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(Autonomous)

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Artificial Intelligence & Natural Language Processing

Problem Solving by Searching

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Problem Solving by Searching

AI problem-solving involves a series of distinct steps and methodologies that enable machines to understand, analyze, and resolve complex problems.

- Uninformed Strategies
- Informed Strategies



Uninformed Strategies

- The main role of uninformed search algorithms is to systematically explore the search space to find a solution, without using any domain-specific knowledge. While these algorithms may not always be the most efficient, they provide a baseline for understanding and solving complex problems in AI.



Uninformed search strategies use only the information available in the problem definition

- **Breadth-first search**
- Uniform-cost search
- **Depth-first search**
- Depth Limited Search
- Iteratively Deepening Search
- Bidirectional Search



Breadth – First Search

- Breadth-first search (BFS) is an important graph search algorithm that is used to solve many problems including finding the shortest path in a graph and solving puzzle games

Depth – First Search

- Depth-first search (DFS) is an algorithm that explores a graph or tree data structure by starting at the root node and moving down each branch as far as possible. It's a recursive algorithm that uses backtracking to explore all possible paths.



Informed Strategies

- In AI, "informed strategies" primarily refer to search algorithms that utilize a heuristic function to estimate the cost of reaching a goal state, allowing them to make more efficient decisions by leveraging domain-specific knowledge.



Thank you