**Through Machine Learning Algorithms Classifying Spam Emails with the help of Optimization techniques**

**Abstract**

Email is one of the fastest and easiest modes of communication across the world. And we get unnecessary mails, filling up our inbox daily and to identify and classify a junk email, it is necessary to compare it with a preceding set of rules from the earlier junk mails. Spam mails are one of the major issues that need to be addressed as it may corrupt the entire device through several single attacks from the attackers. In this project, using optimization techniques such as stochastic gradient descent, and classification techniques such as Support vector machines and Naïve Bayes algorithm. The length of the word, its synonymous definition, the proportion of the word stops are also are visible. Using both spam and non-spam(ham) word spaces, the emails which can be classified as junk are identified. Test results which are obtained give a brief understanding of the performance of the classifier and optimization techniques.

Key words- Spam, Ham, Support Vector Machine, Ham

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