**Applications of Linear Algebra in Machine Learning**

Linear Algebra is one of the most important branches of Mathematics used in the field of Computer Science. Its specifically used in Machine Learning, Data Sciences, AI and computer vision etc. For the current essay we are going to focus in the Applications of Linear Algebra in the field of Machine Learning (ML).

Linear Algebra predominantly relies on the manipulations of the following key concepts.

1. Vectors and Matrix
2. Symmetric Matrix
3. Eigenvalues and Eigenvector
4. Principal Component Analysis (PCA)

The primary reason because of which Linear Algebra is so important in ML is because its helps us in making predictions on the basis of awareness, instincts and defining systems which are intelligently improving themselves in real time. Techniques such as Logistic regression, linear regression, decision trees, and support vector machines (SVM) allow computer scientists to design better and unsupervised algorithms.

It also plays a key role in recognizing images, video audio and edge detection. With the help of Linear Algebra machine learning algorithms are designed such that they keep improving themselves over the span of their lifetime and require minimum maintenance.