

Awjeha Machine Learning

Lecture: 01

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→ Importance of Machine Learning

- ★ Applicable to all professions and fields
- ★ Helps simplify complex problems

→ purpose of this course

- ★ Build problem solving skills
- ★ Learn how to extract insights from data
- ★ use AI to generate meaningful results from datasets

→ who will benefit from this course

- ★ Aspiring AI professionals
- ★ ML practitioners
- ★ Interested students

→ Who may not benefit?

- ★ No programming knowledge
- ★ weak in Mathematics
- ★ No Technical Interest

Lecture : 02

Module : 01

- Intro to ML
- Fundamentals of ML
- Types of Learning
- Data formatting
- preprocessing

Module : 02

- Key ML Algorithms
- supervised
- unsupervised
- Reinforcement learning

Module : 03

- CNNs
- Dimensionality Reduction
- Evaluation metrics

Module : 04

- Advance topics
- Auto ML
- explainability
- Model deployment

course Learning objectives

- Develop essential ML skills
- Hands-on-experience with coding
- critical thinking
- work on practical projects and build a portfolio
- Learn effective knowledge sharing techniques

what is learning?

- process of improving performance or knowledge over time
- performance enhancement through repeated experiments

→ AI

* Ability of computers to think, learn and make decisions like humans

→ It includes search algorithms, rule-based systems and ^{inference} methods

→ complex problems can be solved very efficiently using Machine Learning

ML (feature extraction manual)

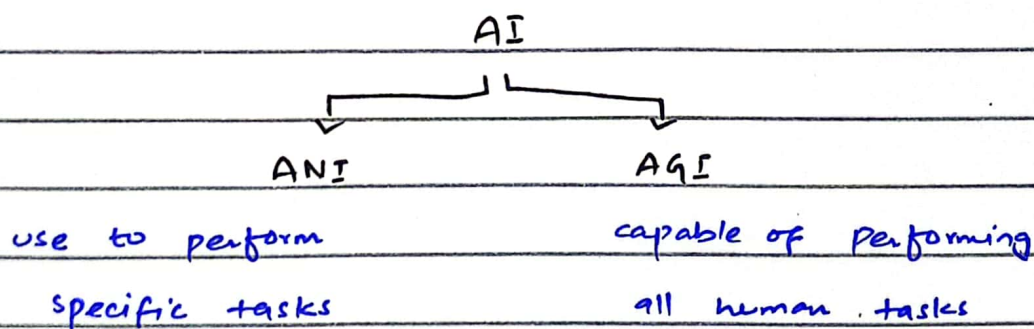
→ subset of AI includes supervised, unsupervised and reinforcement learning algorithms

→ learn patterns from data

DL (feature extraction automatic)

→ subset of ML, includes CNNs, RNNs, Transformers, Fully connected neural networks, GANs, Autoencoders and much more

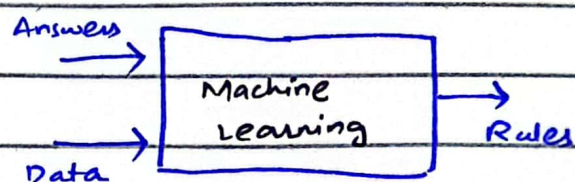
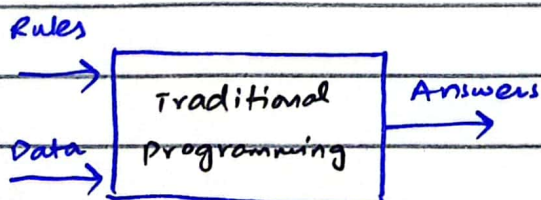
→ use neural networks to solve complex problems



Traditional programming

Vs

Machine Learning



Key components of ML

- ① Data & features
- ② Algorithms & Training
- ③ Loss & optimization
- ④ Evaluation & deployment