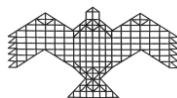Junior Research Fellow/Project Associate Position in the area of
"*Signal Processing and Machine Learning of Music*"

National Institute of Advanced Studies, Bangalore

The National Institute of Advanced Studies (NIAS) was conceived and founded in 1988 by the late J. R. D. Tata, who sought to create an institution to conduct advanced multidisciplinary research. Housed in a picturesque green campus in Bangalore, the Institute serves as a forum to bring together individuals from diverse intellectual backgrounds, in the natural and life sciences, humanities, social sciences, and conflict and security studies. The philosophy underlying NIAS is given shape by its multidisciplinary research teams. The Institute is unique in its integrated approach to the study of intersections between science and technology, philosophy, social issues and leadership. The objective is to nurture a broad base of scholars, managers and leaders who would respond to the complex challenges that face contemporary India and global society, with insight, sensitivity, confidence and dedication. For more details: www.nias.res.in

About the Project: This DST-funded project aims to mathematically and computationally analyse certain musical tunes that were culturally exchanged in the history of Indian and European classical and popular music, particularly during the 18th and 19th centuries, characterise their complexity and identify patterns in the notation that may reveal specific signatures of particular composers. This will largely involve mathematical characterisations of the notion of simple vs. complex patterns/tunes using complexity/infotheoretic and time series-based measures. Computational learning algorithms, such as artificial neural networks, hidden Markov models, audio/speech/signal processing and time series analysis techniques, would also be used to identify signatures of tunes/songs/notations to aid authorship identification.

Title of Position: Junior Research Fellow (JRF) or Project Associate

Job description: The JRF position pertains to data acquisition and analysis of music. The role will involve recording of musical pieces (Indian classical and Western tunes), performing filtering, signal processing, time series analysis, and learning methods (including machine learning techniques) to identify/learn patterns and characterize/classify tunes based on the computational features extracted. Knowledge of signal processing, audio/speech/music processing, machine learning methods, strong programming skills in any one of MATLAB/Python/C/C++ is a must. JRF aspirants must be willing to work as part of a multidisciplinary team and be eager to rapidly learn concepts and skills across multiple domains.

Qualifications for JRF:
Post Graduate Degree in Basic Science or Graduate/Post graduate Degree in Professional Course Course (Electrical/ Electronics & Communication/ Computer engineering or related disciplines) selected through a process described through any one of a) National Eligibility Tests-CSIR-UGC NET including lectureship (Assistant Professorship) or b) GATE.

Those who don't have the NET/GATE qualifications are invited to apply but will be considered for Project Associate position.

Candidate with some experience in **speech/music/signal processing** will be given a preference. **Strong programming (Python) skills are desirable**.

Fellowship:
JRF: Basic fellowship of INR 31,000 + HRA @ 24% which amounts to a total amount of INR 38,440/- (per month)
Project Associate: Basic fellowship of INR 25,000 + HRA @ 24%, which amounts to a total amount of INR 31,000/-

Mode of Application:

Interested applicants should submit their curriculum vitae electronically along with the following documents (as a single PDF document):-

1. Covering letter (with latest CV)
2. Statement of Purpose
3. Copy of degree certificates (and GATE/NET-qualification certificate, if applicable)

The deadline for receiving applications is **October 4, 2021**. Short-listed candidates will be invited for an online interview.

Applications should be addressed by email with subject line "Application for JRF" to:

Dr. Nithin Nagaraj (Co-Principal Investigator)
National Institute of Advanced Studies
Indian Institute of Science Campus
Bangalore 560, 012, India
E-mail: nithin.nagaraj@gmail.com
URL: https://sites.google.com/site/nithinnagaraj2/