

## Introduction to Artificial Intelligence (AI)

Artificial Intelligence (AI) is a branch of computer science that emphasizes the creation of intelligent machines that work and react like humans. Some of the activities computers with AI are designed for include:

- Speech recognition
- Learning
- Planning
- Problem solving

Machine Learning (ML) is a subset of AI that involves the study and construction of algorithms that can learn from and make predictions on data. These algorithms operate by building a model from sample inputs in order to make data-driven predictions or decisions.

Natural Language Processing (NLP) enables machines to understand, interpret, and produce human language in a valuable way. Common applications of NLP include:

- Chatbots
- Sentiment analysis
- Language translation

Deep Learning (DL) is a specialized area of machine learning involving neural networks with many layers that can automatically learn representations from data.

Applications of AI:

- Healthcare: Disease diagnosis and personalized treatment.
- Finance: Fraud detection and algorithmic trading.

- Transportation: Self-driving cars.
- Customer Service: Virtual assistants and chatbots.