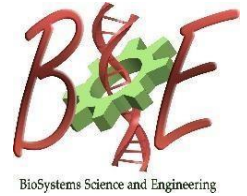# Indian Institute of Science
Centre for BioSystems Science and Engineering
BSSE Annual Work Presentation

10th June 2019, 4:00 PM , MRDG Seminar Hall, 1st floor, Biological Sciences Building

Voice-based classification of Asthmatic and Healthy Subject

Speaker: Shivani Yadav
Advisors: Prof. Prasanta Kumar Ghosh and Prof. Dipanjan Gope

ABSTRACT

Asthma is an airway disorder which affects 235 million people around the world. Wheeze, cough, breathlessness are common symptoms of asthma. In the initial part of our study done so far, we compared the breath, cough and sustained phonations for classification between healthy and asthmatic subjects. It was found that the breath sound performs better than other sounds in terms of the classification task. On the other hand, among five sustained phonations, /i/ sound performs the best. In the later part of our study, further analysis has been done on the breath sounds as a whole as well as on its two parts, namely, inhale and exhale. We followed a data-driven approach for understanding the difference between healthy and asthmatic classes by deriving representations for classification using Convolutional Neural Network (CNN) and Hidden Markov Models (HMM) which considers dynamics of the signal into account. We will also give some brief introduction about auscultation of lung, that we plan to use in addition to the breath sound recording at the mouth for the classification task.