جامعة الملك خالد
KING KHALID UNIVERSITY

وزارة الاتصالات وتقنية المعلومات
MINISTRY OF COMMUNICATIONS AND INFORMATION TECHNOLOGY

أكاديمية كاوست
KAUST ACADEMY

KAUST Academy & Tech Camp AI Week

Presented By: Ali Alqutayfi & Hassain Alsayhah

- Introduction to AI
- Derivatives and Loss Calculation
- Linear Regression
- Logistic Regression

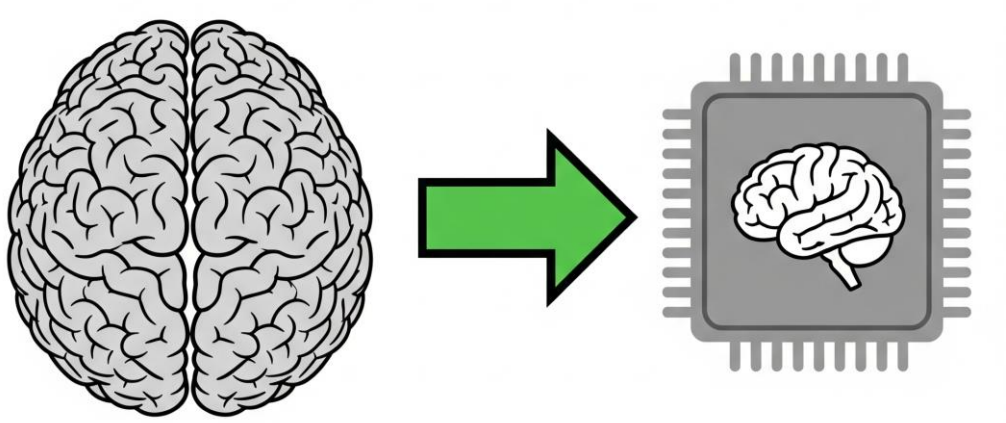
Introduction to Artificial Intelligence and Machine Learning

Lecture Outline

- What is AI, ML, and Deep Learning?
- How Machines Learn: Supervised vs. Unsupervised
- AI in your daily life
- Future careers in technology
- Get set up with programming tools
- Learn the absolute basics of Python
- Hands-On Activity

What is Artificial Intelligence?

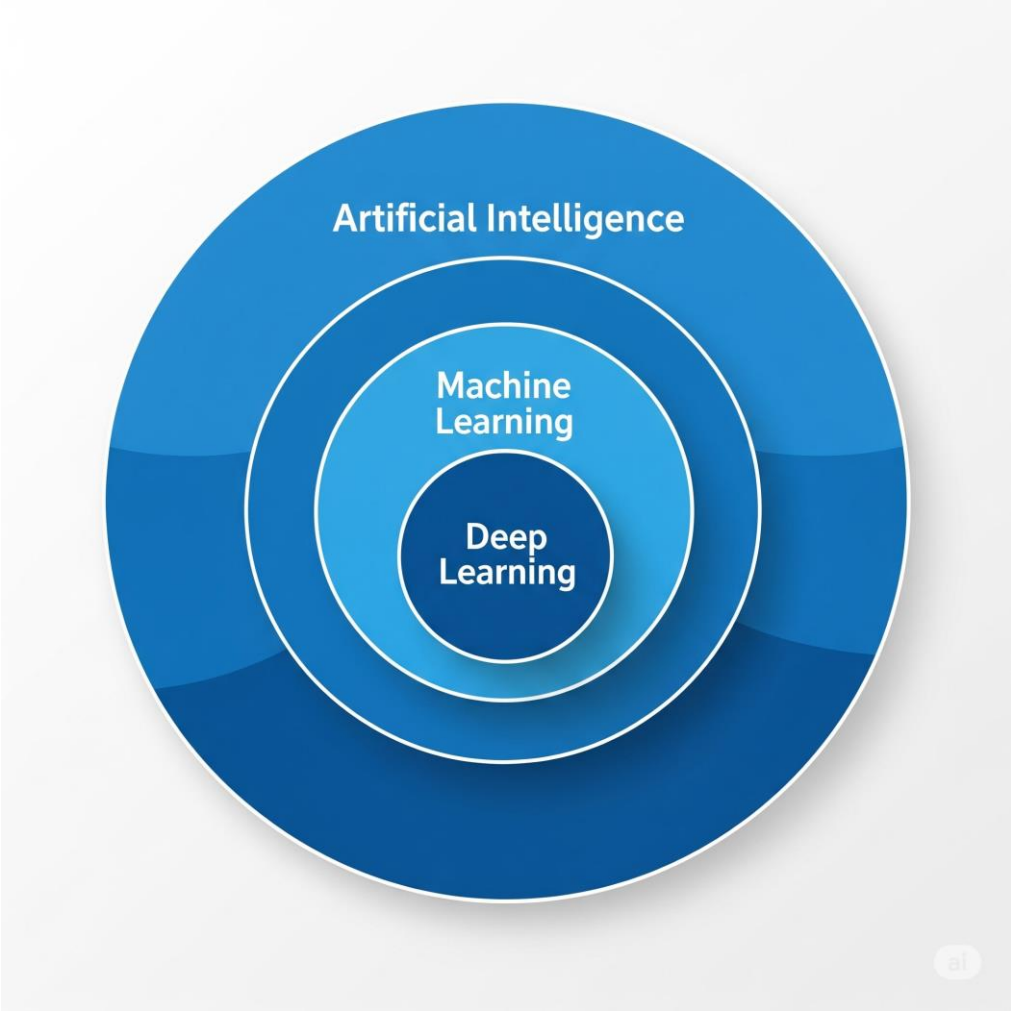
- **Artificial Intelligence (AI)** is the science of making computers do things that normally require human intelligence.
- **Think:** Learning, solving problems, and understanding language.



AI vs. Machine Learning vs. Deep Learning

- **Artificial Intelligence (AI): The Big Idea**
  - Any program that can sense, reason, act, and adapt.
- **Machine Learning (ML): AI that Learns from Data**
  - A subset of AI. Instead of being programmed for every task, it learns patterns from examples.
- **Deep Learning (DL): The Brain-Inspired AI**
  - A type of Machine Learning that uses complex, multi-layered "neural networks." It's the power behind the most advanced AI today.

AI vs. Machine Learning vs. Deep Learning



Machine Learning

Machine Learning is often broken down into two main styles of learning.

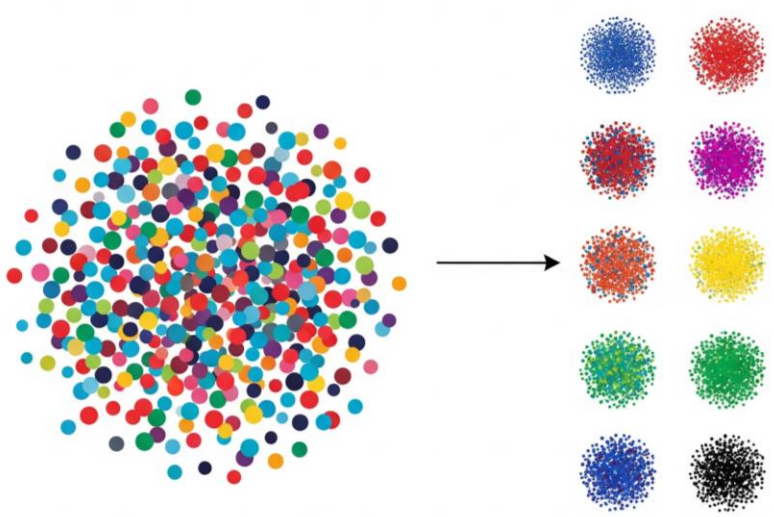
- **Supervised Learning** (Learning with an answer key)
- **Unsupervised Learning** (Learning by finding patterns on its own)

Supervised Learning

- **The Idea:** The AI is trained on data that has been **labeled** with the correct answers. It's like studying for a test with flashcards.
- **The Goal:** Make accurate predictions for new, unlabeled data.

Unsupervised Learning

- **The Idea:** The AI is given a lot of **unlabeled** data and must find hidden patterns or structures all by itself.
- **The Goal:** Discover interesting groups or clusters in the data.



AI is Already All Around You

On Your Phone & In Your Feed

On Your Smartphone	On Your Social & Entertainment
Face ID: (Supervised) Trained on your face to recognize you.	**Recommendation Engines:** (Unsupervised) Groups you with similar viewers.
Voice Assistants: (Supervised) Trained on labeled voice commands to understand you.	**Content Feeds:** (Unsupervised) Groups content and users to curate your feed.
Predictive Text: (Supervised) Trained on text data to predict the next word.	

Interactive Brainstorm!

Let’s Code

- Learning Python Basics
- **Homework:** create a calculator that can add or subtract 4 numbers.