Dr. Deepa P. Gopinath
Assistant Professor
Dept. of Electronics & Commn. Engg.
Govt. Engg. College Barton Hill
Thiruvananthapuram
Phone: 9446583466
email: deepapgopinath@gmail.com
deepa.gopinath@@gecbh.ac.in

Profile

Educational Qualification :

- B.Tech from College of Engg. Trivandrum in Electronics and Communication Engg.
- M.Tech from College of Engg. Trivandrum in Microwave & TV Engg.
- Ph.D from University of Kerala; Thesis : Duration Analysis and modeling for text to speech synthesis in Malayalam.

Teaching:

Teaching is my lifeline, research is my passion and social activism gives meaning to my career and life. I believe my profession gives me ample opportunities to combine all three in right proportions, to have a successful and satisfactory professional life. I conceive a teacher as a friend, philosopher and guide to students. I believe we need to give them our time to share their thoughts, concerns and dreams, to discuss their ideas and to make them believe we are always with them.

Specialization: Signal processing, Speech Processing

Research area:

My research is primarily on **speech processing for Malayalam language**, specifically for development of reading software for the visually impaired. All the research work I have carried out in this area is focused for technology development for Malayalam Language. R&D works in local languages is essential to bridge the digital divide as well as to enable differently-abled people to communicate, contribute and be integrated with the digital world. To deliver the results of our research work to community, academicians from various disciplines, have to join hands with system developers. My attempts in this direction have resulted in the following :

1. **Principal Investigator** of the project titled **'Development of Malayalam Text to Speech Synthesis System as an assistive technology tool for visually impaired'**, funded by **ICFOSS** (International Centre for Free and Open Source Software) – **Rs. 29 Lakhs**

2. **Mentor**, **Google Summer of Code (GSOC 2016),** for the project 'Speech recognition using Sphinx', with **Swatanthra Malayalam Computing (SMC)** as mentoring organization.
3. Contributed to the **development of Text to speech synthesis system in Malayalam using** FESTIVAL speech engine, developed by **SPACE.**
4. **Developed linguistic rules for Malayalam** to be used in Text to speech synthesis system, in the 2 day language computing workshop held at Calicut University and participated by language experts, computational linguists, software developers and free-software developers.
5. **Framed rules and exceptions for the synthesis of numbers in Malayalam**, in the speech synthesis system called e-speak, which is a multi-lingual software, used by the blind people of our state as a reading software. E-speak is a speech engine developed by Jonathan Duddington, to be used for different languages. He developed a system for Malayalam as well. I along with my M.Tech student contributed to correct the pronunciation of Malayalam speech. Mr. Duddington accepted our suggestions and **released a new version of e-speak, including our rule set.**
6. **Guided a project for developing a 'GPS based navigation system for visually impaired'** funded by CERD.
7. Member, **Swatanthra Malayalam Computing (SMC),** a group of professionals working for the development of language and speech computing for Malayalam

Publications :

- **Books :** Expert for the preparation of Text book of Electronics, Class XI, Kerala State Syllabus published by SCERT.
- **Book chapter :** "Analogy in the prosodic level of synthetic language production", New Perspectives in Linguistics, Silver Jubilee Commemoration volume, Prof. C. Sivashanmugam, Department of Linguistics, Bharathiar University, Coimbatore.
- **No. of papers published in Journal / Conference:**
  International Journal : 2
  International Conference : 20
  National Journal : 2
  National Conference : 17

Talks/ Conferences :

1. Delivered a **lecture on 'Memory Prediction Framework'** at **University of Campinas, Brazil**

2. Presented papers in 3 International Conferences:
   - *'Modeling of vowel duration in Malayalam speech using probability distribution'*, Fourth International Conference on Speech Prosody - **SPEECH PROSODY 2008 at Campinas, Brazil,** May 6th to 9th, 2008 (organized by Special

Interest Group on Speech Prosody (SProSIG) of the International Speech Communication Association.

- *'Prosody knowledge for emotional speech synthesis in Malayalam'*, First International Conference on Digital Communication and Computer applications **(DCCA 2007), Jordan, March 2007.**
- *'Emotional analysis for Text to Speech Synthesis in Malayalam',* International Conference on Sciences of Electronics, Technologies of Information and Telecommunications **(SETIT 2007), Tunisia, March 2007**

3. **Resource person** in courses organized by Engineering Colleges, Polytechnics, Universities and professional groups. Used to regularly give talks in topics including
    - Speech signal processing
    - Digital signal processing
    - Signal processing using MATLAB
    - Artificial Neural Networks
    - Probability and Random Process
    - Wavelets and Applications
    - Speech synthesis
    - Speech Compression
    - Chaos theory
    - Estimation and Detection
    - Fourier Analysis
    - Assistive technologies
    - Orientation class for PG students
    - Gender Sensitization
    - Environment conservation and sustainable development