

## Machine Learning: An Overview

Machine Learning (ML) is a subset of artificial intelligence (AI) that focuses on enabling machines to learn from data and make decisions or predictions without being explicitly programmed.

ML algorithms use statistical techniques to identify patterns in data, and these patterns are used to improve the performance of the system over time.

### Types of Machine Learning:

1. **Supervised Learning:** In supervised learning, the model is trained on labeled data. The algorithm learns to map input data to the correct output based on example input-output pairs.
2. **Unsupervised Learning:** Unsupervised learning involves training the model on data without labeled responses. The algorithm tries to find hidden patterns or intrinsic structures in the input data.
3. **Reinforcement Learning:** Reinforcement learning is about training models to make sequences of decisions. The model learns by receiving feedback in the form of rewards or punishments.

### Popular Algorithms:

- Linear Regression
- Decision Trees
- Support Vector Machines
- Neural Networks

### Applications:

Machine Learning is applied in various fields such as healthcare, finance, marketing, and autonomous vehicles. It is used for predictive analytics, recommendation systems, speech recognition, and more.

## Conclusion:

Machine Learning is a rapidly growing field that is transforming industries by enabling more accurate predictions and better decision-making. As more data becomes available, the importance and impact of ML will continue to grow.