

Marist CLS Fall 2024 – Artificial Intelligence Tour Overview

Sept. 25 - stage 1

Tour introduction

Participant knowledge and expectations

A.I. today – most common applications and uses.

1. Chat GPT and related applications
2. DALL·2/3 and related applications
3. Image recognition: face recognition; radiology image analysis
4. Self-driving cars
5. Personal assistants and companions
6. Warehousing robots and manufacturing robots
7. Recommendations: books, movies, etc.; also used in criminal justice

What is “Artificial Intelligence”? How do we define A.I.

A.I. qualification based on the “Turing Test”.

Oct. 2 - stage 2

A brief history (~ 80 years) of A.I.

Pioneering works: Alan Turing; Marvin Minsky; Frank Rosenblatt; Arthur Samuel; Joseph Weizenbaum; Geoffrey Hinton (“Godfather of A.I.”); Joshua Bengio, ...

Some key milestones:

- 1956 A.I. Dartmouth conference
- 1955 Arthur Samuel’s checker program
- 1989 Yann LeCun’s LeNet for check identification
- 1997 IBM DeepBlue chess player
- 2012 IBM Watson Jeopardy winner
- 2012 Fe-Fei Li ImageNet

2016 DeepMind Go player
2022 ChatGPT

Large Language Models (LLM)

Artificial Intelligence (A.I.); Artificial General Intelligence (A.G.I.);
Super Artificial Intelligence (S.A.I.).

The “Singularity”.

Oct. 9 - stage 3

Artificial Intelligence – basic operation

Artificial Intelligence vs. Machine learning vs. Deep learning.

Neural networks – What is a Neural Network? How do Neural Networks work?

The role and the importance of Big Data.

Required processing power, and power.

How do Deep Neural Networks compare to the human brain (processing power; memory capacity and retrieval; energy consumption)

The importance of training data.

What if the training data is corrupted?

What if the data set for training is not “large” enough? Deep Learning Network vs. Conditional Probabilities.

Oct. 16 - stage 4

A.I. and ethics

1. Deep learning training sets – material ownership, copyright, I.P.

2. Output originality, accuracy, veracity, bias
3. Fake information generated from texts, images, video clips, etc.
4. Any jobs at risk?

A.I. commercialization, competition and geopolitics

Oct. 23 – stage 5

1. Ethical considerations
2. A.I. regulations
3. A.I. and consciousness
4. How do we differentiate ourselves from our silicon counterparts?
5. A.I. in the future - Artificial General Intelligence / Singularity – for when? here is it leading us?
6. Discussion