Title: Decoding Brain States Using Music
Speaker: Dr. Vinoo Alluri, IIIT-H

Abstract
The field of cognitive neurosciences of music focuses on understanding
the complex relationship between music, brain, and behavior. I will
introduce the naturalistic music listening paradigm in brain imaging
which is a combination of functional Magnetic Resonance Imaging (fMRI),
Music Information Retrieval (MIR), and multivariate analysis. In
addition, I will present ongoing neuroscience-related work at IIIT that
focuses on how individual differences (personality, empathy, and
preferences) modulate brain connectivity while listening to music. With
the field of neuroscience moving towards modeling dynamic functional
connectivity, I will also showcase our latest results on how musical
beat dynamically modulates the functional connectome.
Empirical evidence has begun to emerge describing how musical engagement
relates to ill-health (including internalized symptomatology and
depression) as well as externalized symptoms and antisocial behaviors. I
will also present results of our recent studies that have used music
listening strategies as a tool to identify underlying behavioural
problems (depression in this case) and ongoing projects that involve
machine learning and big data analytics.

Bio
Dr. Vinoo Alluri is an Assistant Professor in the Cognitive Science Lab
at the International Institute of Information Technology (IIIT-H),
Hyderabad. She has a background in engineering (B.E, Electronics and
Communication) with a focus on music technology (M.Sc, Music Engineering
Technology) in addition to a PhD in Musicology. She also has a
background in Western Classical Music (Violin and Piano).
Her main research interests lie in the fields of Music Cognition and
Computational Neuroscience. Her research interests Her work has
primarily revolved around investigating music processing in the brain in
the novel naturalistic paradigm, which she introduced as part of her PhD
and has hence focused on developing, validating, and improving methods
concerning the same. The method is based on functional Magnetic
Resonance Imaging (fMRI), Music Information Retrieval (MIR), and
multivariate analysis, and has recently been acknowledged as a new trend
in the field of neuromusicology. She has successfully published in
international journals such as Neuroimage, Psychomusicology: Music, Mind
and Brain, Cortex, Human Brain Mapping, Frontiers in Human Neuroscience,
Journal of Neuroscience Methods, and Music Perception, among others. In
neuroscience, her current focus is to investigate how individual

differences (personality, empathy, and preferences) modulate brain connectivity while listening to music. On the behavioral front, she is interested in understanding the potential role of music as a tool in assessing depressive and addictive tendencies.