ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING TRAINING TR-102 REPORT DAY 5 27 JUNE 2025

Overview:

The fifth day of training focused on the history and evolution of Artificial Intelligence (AI) and explored the key differences between Narrow AI and Strong AI.
 We traced how AI has progressed from simple rule-based systems to today's advanced learning models and discussed how it continues to shape industries, science, and daily life.
 The session helped us understand AI's journey, its milestones, and the current capabilities and limitations of intelligent systems.

Learning Objectives:

• Understand the historical development of Artificial Intelligence.

• Explore the major milestones in AI evolution.

• Learn the concepts of Narrow AI and Strong AI.

• Compare the capabilities, applications, and limitations of both types.

• Recognize how modern AI applications connect to earlier AI concepts

Introduction to Artificial Intelligence

Artificial Intelligence (AI) is the branch of computer science that enables machines to perform tasks that typically require human intelligence — such as learning, reasoning, perception, and problem-solving.AI systems are now a part of our everyday lives — from virtual assistants and recommendation systems to autonomous vehicles and robotics.

History and Evolution of AI:

The journey of AI can be divided into several important phases:

1. The Early Foundations (1940s–1950s):

- The idea of intelligent machines began after World War II.

- Alan Turing proposed the concept of a machine that could "think" and developed the Turing Test in 1950 to measure machine intelligence.

- experiments were focused on logic and problem-solving.

2. The Birth of AI (1956):

- The term "Artificial Intelligence" was first introduced at the Dartmouth Conference in 1956 by John McCarthy.

- Early programs could play games like checkers and solve simple mathematical problems.

3. The Growth Period (1960s–1970s):

- Researchers created rule-based systems that used if–then logic to simulate reasoning.

- Expert systems like DENDRAL (for chemistry) and MYCIN (for medicine) were developed.

4. The AI Winter (1980s–1990s):

- Progress slowed due to limited computing power and unrealistic expectations.

- Funding decreased as AI results didn't match the hype.

TYPES OF AI

AI can be classified into two main types based on its capabilities:

1. Narrow AI (Weak AI):

- Designed to perform specific tasks within a limited context.

- Operates under predefined rules and cannot go beyond its programming.

- **Examples**:

    - Voice assistants (Alexa, Siri)

    - Chatbots

    - Recommendation systems (Netflix, YouTube)

    - Image recognition tools

- **Characteristics:**

    - Task-specific intelligence

    - Learns from data but lacks general understanding

    - Cannot perform multiple unrelated tasks

2. Strong AI (General AI):

- Represents human-level intelligence that can understand, learn, and apply knowledge across different domains.

- Aims to enable machines to think, reason, and make decisions like humans.

- Still theoretical — no existing system currently qualifies as strong AI.

- **Potential Capabilities:**

  - Self-awareness and reasoning

  - Problem-solving in any domain

- **Examples (conceptual):**

  - Human-like robots in science fiction (e.g., "Jarvis" from Iron Man, "Data" from Star Trek)

Conclusion:

Day 5 helped us understand how Artificial Intelligence evolved from simple rule-based logic to advanced learning systems that define the modern era. We gained a clear distinction between Narrow AI, which performs specialized tasks, and Strong AI, which aims to replicate human-level cognition.The session showed that while Narrow AI dominates the current technological landscape, Strong AI remains the future vision — one that scientists and engineers continue to pursue through advanced research and innovation.