Artificial Intelligence: Course Overview

Unlocking the future with intelligent systems.

Course Agenda

1 **AI Fundamentals**

Core concepts and intelligent agents.

2 **Search Algorithms**

Solving problems efficiently.

3 **Game Theory & AI**

Strategic decision-making.

4 **Practical Applications**

Hands-on lab experience.

Introduction to AI

What is AI?

- Machine intelligence
- Mimicking human cognition
- Problem-solving

Types of AI

- Narrow AI: Specific tasks (e.g., Siri)
- General AI: Human-level intelligence (theoretical)
- Superintelligence: Beyond human capabilities (hypothetical)

Intelligent Agents & Environments

Perceive
Sensors gathering data.

Reason
Processing information.

Act
Effectors performing actions.

Environment
The world agents interact with.

Search Strategies

Uninformed Search

- Blind search
- Breadth-First Search (BFS)
- Depth-First Search (DFS)

Informed Search

- Heuristics-guided
- A* Search
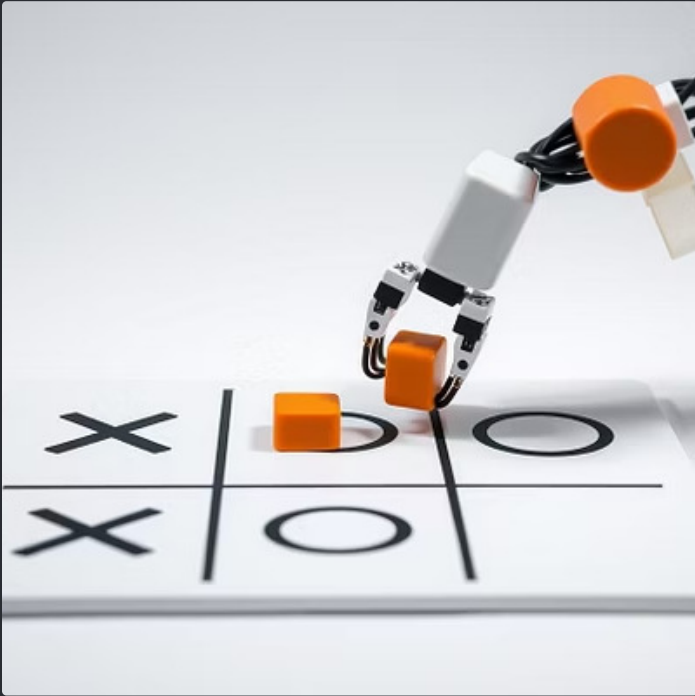- Best-First Search

Game Playing with AI

Minimax Algorithm

- Optimal decision-making
- Adversarial search
- Maximizing gain, minimizing loss

Alpha-Beta Pruning

- Optimizing Minimax
- Reducing computations
- Faster decision times

Lab Activities: Hands-On AI

Implementing classic games: Tic-Tac-Toe, Chess, and Connect Four to understand AI algorithms in practice.

Course Outcomes & Applications

Skills Gained

- Algorithm design
- Problem-solving
- Intelligent system development
- Critical thinking

Join us to explore the exciting world of Artificial Intelligence!

Real-World AI

- Autonomous vehicles
- Healthcare diagnostics
- Financial modeling
- Natural Language Processing

Key Takeaways

This course provided a comprehensive overview of Artificial Intelligence fundamentals:

Core Concepts Mastered

Gained deep understanding of intelligent agents, search algorithms, and game theory strategies.

Practical Application

Applied theoretical knowledge through hands-on lab tasks and real-world AI scenarios.

Foundation for Future

Established a strong foundation for continued exploration and growth in the field of AI.

Special Thanks

We extend our heartfelt gratitude to **Razorshi Prozzwal Talukder Sir**, our dedicated course instructor, for his invaluable guidance and continuous support throughout this Artificial Intelligence course.

His clear explanations, practical insights, and encouraging approach were instrumental in helping us grasp complex theoretical concepts and successfully implement lab exercises.

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