COMPSIG NITT

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Dear friends! COMPSIG NITT is a monthly newsletter to share the research work done in the Pattern recognition and computational intelligence laboratory, Department of Electronics and Communication Engineering, National Institute of Technology Trichy.

Concepts, Ideas pertaining to Computational intelligence, Pattern recognition and Signal processing are also included in this newsletter.

We expect the feedback, comments and articles from you all.

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Team members

1. **Dr. E.S.Gopi, Co-ordinator.**
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3. **Neema. M, Ph.D. Scholar.**
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5. **Sankar N Nair, M.Tech, Communication systems.**
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Visit of Prof.Dr. K M M Prabhu, Indian Institute of Technology, Madras (Retd.) to NITT

Esteemed Prof. Dr. K M M Prabhu, Professor (Retd.), Department of Electrical Engineering, formerly with IIT Madras & presently with IIT Tirupati delivered a guest lecture on, **Introduction to Research** on 02/08/2018. The outline of his talk included the topics such as basics of research, how to read a paper, how to write a paper and thesis writing. He also shared some of his experiences in publishing the research paper. He suggested that, a good research should have original contribution, published in reputed journals and get cited by other researchers working on similar topic.

In the afternoon session, Prof. Dr. K M M Prabhu delivered the lecture on, **DSP beyond DFT** addressed to the V semester students in ECE department.

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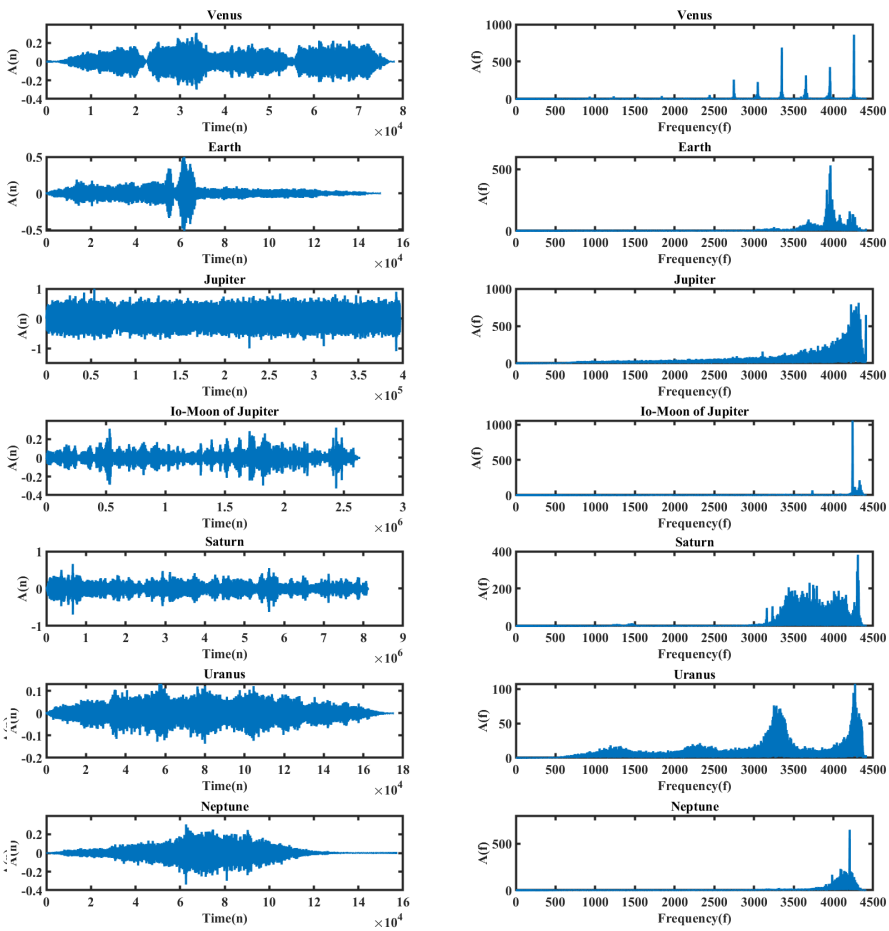
Knowledge Discovery

"The fourth paradigm of scientific knowledge discovery champions the philosophy that with sufficient data, science can be carried out by directly examining and analyzing the data. New laws of nature can be discovered from the data." - Qiang Yang, Fellow, IEEE, Introduction to the IEEE Transactions on Big Data. Knowledge discovery is the process of discovering useful knowledge from a collection of data. This widely used data mining technique is a process that includes data preparation and selection, incorporating prior knowledge on data sets and interpreting accurate solutions from the observed results.

For instance, NASA space probes are used to record radio emissions from planetary environments, which are then converted to audio frequency ranges. This translation of radio signals into sound is called 'data sonification'. In the given figure, the first column shows the recording in time-domain of various celestial objects, in audio frequency range (sampled at 4410 Hz), and the second column shows the corresponding frequency spectra. The discovery of knowledge about the origins and reasons for the above soundtracks produced by various planets is an open problem.



Link to the m-file: http://silver.nitt.edu/ esgopi/mfiles/planetssound/
Link to the MP3 file: http://silver.nitt.edu/ esgopi/mp3files/
MP3 file courtesy : https://picturesofinfinity.net/sounds-of-planets/

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On-going Research

- Constructing a Sunflower plant database and perform off-type identification using deep learning techniques
- Application of machine learning techniques in next generation wireless communication
- Classification of Music composition styles using probabilistic generative model
- Hotspot detection using deep learning techniques

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Feedback

COMPSIG NITT invites articles and innovative ideas from readers for the Reader's Space column. We expect feedback and comments to monthly newsletter COMPSIG NITT . Readers can share their views in our facebook page, "COMPSIG-NITT". Those who are interested can be a part of the facebook group.

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Quotes

"Small aim is a crime; have great aim." — Dr. A.P.J.Abdul Kalam