OneModel Academy

One AI

Introduction to Machine Learning

Taylor Clark
Chief Data Scientist

07 Jun 2024

Topics Covered

- What machine learning is
- How machine learning works
- Strengths & limitations of machine learning
- Real world applications of machine learning

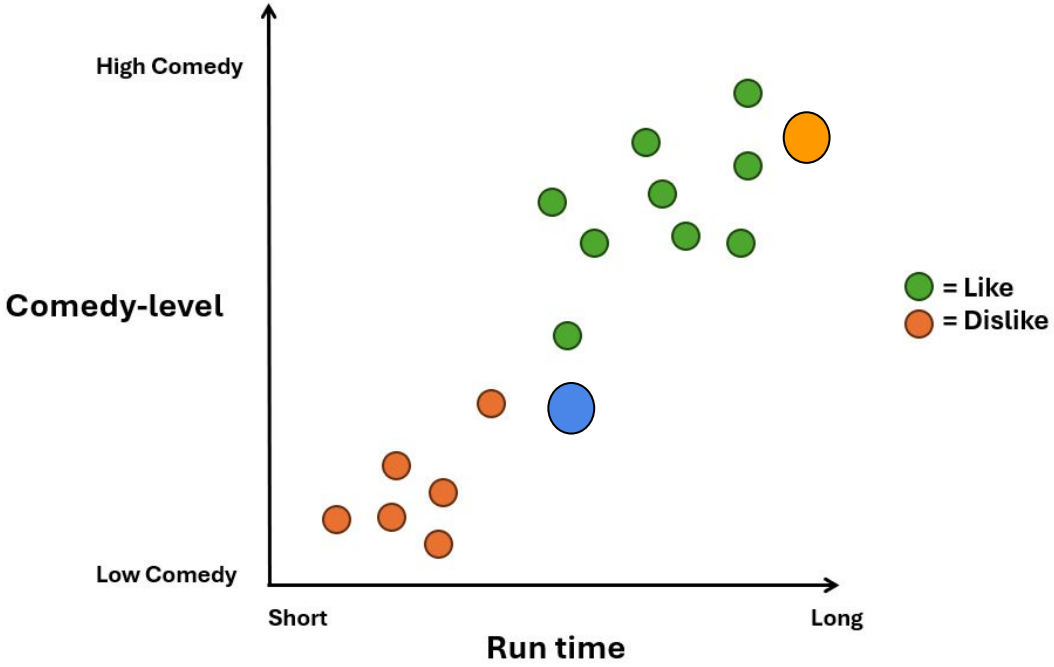
Learning Outcomes

You will:

- Understand what machine learning is & its importance in building and interpreting models
- Learn the fundamental steps in the machine learning process
- Identify the strengths & limitations of machine learning, enabling informed decisions about its applications in various problem domains
- Be familiar with real-world applications, including healthcare diagnostics, fraud detection, sentiment analysis, & people analytics

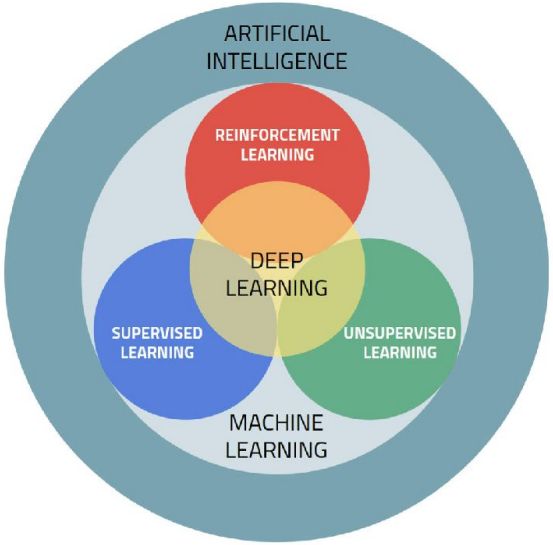
Machine Learning Overview

Example


High Comedy
Comedy-level
Low Comedy
Short
Long
Run time
= Like
= Dislike

Machine Learning Overview

- **Machine learning (ML):** using mathematical models, or **algorithms**, to train computers to learn from data, recognize patterns, & make decisions or predictions without explicit programming for each task
    - Results become more accurate with more data & experience, similar to how humans improve with practice
- Major types:
    - Supervised learning - learns from labeled data
    - Unsupervised learning - learns from unlabeled data
    - Reinforcement learning - learns from feedback



How Machine Learning Works

How Machine Learning Works

- Machine learning is an iterative process–continuous improvement is key to developing accurate & effective models
  - Iterate & refine each step based on feedback & performance evaluation

Strengths & Limitations

Strengths & Weaknesses

Strengths

- Efficiency & scalability
- Automation
- Adaptability
- Predictions, forecasts, & classifications

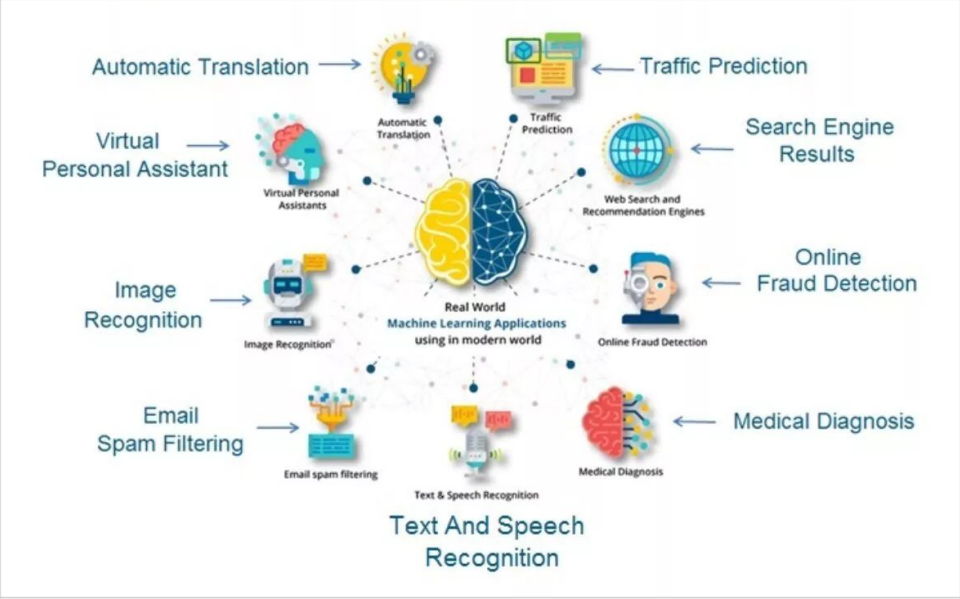
Limitations

- Data dependence
- Interpretability
- Overfitting concerns
- Bias & fairness

Applications of ML

Applications of ML

- Email spam filter
- Spell check
- Health care & diagnostics
- Fraud detection
- **People analytics**
  - Flight risk
  - New hire failure
  - Performance



OneModel Academy

Thanks for watching!

OneAI