Chapter 8

Conclusion

On the basis of the present study, it becomes possible to develop a model which can handle all the 22 Srutis to analyse a Raga.
The model developed in this project is capable of identifying all the 72 Melakartha Ragas. Performance by vocalist and instruments were tested to satisfaction. One of the prominent observations is that, some of the publicly available performances, both vocal and instrumental, are found to be substantially deviated from the theory. Many of the performances are not strictly in the Ragas as claimed. While some cases can be classified as deviations in the features of the Raga from theory, others are mistakes.

8.1 Performance evaluation

One of the prominent achievements of this study is that it has been able to come up with a performance index for musicians, namely Sruti Consistency Coefficient (SCC) and Raga Consistency Coefficient (RCC). It is heartening to note that SCC and RCC are in total agreement with the popular evaluation of performing musicians, such as M.S. Subbulakshmi, K.V. Narayanaswamy, Dr. M. Balamuralikrishna and Dr. K.J. Yesudas, who have secured very high SCC and RCC in our evaluation.

The identification of Raga in a live concert is difficult as the various accompaniments will be producing sound at multiple frequencies. While the Raga is to be detected from the performance of the vocalist, sound from musical instruments would interfere, hampering voice frequencies. When a vocalist is accompanied by a violinist, the violinist will be playing frequencies which are double that of the vocalist (explained in chapter 3). In such situations, detection may not be accurate. Similarly, with mridangam, producing multiple frequencies, the detection may fail. However, if the accompaniments are played at subdued
level, or with the help of a good sound mixer, the track of the vocalist can be isolated; identification of the Raga is possible. Undoubtedly, a good environment for identification of the Raga is, either a vocalist alone or an instrument alone. At any cost, if tampura is used, its level must be very low.

Analysing the sound generated by different sound sources, it was found that a musical Note or Sruti contains a number of frequencies. The prominent frequencies are the fundamental and the overtones. But it also contains many other frequencies and spread over many octaves. From among all the generated frequencies, we can find out the Swaras of the Raga rendered.

8.2 Western Music

It must be said that the present model has immense scope. For instance, with some modifications, the same set of programs can be used to identify the musical scale of a Western Music or the Notes of a chord played. Since the Western Music doesn’t have the concept of Gamaka, the musical Note converges to a single frequency. This makes the identification of the Notes very easy. Hence the Scales in the Western Music can be determined easily.

8.3 Hindustani Music

The basis of Hindustani Music is the same as that of Carnatic Music. But instead of Melakartha Ragas, it has 10 Thats. By suitably modifying the program we can identify Hindustani Ragas also.

8.4 Film songs

This model can also have popular applications like identification of Raga in a Raga based film song. If the song is in any one of the 72 Melakartha Ragas, it will be identified by the program.
8.5 Calibration of acoustic instruments

The software Sruti can also be used for calibration of musical instruments and laboratory equipments used for sound based experiments. For example the exact frequency of a tuning fork can be found out. It is interesting to note that at least in some cases the actual frequency of the tuning forks, available in the market, are not as marked. Similarly the fret positions of string instruments, like in a guitar can be determined and checked.

8.6 A tool for students

The software: mrag, frag and Sruti can be used as training kit for the students of music. These programs can be installed in his personal computer at home and the practice sessions could be continuously monitored and evaluated. By using Sruti, the base Sruti of the student can be checked and stabilised. This would greatly improve the quality of his performance. More over his performance can be checked by evaluating his SCC and RCC.

An advanced student of Carnatic Music, while practicing different Ragas in the 16 Sruti system, can see that he is going through the different Sruti positions of the 22 Sruti system during his routine rendering sessions. On the basis of the present study, it becomes possible to develop a model which can handle all the 22 Srutis to analyse a Raga.

For all the reasons cited above, it is quite evident that the model presented in this thesis has the potential to be an invaluable tool for professional musicians as well as scholars and students of music around the world.