

Introduction to AI

1. What is Artificial Intelligence?

AI is a broad field of computer science that gives computers the ability to perform human-like tasks. It encompasses machine learning, deep learning, and natural language processing. The goal is to create intelligent agents that perceive their environment and take actions that maximize their chances of achieving their goals.

1.1. History of AI

The concept of AI dates back to ancient times, but modern AI began in the 1950s with pioneers like Alan Turing and John McCarthy. Early AI focused on symbolic reasoning and expert systems.

1.1.1. Early Developments

Key milestones include the Dartmouth workshop in 1956 and the development of early AI programs like ELIZA.

2. Machine Learning Fundamentals

Machine learning is a subset of AI that enables systems to learn from data without being explicitly programmed. It involves algorithms that build a model from sample data, in order to make predictions or decisions without being explicitly programmed to perform the task.

2.1. Supervised Learning

In supervised learning, the algorithm learns from labeled data, where each example in the training dataset is tagged with the desired output.

2.1.1. Classification

Classification problems involve predicting a categorical output, such as spam or not spam.