

Research Proposal

Name of the Candidate : Veena S Nair

Area of Research : Computer Science and Engineering

Proposed title of the work:

Deep learning for identifying classical music ragas and their emotions

Research problem:

Implementing deep neural networks for identify and classify different ragas in both Carnatic and Hindustani music. Emotion recognition is an advanced trend in research field. Based on these neural networks, we can easily recognise an emotion from each ragas.

Research methodology:

Instead to using machine learning algorithms, neural networks that can be used to solve complex problems. The proposed work is about identification and classification of ragas in Indian Classical music. Ragas has several components, they can be classified in various ways by structure, by parent scale, by mood, by family, by time or season and so on. Every composition is structured using ragas. The major challenge is that data is not readily available for the entire project. Therefore to obtain the different data (audio file) is the major task and analyse the structure of ragas, which will be implemented by using deep neural networks. Each ragas has different emotions, tased on our proposed network emotion recognition can be easily identified.

Research time plan:

Stages of Research	0-6 months	6-12 months	12-18 months	18-24 months	24-30 months	30-36 months
Selection of topic						
Literature Review						

Research methodology plan						
Selection of appropriate research techniques						
Analysis						
Findings and recommendations						
Data Compilation, Publications and Final Report						

Possible outcome:

Classifying different ragas of classical music and also identifying the emotions of each ragas using deep learning.

Reference:

- [1] Kirane N, Mangaonkar G, Joshi N. *Identifying Emotions Through Raga: An Exploratory Study*, Conference: National Symposium on Acoustics, November 2014.
- [2] Priyanka S. Lokhande; Bhavana S. Tiple, *A framework for emotion identification in music: Deep learning approach*, 2017 International Conference on Intelligent Computing and Control Systems.
- [3] Sreeparna Banerjee. *A Survey of Prospects and Problems in Hindustani Classical Raga Identification Using Machine Learning Techniques*, Advances in Intelligent Systems and Computing, November 2017.
- [4] Huizi Li. *Piano Automatic Computer Composition by Deep Learning and Blockchain Technology*, IEEE Access, Volume 8, 14 October 2020.