Dr. VEENA KARJIGI

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Education

	Degree	Year	Institute	Specialization
1	B.E.	1996	B M S College of Engineering, Bangalore	Telecommunication
2	M. E.	1999	B M S College of Engineering, Bangalore	Electronics
3	Ph. D.	2012	Indian Institute of Technology Bombay, Mumbai	Signal Processing

Professional Experience

	Date (from-to)	Designation	Organization
1	27-12- 2012 till date	Associate Professor	Siddaganga Institute of Technology
2	1-04-2010 to 26-12-2012	Assistant Professor	Siddaganga Institute of Technology
3	6-10-2009 to 9-4-2010	Selection Grade Lecturer	Siddaganga Institute of Technology
4	6-10-2004 to 5-10-2009	Senior Lecturer	Siddaganga Institute of Technology

| 5 | 6-10-1999 to 5-10-2004 | Lecturer | Siddaganga Institute of Technology |

(Please fill in reverse order. Current designation should be at the top)

(Please give details of any administrative posts, co Ordinator roles/ responsibilities held)

- PG Coordinator for M.Tech. Signal Processing from 2014 to 2018 in the department of ECE, SIT.
- IQAC Member during 2018 to 2020.
- Women in Engineering (WIE Counsellor, IEEE) for IEEE SIT Student Branch from July 2020.
- Internship Coordinator from January 2025.
- President of Institute Innovation Cell, SIT from March 2025.

Affiliations of Professional organizations

- Senior member of IEEE
- Fellow of the Institution of Engineers, India

Awards and Honors

- Best paper award for the work "Vowel Formant Transformation Techniques for Dysarthric Speech", in International Conference on Electrical, Electronics, Communication, Computer, and Optimization Techniques (ICEECCOT), GSSS, Mysore, Dec. 2019.
- Received Best Researcher Award 2020 IEEE Student Branch Level from IEEE Bangalore Section, 2020.
- Best paper award for the work "Watermelon Ripeness Detector using Signal Processing" in IEEE PuneCon 2022.
- Recognition of guide for the Best PhD Thesis for 2023.
- Certificate of Competency in Building Conversational AI Application from NVIDIA.
- Swayam NPTEL Domain Certification in Data Science during October 2024.
- Swayam NPTEL Discipline Star in Computer Science and Engineering during May 2025.

Courses Taught

Undergraduate Courses

- Basic Electronics
- Digital Electronic Circuits
- Signals and Systems
- Digital Signal Processing
- Information Theory and Coding
- Biomedical Signal Processing
- DSP Algorithms and Architecture
- Speech Processing

- Communication System (Analog and Digital Communication)
- Machine Learning
- Wireless Communication
- Universal Human Values
- Data Science

Postgraduate Courses
- DSP System Design
- Modern DSP
- Multirate Systems
- Speech Processing
- Detection Theory
- Advanced Digital Signal Processing

Research Guidance

Sl. no	Name of the Scholar	Title	Year of completion
1	H M Chandrashekar	Intelligibility Assessment of Dysarthric Speech	2022
2	Pavithra K S	Enhancing the Intelligibility of Disordered Speech	On Going

Research Areas
- Signal Processing
- Machine Learning

Sponsored Projects

Ongoing Projects:

1. Title: Center for Pathological Speech Processing
   Funding Agency: Vision Group on Science and Technology, Govt. of Karnataka
   Amount: 40 Lakh
   Duration: 2 years
   Role: Principal Investigator

Completed Projects:

1. Title: Exploring novel approach for speaker recognition in a multi-speaker environment
   Funding Agency: VTU Belagavi
   Amount: 6 Lakh
   Duration: 3 years (2011-2014)

Role: Co-Investigator

2. Title: Improving the Intelligibility of Dysarthric Speech
   Funding Agency: SERB-DST, Govt. of India
   Amount: 15 Lakh
   Duration: 3 Year (2015-2018)
   Role: Principal Investigator

Publications

Journals

- Karjigi V. and Rao P., "Classification of Place of Articulation in Unvoiced Stops with Spectro-temporal Surface Modeling, *Speech Communication,* Vol. 54, Issue-10, 2012.
- Karjigi V., and Rao P., "Knowledge based features for place classification of unvoiced stops", *Journal of Intelligent Systems*, 22(3), 215-228, 2013.

- Chandrashekar H M, Veena Karjigi and N Sreedevi, "Spectro-Temporal Representation of Speech for Intelligibility Assessment of Dysarthria", IEEE Journal of Selected Topics in Signal Processing, 14(2), 390-399, 2020.
- G. Diwakar and Veena Karjigi, "Improving speech to text alignment based on repetition detection for dysarthric speech", Circuits, Systems and Signal Processing, 39 (11), 5543-5567, 2020.
- Chandrashekar H M, Veena Karjigi and N Sreedevi, "Investigation of different time-frequency representations for intelligibility assessment of dysarthric speech", IEEE Transactions on Neural Systems and Rehabilitation Engineering, 28 (12), 2880-2889, 2020.
- Chandrashekar H M, Veena Karjigi and N Sreedevi, "Speech Intelligibilty Assessment using Fisher vector Encoding", Elseviers Computer Speech and Language, 77, 2023.
- Karjigi V, Roopa S, Chandrashekar H M, "Investigation of different time–frequency representations for detection of fricatives", International Journal of Speech Technology, vol. 27, pp. 599-611, 2024.
- Roopa S, Karjigi V, Chandrashekar H M, "Analyzing fricative confusions in healthy and pathological speech using modified S-transform", International Journal of Speech Technology, vol. 27, pp. 977-985, 2024.
- Aparanji V M, Karjigi V, "Detection of Fricatives in Continuous Speech using Auto Resonance Networks", Circuits, Systems and Signal Processing, vol. 44, pp. 1999-2019, 2024.
- Y A Goutham, T S Himasagar, Karjigi V, Chandrashekar H.M. and N Sreedevi, "Isolated Word Classification of Hearing Impaired Speech using Time-Frequency Representations", Circuits, Systems and Signal Processing, 2025.

Conference Proceedings

- Karjigi V., Rao P. and Samudravijaya K., "Investigation of acoustic attributes of Marathi unvoiced stops for classification", *Proceedings International conference on Frontiers of research on speech and music (FRSM)*, Mysore, India, 2007.
- Karjigi V, Patel B. and Rao P., "Identification of stops consonants for acoustic keyword spotting in continuous speech", *Proceedings International conference on wireless personal multimedia communications (WPMC)*, Jaipur, India, 2007.
- Karjigi V. and Rao P., " Four-way classification of place of articulation of Marathi unvoiced stops from burst spectra", *Proc. of Workshop on Image and Signal Processing (WISP)*, IIT Guwahati, Dec. 2007.
- Karjigi V, Rao P, "Landmark based recognition of stops: acoustic attributes versus smoothed spectra", *Interspeech*, Brisbane, Australia, 2008.
- Swetha C. S and Karjigi V., "Emotion Classification in Speech," *Proc. of National Conference on Communication Networks and Security*, RV College of Engineering, Bangalore, 2010.
- Swetha K.S. & Veena Karjigi, "Prominent word detection using pitch patterns", *International Conference Oriental Cocosda/Casire*, KIIT College of Engg., Gurgaon & DRDO, Govt, of India, on 25th -27th November 2013.
- Shridhar M. V., Bapu K. Banahatti, Narthan L., Veena Karjigi, and R. Kumaraswmy, "Development of Kannada speech corpus for prosodically guided phonetic search engine", *International Conference Oriental Cocosda/Casire*, KIIT College of Engg., Gurgaon & DRDO, Govt, of India, on 25th -27th November 2013.
- Kavya H.P., and Karjigi V., "Sensitive Keyword Spotting for Crime Analysis", Proc. of National Conference on Communication, Signal Processing and Networking, Palakkad, Kerala, 2014.
- Anu J.P., and Karjigi V., "Sentence segmentation for speech processing", Proc. of National Conference on Communication, Signal Processing and Networking, Palakkad, Kerala, 2014.
- Shilpa C P., Swathi V., Veena Karjigi, Pavithra K S, Saira Sultana, "Landmark based modification to correct distortions in dysarthric speech", Twenty Second National Conference on Communications, IIT Guwahati, March 2016.
- Saira Sultana, Pavithra K S., Veena Karjigi, Madhusudan Rao D., "Real time detection of fricative landmarks to modify distortions in dysarhric speech using TMS320C6713 DSK, Conference on Advances in Signal Processing, Cummins College of Engineering, Pune, June 9-11th 2016.
- Pavithra K S., Veena Karjigi, "University Seat Number Recognition: An application of connected alpha-digit recognition", Conference on Advances in Signal Processing, Cummins College of Engineering, Pune, June 9-11th 2016.
- G. Diwakar and Veena Karjigi, "Repetition Detection in Dysarthris Speech", IEEE International Conference on Wireless Communications, Signal Processing and Networking WiSPNET), SSN College of Engineering, Chennai, March 2017.
- A. Raj, A. Anjum, V. Karjigi, Madhusudan Rao, "Modification to correct distortions in dysarthric speech using TMS320C6713 DSK", Proc. IEEE International

Conference on Electrical, Electronics, Communication, Computer, and Optimization Techniques (ICEECCOT), 158-163, GSS, Mysore Jan, 2017.

- Chandrashekar H. M.,V. Karjigi and Sreedevi N., "Intelligibility Assessment and Analysis of Articulation Errors in Dysarthric Speech in English and Kannada", Proc. Workshop on "Speech Processing for Voice, Speech and Hearing Disorders", All India Institute of Speech and Hearing, Mysore, September 2018.

- Chandrashekar H. M.,V. Karjigi and Sreedevi N., "Breathiness Indices for Classification of Dysarthria based on Type and Speech Intelligibility", Proc. International Conference on Wireless Communications, Signal processing and Networking (WiSPNET), SSN College of Engineering, Chennai, March 2019.

- Anjli Varghese, Sowmya M C and Veena Karjigi, "Vowel Formant Transformation Techniques for Dysarthric Speech", Proc. International Conference on Electrical, Electronics, Communication, Computer, and Optimization Techniques (ICEECCOT), GSSS, Mysore, Dec. 2019.

- Chandrashekar H. M., Pavithra K.S., V. Karjigi and Sreedevi N., "Region based Prediction and Score Combination for Automatic Intelligibility assessment of dysarthric speech", Proc. IEEE International Conference on Computing, Communication (ICCCIS), Greater Noida, 2021.

- Pasupuleti Pragna, Prasanna, Sahana Suresh Naik, Shilpashree R Charantimath and Veena Karjigi, "Channel Estimation using conventional methods and deep learning", IEEE Global Conference for Advancement in Technology" (GCAT), Bangalore, 2021.

- Chandrashekar H. M., V. Karjigi and Sreedevi N., "Intelligibility Assessment of Dysarthric Speech using Extreme Learning Machine", Proc. IEEE International Conference on Wireless Communication and Signal Processing and Networking (WiSPNET), Chennai, 2022.

- Pavithra K S, Chandrashekar H. M. and V. Karjigi, "Neural network based curve fitting to enhance the intelligibility of dysarthric speech", Lecture notes in Computer Science, vol. 13721 LNAI, 2022, pp. 545-553.

- Karjagi S, Neelappagol S, Sushmitha S P, Vishruth S, Karjigi V, Watermelon Ripeness Detector using Signal Processing, "2022 IEEE Pune Section International Conference", PuneCon 2022, Pune.

- Y S Harshitha, T S Bhuvan, G R Sowkhya, K N Rahul Kumar, Karjigi V, "Wireless Communication using Autoencoder", International Conference on Smart Systems for applications in Electrical Sciences, ICSSES 2023, Tumkur.

- Aparanji V M, Karjigi V, "An Unsupervised Approach to Speech Segmentation using Auto Resonance Networks", IEEE 3rd Mysore Sub Section International Conference, Mysurucon, 2023, Hassan.

- Y A Goutham, T S Himasagar, G S Likhith, N Bharath Gowda, Karjigi V, "Digit Classification System for Normal and Pathological Speech", International Conference on Smart Systems for applications in Electrical Sciences, ICSSES 2024, Tumkur.

- Y B Anantha, P H Sri Hari, N SHarsha, R Kushal, Karjigi V, "Assistive Technology Device for Autistic Children", International Conference on Smart Systems for applications in Electrical Sciences, ICSSES 2025, Tumkur.

Reviewer of Journals

- Springer Journal on Circuits, Systems and Signal Processing

- IEEE Transactions on Neural Systems and Rehabilitation Engineering
- IEEE Journal of Selected Topics in Signal Processing
- Journal of Intelligent Systems
- IEEE Access

Invited Lectures, talks and workshops

- Signal Processing and It's Applications, Vijaya Vittala Institute of Technology, Bangalore 2015.
- Speech Signal Processing and its Applications, Sri Jayachamarajendra College of Engineering Mysore 2015.
- Signal Modelling, Sri Jayachamarajendra College of Engineering Mysore, December 2018.
- Analysis of pathological voices by speech processing, JNNCE, Shimoga, July 2019.
- Improving the Intelligibility of Dysarthric Speech, JNNCE Shimoga, July 2019.
- Signal Processing for Machine Learning, RJIT, Hassan, July 2020.
- Pathological Speech Signal Processing, KLE Technological University, ATAL FDP, 2021.
- Signal Processing and Machine Learning for Intelligibility assessment of dysarthric speech, GSSSITEW, 2022.