

Artificial Intelligence In Everyday Life

U2U Innovate



Enabling Transformation

Humanizing Experiences

Building Value

Fundamentals of AI

Artificial Intelligence (AI) is a branch of computer science that enables machines to perform tasks that usually require human intelligence. Understanding the fundamentals of AI is important to grasp how AI systems work and can be applied in real-world problems.



Knowledge Representation & Reasoning

Knowledge representation is the way AI systems store and structure information about the world. Reasoning is what allows these systems to draw conclusions and make decisions. Together, they help AI programs solve problems by mimicking human thought processes.

Problem-Solving Techniques in AI

AI uses a variety of problem-solving techniques to tackle complex challenges. These methods allow machines to search for solutions efficiently. From puzzles to real-life scheduling, AI techniques help find the best path toward a goal.

Constraint Satisfaction Problems

Many AI problems involve constraints, or rules that solutions must follow. Examples include scheduling classes or creating a Sudoku solver. AI algorithms that work on constraint satisfaction look for solutions that fit all of the given conditions.



Search Algorithms (DFS, BFS, A* Search)

Search algorithms help AI navigate complex possibilities:

- Depth-First Search (DFS) explores one branch as far as possible before Backtracking.
- Breadth-First Search (BFS) explores all options level by level.
- A* Search is a smart algorithm that finds the shortest path efficiently by combining search depth with an estimate of distance.



Learning Objectives

By studying these fundamentals, students will:

- Understand knowledge representation and its role in AI.
- Learn common problem-solving techniques used in AI.
- Explore constraint satisfaction problems and their solutions.
- Implement and analyze search algorithms like DFS, BFS, and A*.

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