Jitendra Kumar Dhiman

Contact Information

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Research Interests

Speech and audio processing, speech synthesis, and machine learning

Education

Ph.D, Speech signal processing, (2014 - Present)
Indian Institute of Science Bangalore, Karnataka
Current G.P.A: 5.5/8

M.Tech, Signal processing, (2011 - 2013)
Indian Institute of Technology of Hyderabad, Telangana, India
C.G.P.A: 8.27/10; class: First

B.Tech, Electronics and telecommunication Engineering, 2010
The Institution of Electronics and Telecommunication Engineers, New Delhi, India
C.G.P.A: 8/10; class: First

Current area of research

Ph.D Thesis (2014 - Present)
Tentative title: Spectro-Temporal Analysis and Synthesis of Speech Signals
I am working on the development of a unified framework for analysis and synthesis of speech signal towards my Ph.D. thesis. The technique involves processing of speech signals jointly in spectro-temporal domain which employs a new tool referred to as Riesz transform.

Conference Publications

[1] **Jitendra Kumar Dhiman**, Nagraj Adiga and Chandra Sekhar Seelamantula, "On the suitability of the Riesz Spectro-Temporal Envelope for WaveNet Based Speech Synthesis," *in Proc. of INTERSPEECH*, 2019.

[2] **Jitendra Kumar Dhiman** and Chandra Sekhar Seelamantula, "A Spectro-Temporal Technique for Estimating Aperiodicity and Voiced/Unvoiced Decision Boundaries of Speech Signals," *in Proc. of International Conference on Acoustic, Speech and Signal Processing (ICASSP)*, 2019.

[3] **Jitendra Kumar Dhiman**, Neeraj Sharma and Chandra Sekhar Seelamantula, "Multicomponent 2-D AM-FM Modeling of Speech Spectrograms," *in Proc. of INTERSPEECH*, 2018.

[4] **Jitendra Kumar Dhiman**, Nagraj Adiga and Chandra Sekhar Seelamantula, "A Spectro-Temporal Demodulation Technique for Pitch Estimation," *in Proc. of INTERSPEECH*, 2017.

[5] Karthika Vijayan, **Jitendra Kumar Dhiman**, and Chandra Sekhar Seelamantula, "Time-Frequency Coherence for Periodic-Aperiodic Decomposition of Speech Signals," *in Proc. of INTERSPEECH*, 2017.

[6] Senthil Kumar Mani, **Jitendra Kumar Dhiman** and K. Sri Rama Murty, "A Novel Speech Duration Modifier for Packet Based Communication System," *in Proc. of INTERSPEECH*, 2014.

Awards and Honors

• Best poster presentation award at the EECS divisional symposium 2018 among 33 candidates at Indian Institute of Science, Bangalore.

Research experience

Research Scholar, **2014 August - present**

Department of EE, IISc Bangalore, Karnataka
Project: Development of Text-to-Speech system for *Hindi* language
Investigator: Prof. Chandra Sekhar Seelamantula

Activities involved:

- Research and development of a Text-to-Speech system (TTS).
- An alternative technique for analysis/synthesis of speech using Riesz transform.
- TTS system building for Hindi using Hidden Markov Model with HTS framework and deep neural networks.

Research Associate, **2014 January - 2014 July**

IISc Bangalore, India
Project: Text-to-Speech synthesizer for Indian languages
Funding Agency: Department of Information technology
Investigator: Prof. Chandra Sekhar Seelamantula

Activities involved:

- Worked on prosody modifications of speech, an algorithm for time and pitch scale modification of speech was developed in C++.
- The developed software was tested in real time on android platform.

Project Associate, **2013 June - 2013 Dec**

IIT Hyderabad, India
Project: Prosodically guided phonetic engine for searching speech databases in Indian languages.
Funding Agency: Department of Information technology
Investigator: K. Sri Rama Murty

Activities involved:

- Development of an audio search engine for searching speech databases in multiple Indian languages.

Industrial experience

Electronics Engineer, **2010 Sept - 2011 June**

PEP INFOTECH LIMITED, Meerut, India

Activities involved:

- Block level experience of different inverter modules.
- Development of 800 VA digital UPS.
- Troubleshooting and testing of electronics circuits.

Teaching experience

Teaching assistant for the courses,
Matrix Theory offered by Prof. A G Ramakrishnan at Indian Institute of Science, Bangalore during August - December, 2016: Responsibilities included conducting tutorial classes and preparing assignments/projects

Digital Signal Processing offered by K. Sri Rama Murty at Indian Institute of Technology Hyderabad during January - June, 2012: Responsibilities included conducting weekly quizzes

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Workshops and conferences

Workshop on image and speech processing (WISP-2012) held at IIIT Hyderabad.
Winter school on speech and audio processing (WiSSAP-2015) held at DAIICT, Gandhinagar.
Winter school on speech and audio processing (WiSSAP-2016) held at SSN college of engineering, Chennai.
Winter school on speech and audio processing (WiSSAP-2017) held at IISc, Bangalore.
Winter school on speech and audio processing (WiSSAP-2019) held at Thiruvanathapuram, India.

Academic achievements

Secured 99.57 percentile in Graduate aptitude test in engineering (GATE) with AIR 579 among 147,000 students.

MHRD, Govt. of India GATE Scholarship for Pursuing my M.Tech (2011 June - 2013 June).

Skills

Speech processing tools: HTK, HTS, DNN, SPTK, Festival, Festvox
Scripting: UNIX shell, python.
Programming skills: MATLAB, C, C++.
Lab tools: Working knowledge and experience in usage of C.R.O. and signal generators.

Professional Memberships

ISCA, Graduate student member, 2017–present, Member id 16172.

Languages known

Hindi and English

Date of birth

14/08/1985

Reference Available to Contact

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