

Invitation to M.Tech. Thesis Defense of Vaibhav Mittal: July 28, 2020 (Tuesday): 16.30-17.30 IST

In Partial Fulfillment of the Requirements for the Degree of

M.Tech. CB

Vaibhav Mittal (MT18242)

Will defend his thesis

Title: "Pathway-based Analysis for Cell Culture Conditions"

IIIT-D Faculty and Students are invited

Date: July 28, 2020 (Tuesday)

Time: 16.30-17.30 IST

Online over Google meet

Examiner:	Internal:	Ganesh Bagler
	External/Internal:	Shandar Ahmed, Jawaharlal Nehru University, New Delhi
	Advisor:	Vibhor Kumar

Abstract

"Gene and cell therapies have been at an active front of research. However a consensus, rigorous definition of cell state is yet to be formalised. Newer methods and techniques in the field of molecular biology yield high-resolution data can offer insights into cell state. One such powerful method is the analysis of RNA-Seq data at single cell resolution. Here, we show how a simple transformation of this data to the pathway space leads to better analytical power and drawing inferences easily. The usage of these pathway scores can be used faithfully to power several simple or complex machine learning algorithms.

We also analyse differential networks from this transformed data to understand the differences between cell states, leading to clues regarding what is necessary for a cell to maintain its state. We hypothesise that these necessary pathways explain the requirements of cells in vivo thereby helping in understanding the vital pathways for their culture conditions."

