Introduction to Machine Learning

Machine Learning (ML) is a subset of Artificial Intelligence that enables computers to learn patterns and make decisions without being explicitly programmed.
Instead of following fixed rules, ML systems analyze historical data to find trends and relationships, allowing them to make predictions or classifications on new data.

Common types of machine learning include supervised learning, unsupervised learning, and reinforcement learning.
Supervised learning relies on labeled datasets to train predictive models, while unsupervised learning discovers hidden structures within unlabeled data.
Reinforcement learning involves agents learning optimal behavior through trial and error interactions with their environment.

Machine learning has applications across industries, from fraud detection and recommendation systems to speech recognition and self-driving cars.
With the growing availability of data and computing power, ML is becoming an essential tool for solving complex problems in both academia and industry.