IEEE Seasonal School

Signal Processing Guided Machine Learning Approaches for Speech and Audio Applications

Organized by

IEEE Signal Processing Society
（Madras Chapter）

in association with

Department of ECE
SSN College of Engineering

Feb 5th – 9th 2024
（ in person only ）

Dr. P Vijayalakshmi.   Dr. N. Venkateswaran   Dr. B. Ramani   Dr. M.P.Actlin Jeeva

FOCUS

The primary focus of the IEEE SPS Seasonal School 2024 is to delve into the cutting-edge approaches in Signal Processing Guided Machine Learning for Speech and Audio Applications.

SCOPE

Deep neural networks can learn directly from the magnitude spectrum, the two-dimensional convolutional neural networks can learn directly from spectrograms and the Recurrent neural networks can learn directly from the time-domain signal. All these networks combined, can directly learn to transform speech in one language to another. These are big claims, and such claims make any signal processing engineer wonder, "Is signal processing relevant in the age of neural networks, and is feature engineering irrelevant?" They also inspire an aspiring student to skip signal processing, and embrace the higher abstractions of this knowledge, wherein thoughts of "signals" fade away to pave way for an all encompassing term "data". This seasonal school aims at reinstating signal processing as the foundation of speech and audio signal processing, and aims to explain why it is still relevant. It aims to show that even though signal processing methods are not the only way to solve modern day pattern recognition problems, the principles are still relevant. The topics in this workshop are aimed to provide students and researchers with the right tools to navigate the array of modern day research problems, and show that signal processing methods can guide design choices in machine learning algorithms.

SPEAKERS

Dr. Hema A. Murthy, Professor, CSE IITM

Dr. S Umesh, Professor, CSE IITM

Dr. T. Nagarajan, HoD CSE, SNU

Dr. Anushiya Rachel, Asst. Professor CSE, SNU

Dr. Prasanta Kumar Ghosh, Assoc. Professor EE, IISc B

Dr. S.R. Mahadeva Prasanna, Professor, CSE IIT Dh

Dr. K. T. Deepak, Asst. Professor, CSE IIIT Dh

Dr. P. Vijayalakshmi, Professor, ECE SSNCE

Dr. Sri Rama Murty Kodukula, Professor, EE IITH

Ms. Shwetha Somasundaram, Research Associate, Adobe

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INFORMATION

TOPICS DISCUSSED

- Signal Processing in the past, and an introduction to the present.
- Perspectives on the union of signal processing and machine learning.
- Overview of signal processing and machine learning-based speech and audio applications.
- Scope of feature engineering, and the pitfalls of brute force machine learning
- Future of Signal Processing.
- Hands-on session on feature engineering and machine learning for speech and audio applications

REGISTRATION

1. Non SPS members-Faculty: Rs. 500
2. SPS members – Faculty: Rs. 300
3. Non SPS members- UG/PG/PHD Scholars: 500
4. SPS members- UG/PG/PHD Scholars: Rs. 300

Online registration form available at:
https://forms.gle/3bmMTgevnjDpcYUZA

Last date for online registration: 31st January 2024

Coordinators:
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