

Team Members:

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Project Title: A Study of distribution free nonparametric regression

Abstract of Proposed Work:

As the name suggests, we will be doing a thorough study or more precisely, a rigorous mathematical analysis of the topics we will be considering under this study as mentioned later. In general, this topic is very popular these days in the field of machine learning and henceforth most of the topics are widely used in many of today's problems.

Firstly we will be starting with "Why Is Nonparametric Regression Important" and "How to Construct Nonparametric Regression Estimates".

Then, we are planning to do mathematical analysis of topics and their nuances broadly covered under the topics namely, Kernel Estimates, Uniform Laws of Large Numbers, Complexity Regularization, Neural Networks Estimates etc.

Lastly, as our work proceeds and as time permits, we also might end up taking a few more topics and applying these analyses and methods in some practical problems.

Mainly our study is according to the lines of the book titled same as our BTP Project, "A Distribution-Free Theory of Nonparametric Regression -By L. Györfi", but we also will be considering other reference books like "Pattern Recognition and Machine Learning -By Christopher Bishop", "Understanding Machine Learning: From Theory to Algorithms -By Shai Ben-David and Shai Shalev-Shwartz", etc.