INDRAPRASTHA INSTITUTE of INFORMATION TECHNOLOGY DELHI

Invitation to M.Tech. Thesis Defense of Meghal Dani: July 12, 2019 (Friday): 16.00-17.00 IST

In Partial Fulfillment of the Requirements for the Degree of
M.Tech. CB

Meghal Dani (MT17144)

Will defend her thesis

Title: "An fMRI investigation of Autism Spectrum Disorder: Detection and Analysis"

IIIT-D Faculty and Students are invited

Date: July 12, 2019 (Friday)
Time: 16.00 – 17.00 IST
Place: A520 (5th Floor Meeting Room, R &D Building)

Examiner:	**Internal:**	**Tavpritesh Sethi**
	External/Internal:	**Puneet Goyal, IIT Ropar**
	Advisor:	**Richa Singh, Mayank Vatsa**

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Abstract

Several studies in the past focusing on gender-based Functional Brain Networks (fBNs) have found that male and female are significantly different. Researchers also believe that Autism Spectrum Disorder (ASD) is a male dominant disorder. Even though many algorithms have been built to automatize ASD detection, they either focus on male patients only or they perform poorly on female patients. This diagnostic bias has led to sampling bias in studies. This study has laid stress on both quantitative and qualitative diagnosis along-with the analysis for Autism. Building separate classifiers for male and female subjects and then visualizing the top features learned have given significant insights and also improved the classification accuracy and ROC-AUC by approximately 6% compared to the state-of-the-art on whole ABIDE dataset. The top features learned in females are the regions that are responsible for awareness of surrounding and body state while in males the regions involved in memory and learning were given more importance. It is interesting to know that partial correlation of these subjects also strengthens this fact that female autistic subjects having good self awareness 'camouflage' their social difficulties and are thus misclassified. The research lays emphasis on the collection of more female data for analysis and development of generalized non-invasive detection techniques.