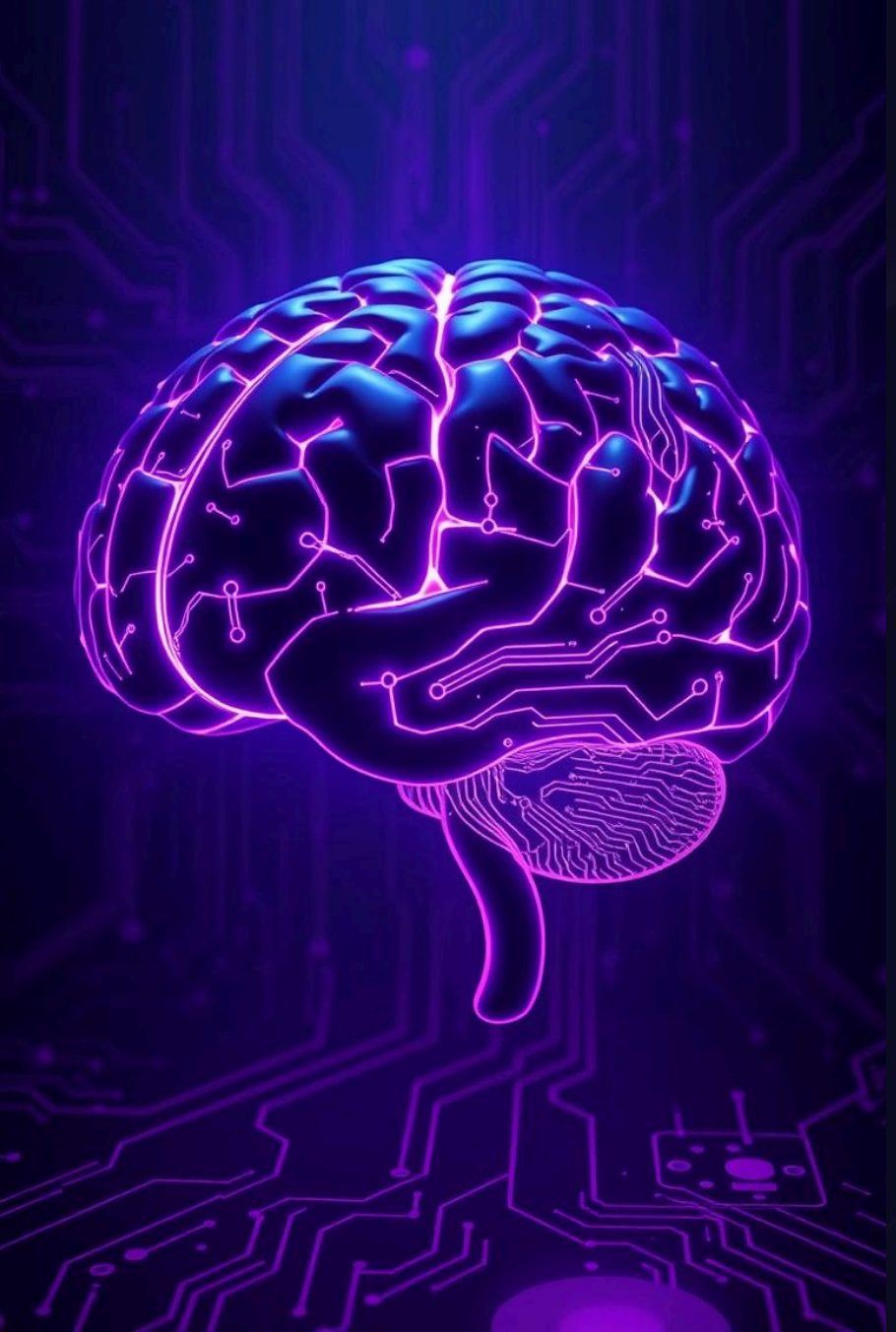


Artificial Intelligence (AI) Course Overview Learning the Basics of Smart Machines

Hello everyone! This presentation is about what we learned in the AI course (January to June 2025) taught by Razorshi Prozzal Talukder. I'm Tanjina Akter (ID: 0562310005101011), and I'm excited to share what I've learned.

🎯 Course Goal: Learn & Use AI in Real Life

The purpose of this course was to help us understand how AI works and how to use it in real life. We learned both the theory and did fun practical work like making games.

Main things we learned:

- How AI thinks – How machines can act smart like humans.
- Make AI games – We built games where the computer plays using AI logic.
- Create with AI tools – We used tools to make creative content like slides and videos.
- Solve problems – We used AI to solve real-world problems.

🧠 What is AI and How Does It Work?

AI is all about making machines that can think, decide, and solve problems like people.

- **Smart agents:** These are programs that look at their environment and take actions.
- **State-space search:** This is how AI finds solutions by trying different paths.
- **Real-life examples:** GPS, chatbots, games, and many more use these ideas.

⚙️ AI Algorithms (How AI Solves Problems)

1

🔍 Simple Searches: BFS & DFS

Check all options without using any shortcuts.

2

🧠 Smart Searches: A and Best-First Search*

Use hints (called heuristics) to find answers faster.

3

🔧 Optimizing Searches: Hill Climbing & Beam Search

Try better options step-by-step.

4

🎮 For Games: Minimax & Alpha-Beta Pruning

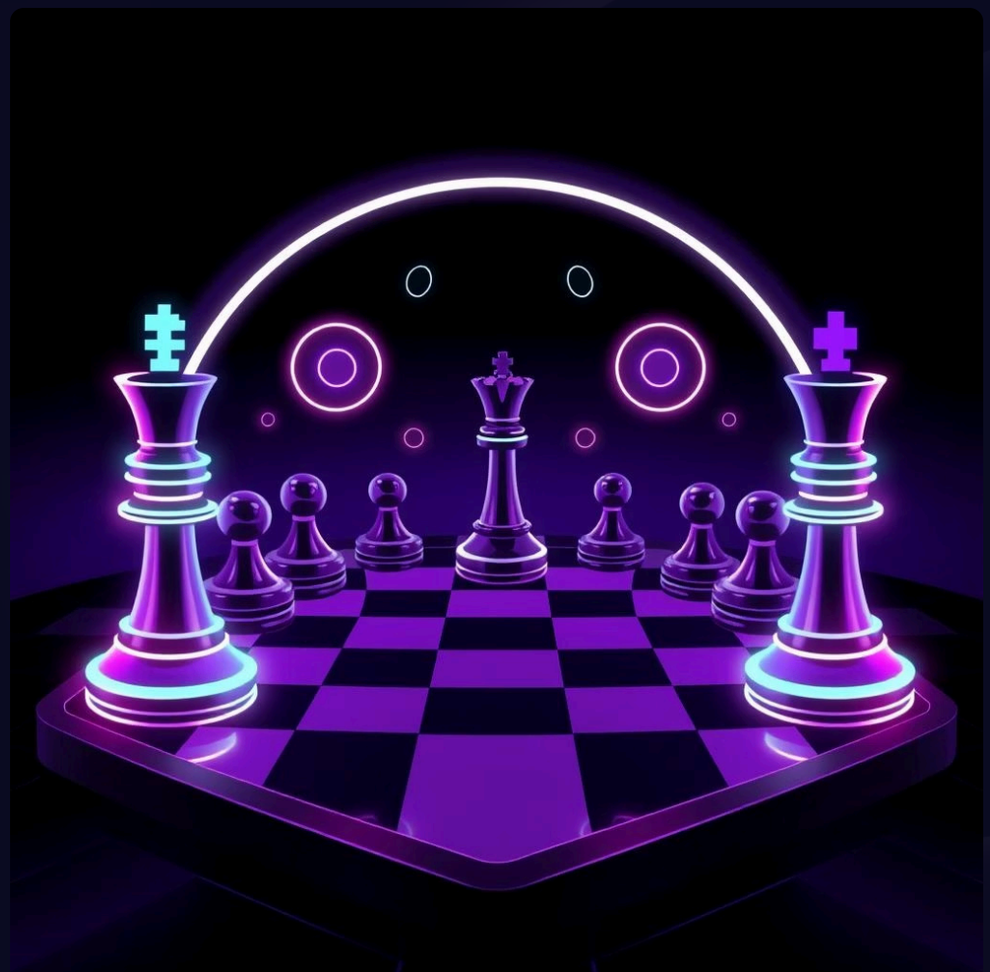
Think ahead to beat your opponent in games.

🌟 Some Important Algorithms We Used

- **Minimax** – Used in games to choose the best move.
- **Alpha-Beta Pruning** – Makes Minimax faster by skipping useless steps.
- **A*** – Helps find the shortest path (like in maps).
- **Hill Climbing** – Keeps improving a solution, even if not perfect.

🎮 Using AI in Games

We made games where the computer thinks and plays smartly.



- **Minimax** – Makes the best move in games.
- **Alpha-Beta** – Helps the game run faster by avoiding extra steps.

Games We Made:

- Tic Tac Toe
- Mini Chess
- Connect Four

🧩 Solving Problems with AI

Some problems are very big and hard, so we used smart tricks to find good solutions quickly.

Beam Search

Only keeps the best few options.

Hill Climbing

Always tries to move to a better solution.

Used In:

- Voice systems
- Planning tasks
- Making games smarter
- Solving puzzles

🎮 Games We Built

Tic Tac Toe

AI never loses using Minimax.

Mini Chess

Computer plays smart using Alpha-Beta pruning.

Connect Four

AI thinks ahead and blocks your winning move.

All games had:

- Human vs Computer mode
- AI that makes smart choices
- Nice interface (GUI)
- Clean, readable code

🧰 Tools We Used

Python

To write the game logic.

Tkinter

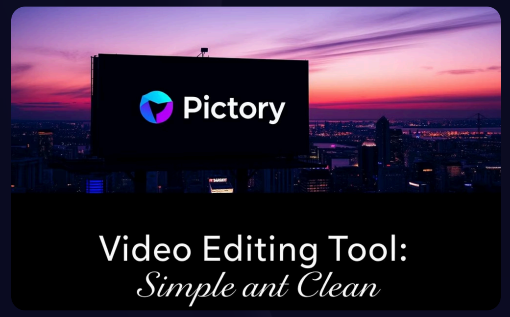
For making the game screen.

GitHub

To save and share code.

Canva / Gamma

For creating slides.



Pictory / InVideo

For making AI videos.

What We Learned

- Used real AI algorithms to solve problems.
- Made games using AI logic.
- Learned to show and explain projects clearly.
- Felt more confident solving tough logic problems.

🎉 Final Thoughts

This course helped me understand AI in a fun and creative way. I enjoyed building games, learning smart algorithms, and using cool tools.

> 🙏 Thanks to our teacher Razorshi Prozzal Talukder for his support and guidance. He made learning AI easy and exciting.