Artificial Intelligence (AI) is a branch of computer science that focuses on creating intelligent machines capable of performing tasks that normally require human intelligence.

Subfields of AI include:
- Machine Learning (ML)
- Natural Language Processing (NLP)
- Computer Vision
- Robotics

AI is used in many areas such as healthcare, finance, education, and transportation.

Machine Learning (ML) is a subset of AI where systems learn patterns from data to make predictions or decisions.

Types of ML:
- Supervised Learning: Models are trained on labeled data.
- Unsupervised Learning: Models find patterns in unlabeled data.
- Reinforcement Learning: Models learn by trial and error through rewards and penalties.

Applications:
- Fraud detection
- Recommendation systems
- Predictive maintenance

Natural Language Processing (NLP) enables computers to understand, interpret, and generate human language.

Key NLP tasks:
- Text classification
- Sentiment analysis
- Machine translation
- Chatbots and virtual assistants

Challenges in NLP:
- Ambiguity in human language
- Context understanding
- Sarcasm and idioms

Computer Vision (CV) allows machines to interpret visual information from the world.

Tasks in CV:
- Image classification
- Object detection
- Image segmentation
- Facial recognition

Applications:
- Self-driving cars
- Medical imaging
- Security surveillance

Ethical AI ensures that AI systems are safe, fair, and beneficial to humans.

Key principles:
- Transparency
- Accountability
- Privacy protection
- Avoiding bias

Organizations should follow guidelines to ensure AI does not harm society.