PhD Admission – Teaching Assistantship through Project (TAP) Position – Spring 2024

Shailesh J. Mehta School of Management, IIT Bombay

Project Title: Statistical Learning and Data Science with Applications

Principal Investigator: Prof. Sudeep R. Bapat, SJMSOM, IIT Bombay

Source of Funding: IRCC, IIT Bombay

Project description

Statistical learning or machine learning is the need of the hour, for creating models which are reliable, fast, and accurate, to model real-life applications coming from various domains. In this project, we propose to apply suitable such techniques by checking their adequacy on area specific examples. A few areas of interest are: finance, ecology, psychology, climate studies, sustainability, economics, among others. We hope to analyse both cross-sectional and time series data. A particular example is of the application of neural networks in time series. This area is rather nascent and can be tapped appropriately. Its use cases involve forecasting financial time series, predicting the electricity demand, or natural phenomena such as temperature, rainfall, seismic activities etc. It may also be applied in digital signal processing which is related to describing and manipulating linear time series.

Project aims

- Identify potential cutting-edge application areas for modelling and prediction.
- Design suitable and novel learning models, while preserving their accuracy.
- Create generalizable theories in the area of statistical learning, pertaining to different applications.

Candidate capabilities

The candidate must fulfil the PhD eligibility criteria of SJMSOM and IIT Bombay, as laid down here. In addition, an ideal candidate should possess the following skills:

1. High level understanding of applied statistics.
2. Command over programming languages such as R and Python, and a willingness to explore further.
3. Excellent writing skills.
4. Curiosity, perseverance, patience, team spirit and humble nature.
5. Ability to grasp and implement things quickly.

The candidate will have to go through the regular PhD admission process at SJMSOM, IIT Bombay.