
Integrated Doctor of Philosophy (PhD) , Department of Electrical Engineering	Cumulative GPA: 8.7/10.00
Thesis Title: Unified Neural Architectures for Voice Search.	

Indian Institute of Technology, Hyderabad (IITH) , India	January 2022 — January 2024
Master of Technology (M.Tech) , Department of Electrical Engineering	Cumulative GPA: 8.55/10.00
Thesis Title: Lattice Free Keyword Spotting	

Rajiv Gandhi University of Knowledge Technologies (RGUKT) , RK Valley, India	June 2016 — October 2020
Bachelor of Technology (B.Tech) , Department of ECE	Cumulative GPA: 9.08/10.00

PUBLICATIONS

Conference Proceedings

1. **Ramesh Gundluru**, Shubham Gupta and K. Sri Rama Murty. "Joint Multimodal Contrastive Learning for Robust Spoken Term Detection and Keyword Spotting" in 2025 IEEE Automatic Speech Recognition and Understanding
2. **Ramesh Gundluru**, Naveen Doppa, and K. Sri Rama Murty. "Duration-Aware Phone Embedding Upsampling for Open Vocabulary Keyword Spotting." 2025 National Conference on Communications (NCC). IEEE, 2025.
3. **Ramesh Gundluru**, Naveen D, K Sri Rama Murty, "Lattice-Free Open Vocabulary Keyword Spotting" 2024 National Conference on Communications (NCC). IEEE, 2024.
4. P Giridhar, **Ramesh Gundluru**, and K. Sri Rama Murty. "A non-linear source-filter based vocoder with prosody control." 2023 National Conference on Communications (NCC). IEEE, 2023.
5. **Ramesh Gundluru**, C. Shiva Kumar, and K Sri Rama Murty."Self-supervised phonotactic representations for language identification." In Interspeech 2021 : 1514-1518.
6. **Ramesh Gundluru**, Vayyavuru Venkatesh, and K. Sri Rama Murty. "Attention-based phonetic convolutional recurrent neural networks for language identification." 2021 National Conference on Communications (NCC). IEEE, 2021.
7. S Nayak, C Shiva, **Ramesh Gundluru**, Saurabhchand Bhati, and K. Sri Rama Murty. "Virtual phone discovery for speech synthesis without text." In 2019 IEEE Global Conference on Signal and Information Processing (GlobalSIP).
8. Venkatesh Parvathala, **Ramesh Gundluru**, Sreekanth Sankala and K. Sri Rama Murty. "Exploiting Bispectral Features for Single-Channel Speech Enhancement" in Interspeech 2025.
9. Sreekanth Sankala, Venkatesh Parvathala, **Ramesh Gundluru**, and K. Sri Rama Murty. "Adversarial Attacks on Text-dependent Speaker Verification System" in Interspeech 2025.
10. **Ramesh Gundluru**, Venkatesh Parvathala, Sreekanth Sankala, Naveen Doppa and K. Sri Rama Murty. "Overcoming NAWEs Fixed-Window Constraints for Spoken Term Detection and Localization" submitted to ICASSP 2026 (Under Review)
11. **Ramesh Gundluru**, Naveen Doppa and K. Sri Rama Murty. "AdaKWS-loc: Enhancing AdaKWS with Precise Keyword Localization using Pairwise Margin-based Contrastive Loss" submitted to ICASSP 2026 (Under Review)

ACADEMIC EXPERIENCE

Indian Institute of Technology Hyderabad(IITH)	Hyderabad, India
Project Associate	June 2021 — December 2021

- Worked under the guidance of Prof K Sri Rama Murty
- Developed a Language Identification system for Indian languages using self-supervised representations.

Indian Institute of Technology, Hyderabad (IITH)	Hyderabad, India
Internship	May 2018 — June 2021

- Worked under the guidance of Prof K Sri Rama Murty

- Built Attention-based phonetic convolutional recurrent neural network for language identification for Indian languages.

PROJECTS

Keyword spotting for Indian Languages

During PhD

MeitY, India
June 2022 — Present

- National Language Translation Mission (NLTM) project
- Developed lattice based keyword spotter and lattice free keyword spotter for 13 Indian languages

Robot Audition

During MTech and PhD

Hyderabad DRDO, India
January 2022 — present

- Developed and integrated core audio modules for a humanoid robot audition system.
- Built both lattice-based and lattice-free keyword spotting systems for English, Hindi, Urdu, and Mandarin.
- Developed a unified multilingual ASR system using the Whisper model for English, Hindi, Urdu, and Mandarin languages.
- Implemented wake word recognition using both conventional ASR pipelines and end-to-end neural networks.
- Developed a command recognition system leveraging traditional ASR techniques.

Keyword spotting for Mandarin

During PhD

Bangalore DYSL, India
January 2024 — June 2024

- Developed Phoneme recognizer for Mandarin
- Developed lattice based and lattice free keyword spotting systems for Mandarin on GSM codec data

Automatic Speech Recognition for Indian English

During MTech (funded from I'm Beside You)

Tokyo, Japan
June 2022 — June 2023

- A collaborative Project between IIT Hyderabad and I'm Beside You company from Japan.
- Developed English speech recognition system using Wav2vec2 self-supervised network

AWARDS

- Best paper award for "A non-linear source-filter based vocoder with prosody control." at National Conference on Communications (NCC 2023).

SELECTED COURSES

Master's Courses

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| • Pattern Recognition and Machine Learning | • Advanced Digital Signal Processing |
| • Deep Learning | • Convex Optimization |
| • Random Variables and Stochastic Process | • Explainability in Machine Learning |

SKILLS

- **Programming:** : Python.
- **Frameworks:** TensorFlow and PyTorch
- **Communication :** English and Telugu.

REFERENCES

K Sri Rama Murty

*Professor, Department of Electrical Engineering,
Indian Institute of Technology (IIT), Hyderabad, India*
E-mail: ksrn@iith.ac.in

Dr Shaik Mohammad Rafi

*Assistant Professor, Department of Electronics and Communications Engineering,
International Institute of Information Technology (IIIT), Idupulapaya, India*
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