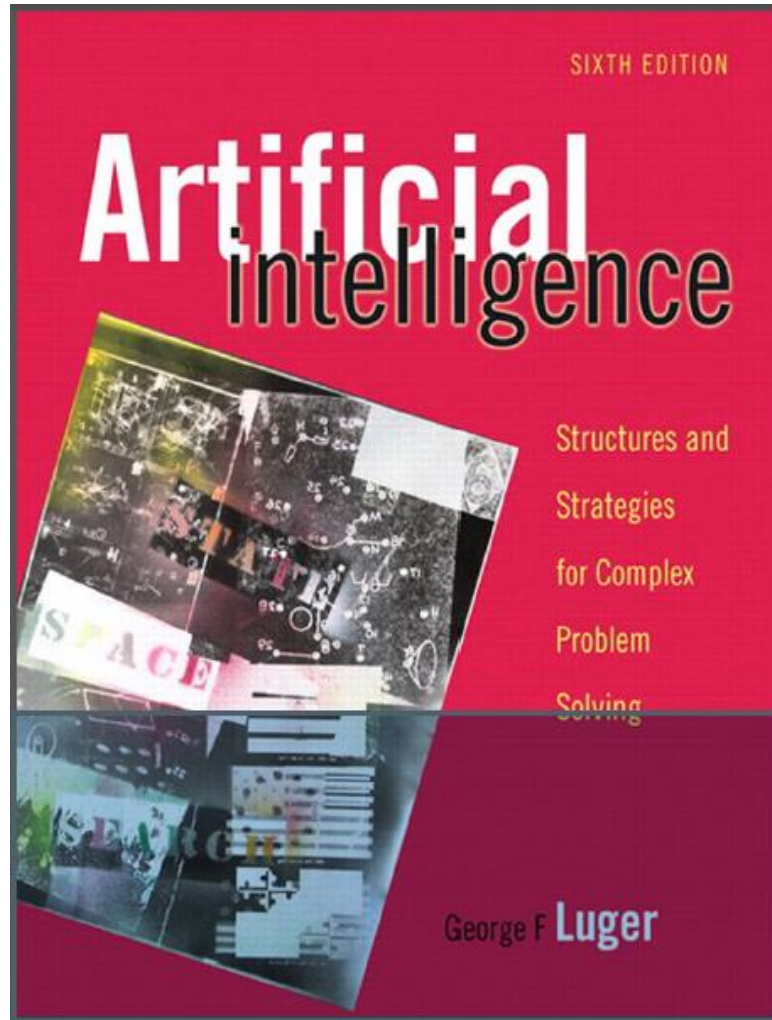# Artificial Intelligence
Lec.-1-
AI : its Roots and Scope

AI Book

George F Luger
ARTIFICIAL INTELLIGENCE
6th edition
Structures and Strategies for Complex Problem Solving

Course Layouts

➢ AI Roots and Scope

➢ AI Presentation and Search

➢ Structure and Strategies for State Space Search

➢ Heuristic Search

➢ Control and Implementation of State Space Search

➢ Knowledge Representation

➢ Knowledge Intensive Problem Solving

➢ Reasoning with Uncertain or Incomplete Information

➢ Machine Learning :Symbol Based

➢ Genetic Algorithm

➢ Automated Reasoning

➢ Understanding Natural Language

➢Neural Network

This Lecture Topics

➢ What is Artificial Intelligence?

➢ History of Artificial Intelligence

➢ What is the Scope of AI?
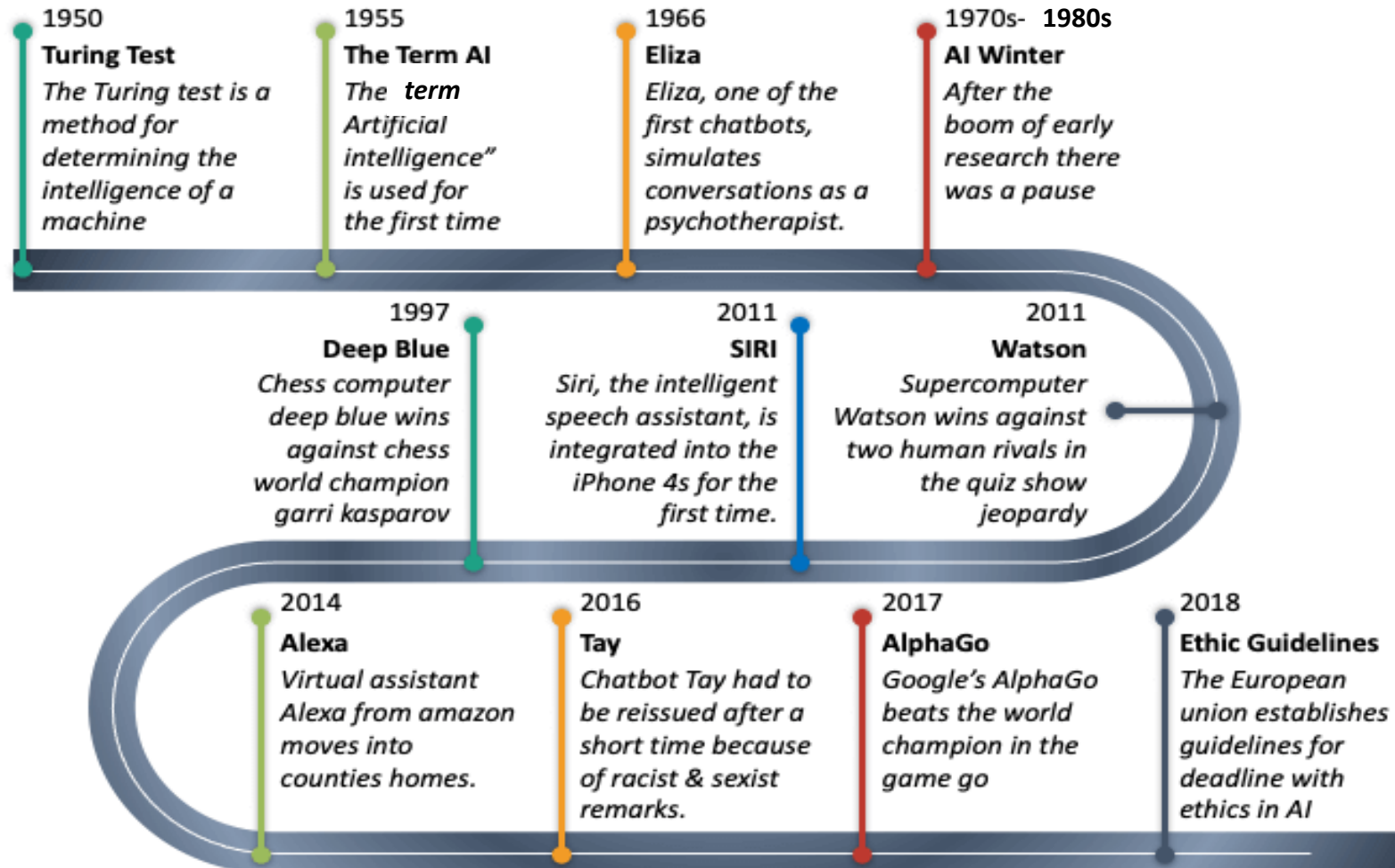
➢ Artificial Intelligence Examples

What is Artificial Intelligence?

Artificial Intelligence (AI) is the science and engineering of making computer machines able to perform tasks which normally require human intelligence, such as visual perception, speech recognition, decision-making, and translation between languages. It is a branch of the Computer Science that aims to develop intelligent computer machines.

❖ In fact, Artificial Intelligence techniques are often used to solve relatively simple problems, or complex problems that are internal to more complex systems. This may lead us to another definition of Artificial Intelligence: AI involves using methods based on the intelligent behavior of humans and other animals to solve complex problems.

HISTORY OF ARTIFICIAL INTELLIGENCE (AI)

1950
Turing Test
The Turing test is a method for determining the intelligence of a machine

1955
The Term AI
The term Artificial intelligence" is used for the first time

1966
Eliza
Eliza, one of the first chatbots, simulates conversations as a psychotherapist.

1970s- 1980s
AI Winter
After the boom of early research there was a pause

1997
Deep Blue
Chess computer deep blue wins against chess world champion garri kasparov

2011
SIRI
Siri, the intelligent speech assistant, is integrated into the iPhone 4s for the first time.

2011
Watson
Supercomputer Watson wins against two human rivals in the quiz show jeopardy

2014
Alexa
Virtual assistant Alexa from amazon moves into counties homes.

2016
Tay
Chatbot Tay had to be reissued after a short time because of racist & sexist remarks.

2017
AlphaGo
Google's AlphaGo beats the world champion in the game go

2018
Ethic Guidelines
The European union establishes guidelines for deadline with ethics in AI

What is the Scope of AI?

▪ Artificial Intelligence has various applications in today's society. It is becoming essential for today's time because it can solve complex problems in an efficient way in multiple industries, such as healthcare, entertainment, finance, education, etc. AI is making our daily life more comfortable and fast.

1. AI in Astronomy

- Artificial Intelligence can be very useful to solve complex universe problems. AI technology can be helpful for understanding the universe such as how it works, origin, etc.

2. AI in Healthcare

- In the last, five to ten years, AI becoming more advantageous for the healthcare industry and going to have a significant impact on this industry.

- Healthcare Industries are applying AI to make a better and faster diagnosis than humans. AI can help doctors with diagnoses and can inform when patients are worsening so that medical help can reach the patient before hospitalization.

What is the scope of AI in different industries?

3. AI in Gaming

- AI can be used for gaming purposes. The AI machines can play strategic games like chess, where the machine needs to think of a large number of possible places.

4. AI in Finance

- AI and finance industries are the best matches for each other. The finance industry is implementing automation, chatbot, adaptive intelligence, algorithm trading, and machine learning into financial processes.

5. AI in Data Security

- The security of data is crucial for every company and cyber-attacks are growing very rapidly in the digital world. AI can be used to make your data more safe and secure. Some examples such as AEG bot, AI2 Platform, are used to determine software bugs and cyber-attacks in a better way.

6. AI in Social Media

- Social Media sites such as Facebook, Twitter, and Snapchat contain billions of user profiles, which need to be stored and managed in a very efficient way. AI can organize and manage massive amounts of data. AI can analyze lots of data to identify the latest trends, hashtags, and requirements of different users.

What is the scope of AI in different industries?

7. AI in Travel & Transport

- AI is becoming highly demanding for travel industries. AI is capable of doing various travel related works such as from making travel arrangement to suggesting the hotels, flights, and best routes to the customers. Travel industries are using AI-powered chatbots which can make human-like interaction with customers for a better and fast response.

8. AI in Robotics:

- Artificial Intelligence has a remarkable role in Robotics. Usually, general robots are programmed such that they can perform some repetitive task, but with the help of AI, we can create intelligent robots which can perform tasks with their own experiences without pre-programmed.

9. AI in Entertainment

- We are currently using some AI-based applications in our daily life with some entertainment services such as Netflix or Amazon. With the help of ML/AI algorithms, these services show the recommendations for programs or shows.

10. AI in Education:

- AI can automate grading so that the teacher can have more time to teach. AI chatbot can communicate with students as a teaching assistant.
- AI in the future can be work as a personal virtual tutor for students, which will be accessible easily at any time and any place.

Artificial Intelligence Examples

❑ Smart assistants (like Siri and Alexa)

❑ Optimized, personalized healthcare treatment recommendations

❑ Conversational bots for marketing and customer service

❑ Spam filters on email

❑ Social media monitoring tools for dangerous content or false news

❑ Song or TV show recommendations from Spotify and Netflix

End of Lecture 1