COMPSIG NITT

In This Issue. . .

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.**
2. **G. Jaya Brindha, Ph.D. Scholar.**
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5. **Vineetha Yogesh, M.Tech, Communication systems.**
6. **Shaik Mahammad, M.Tech, Communication systems.**

An Attempt to hunt Music Composition Style

Data hunting is a rising technique in Big data analysis where some useful information is explored from the visual representation of the data. Working in this direction, an attempt is made in visualizing the individual songs of genre melody composed by four music directors (refer Fig.1). The radii of the concentric circles (colors are arbitrarily chosen) represent the indexes of the actual frequencies used in the particular song. The markers (red) show the trace of change in the dominant frequency index for every quarter of a second.

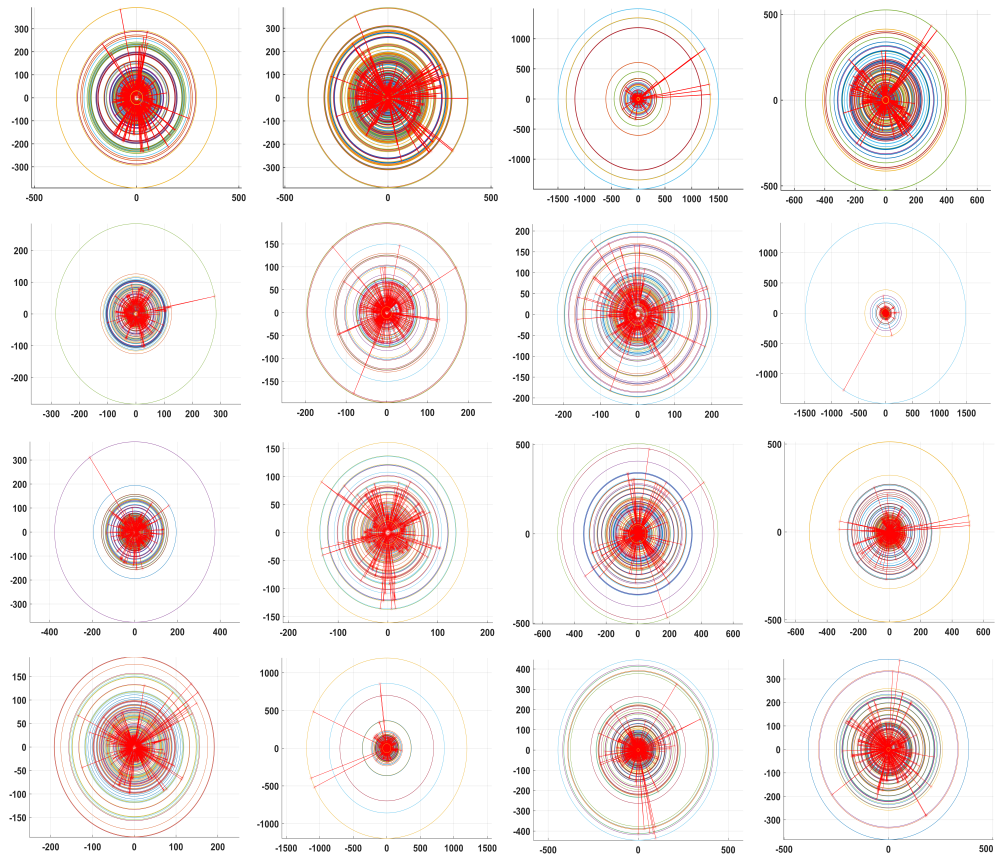


Fig.1

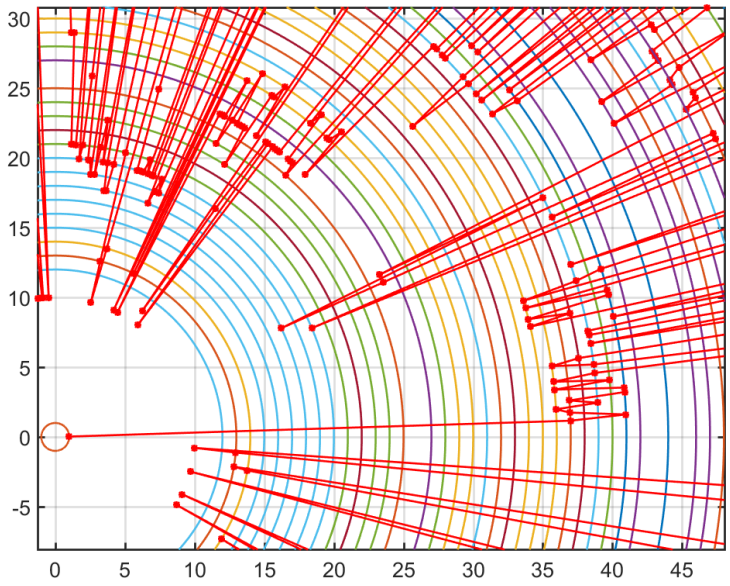
Each row in Fig.1 illustrates the sample visualization (zoom for better view) of 4 songs composed by individual music directors.

Click here to download the high resolution Fig files.

Back to Contents

Zoomed Version

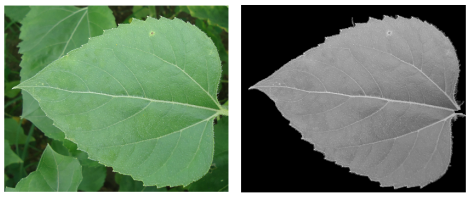
The zoomed version of the first subplot of Fig.1 is shown below.

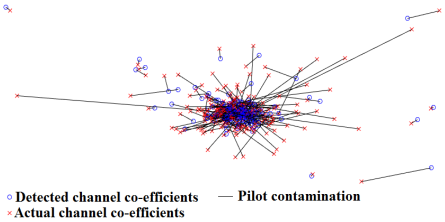


Back to Contents

Ongoing Research Work

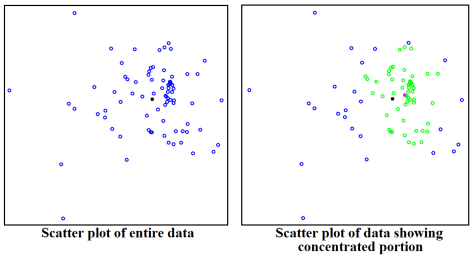
Offtype Identification in Sunflower Plants: A database that consists of various parts of the sunflower plant was constructed. Preprocessing such as segmentation of region of interest were done and the deep learning techniques are studied in order to obtain high classification accuracy.


Input image Preprocessed image



Visualization of the Extend of Pilot Contamination in Massive MIMO Network: The visualization helps to identify the intended and contaminated signals at a particular base station antenna, thereby helps to identify the prominent contributor in contamination.

Classification of Data using the Modified Mahalanobis Distance : Instead of computing the mean and covariance matrices for the entire data, it is computed only for the concentrated data (green color). These new mean and covariance matrices are used for classifying different classes of data.


Scatter plot of entire data Scatter plot of data showing concentrated portion

Back to Contents

Quotes

> *"Have an aim in life, continuously acquire knowledge, work hard, and have perseverance to realise the great life."* — Dr. A.P.J.Abdul Kalam

Bookmetrix 2017

Performance reports of the following books in springer publications show that they are among top 50% most downloaded eBooks in the relevant Springer Link eBook Collection.

- Digital Signal Processing for Medical Imaging Using Matlab
- Digital Speech Processing Using Matlab
- Digital Signal Processing for Wireless Communication using Matlab
- Mathematical Summary for Digital Signal Processing Applications with Matlab

Back to Contents

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, "COMPSIGNITT". Those who are interested can be a part of the facebook group.

Back to Contents

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