COMPSIG NITT

In This Issue. . .

- **Pattern Recognition:** Statistics of the students undergoing pattern recognition course.
- **Illustration:** Visualization of Carnatic Ragas and the related emotions.
- **On-going research:** Current research works in PRCI Lab.

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

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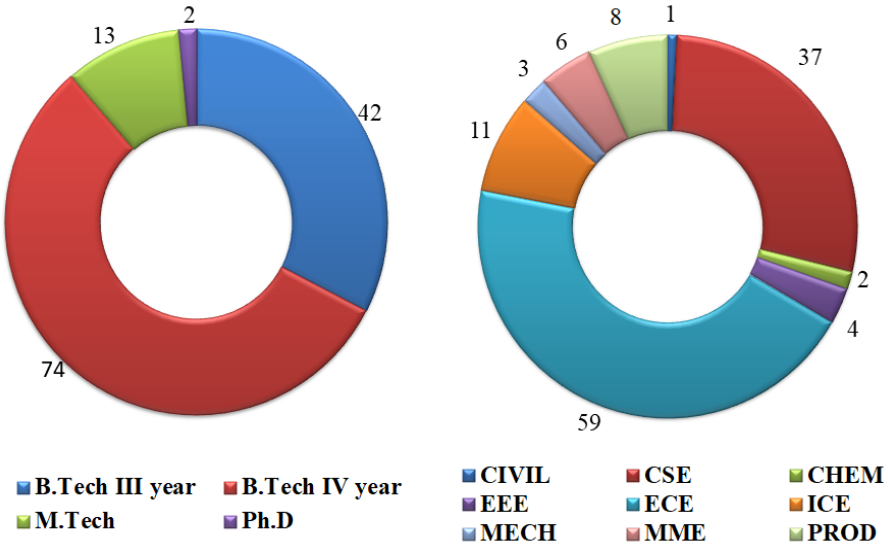
Pattern Recognition - Course Statistics



Pattern Recognition was offered as a global elective course for UG third and fourth years. For PG it was offered as Pattern Recognition and Computational Intelligence. The course statistics shows that it has attracted students across many departments. The pie charts show the distribution of students with respect to course and departments. The students were divided into groups and each group was asked to prepare an audio slide on the topic alloted to them. PG and research scholars were given individual topics. The topics mainly covered different techniques in pattern recognition.

Link to UG audio slides: UG audio slides
Link to PG audio slides: PG audio slides

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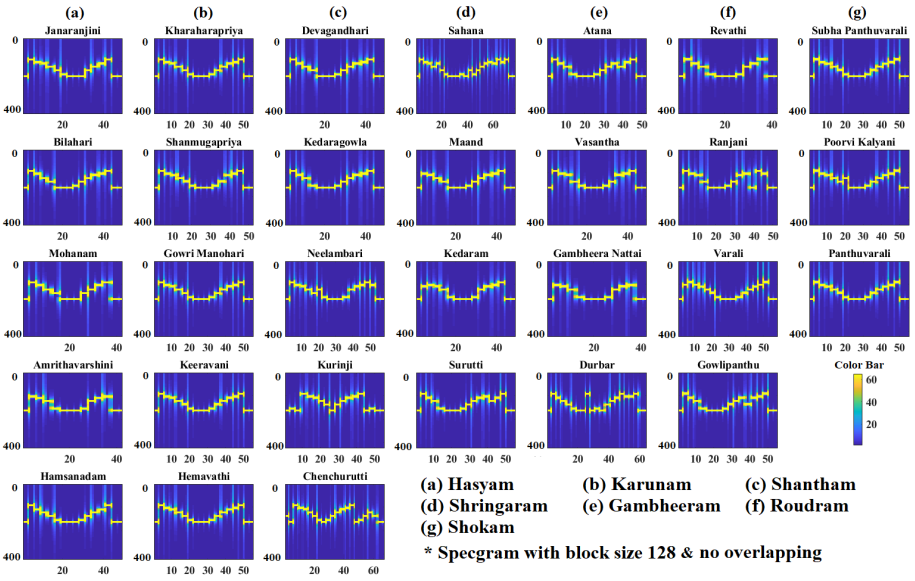
Visualization of Carnatic Ragas



Carnatic music is a system of Indian classic music especially associated with southern part of India. Different carnatic ragas have been composed and used for many purposes such as stress relief, healing by stimulating the nerves at a particular body part, etc. Each carnatic raga is composed of properly organized combination of carnatic musical notes in an increasing order of their frequency, known as aarohana followed by the reverse order, avarohana. Ragas composed by different combination and sequence of notes convey different emotions. In this illustration, the sequence and style of popular carnatic ragas conveying the emotions of Hasyam (happy), Karunam (pleading), Shantham (soothing), Shringaram (romantic), Gambheeram (Strength or Energy), Roudram (Anger) and Shokam (Sad) related feelings have been analyzed using spectrogram (refer figure) where y-axis denotes the frequency in hertz while the x-axis denotes the block index. The ragas are classified into the corresponding emotions based on the subjective responses.

Link to the m-file: Carnatic raga

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Book chapter publication

We are happy to share the news that our chapter titled "**Particle Swarm Optimization based HMM parameter estimation in Cognitive Radio System**" has got published in the book "**Computational Intelligence for pattern recognition**" by **Springer** publications.

Link to the chapter: Chapter

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Quotes

"You cannot change your future, you can change your habits. And surely your habits will change your future." — Dr. A.P.J.Abdul Kalam

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
- Computational Intelligence for channel estimation of Massive MIMO systems
- Investigation of Empirical Match Algorithm for latent sequence estimation in HMM and its applications in 5G Technology

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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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