



Artificial Intelligence - Introduction

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Why should we learn AI?



Google Search Engine

- Concept is Artificial Intelligence or machine learning
- They Learn the trending and most searched items or your browsing history

Why should we learn AI?

- ▶ AI is going to become dominant in future in the following sectors:
 - ▶ Social Media : Google (search engine), Facebook (facial recognition)
 - ▶ Medical : Cancer diagnosis , Google AI Eye doctor
 - ▶ Meteorological: Weather Forecasting
 - ▶ Automobile: Self Driving Car
 - ▶ Daily Life : Robot Floor Vacuum cleaner/Mopper; Google Map
 - ▶ Entertainment : Netflix
 - ▶ Finance sector, Education And many more ...

What is Artificial Intelligence and What is not!

- ▶ AI is the simulation of human intelligence processes by machines, especially computer systems
- ▶ AI is capable of performing at least some of the following:
 - ▶ **Planning** (GPS system)
 - ▶ **Learning** (Cancer/Stroke detection system)
 - ▶ **Reasoning** (Google Eye Doctor)
 - ▶ **Problem solving** (Robotic arm, Line follower, Wall follower etc, Obstacle avoidance)
 - ▶ **Perception** (Self driving cars)
 - ▶ **Self correction** (All the above examples)

What is Artificial Intelligence and What is not! (Continued..)

Weak AI

- ▶ It is a narrow application with a limited scope.
- ▶ This application is good at specific tasks.
- ▶ Example: Siri, Alexa, Line Follower, Wall Follower

Strong AI

- ▶ It is a wider application with a more vast scope.
- ▶ This application has an incredible human-level intelligence.
- ▶ Example: Advanced Robotics

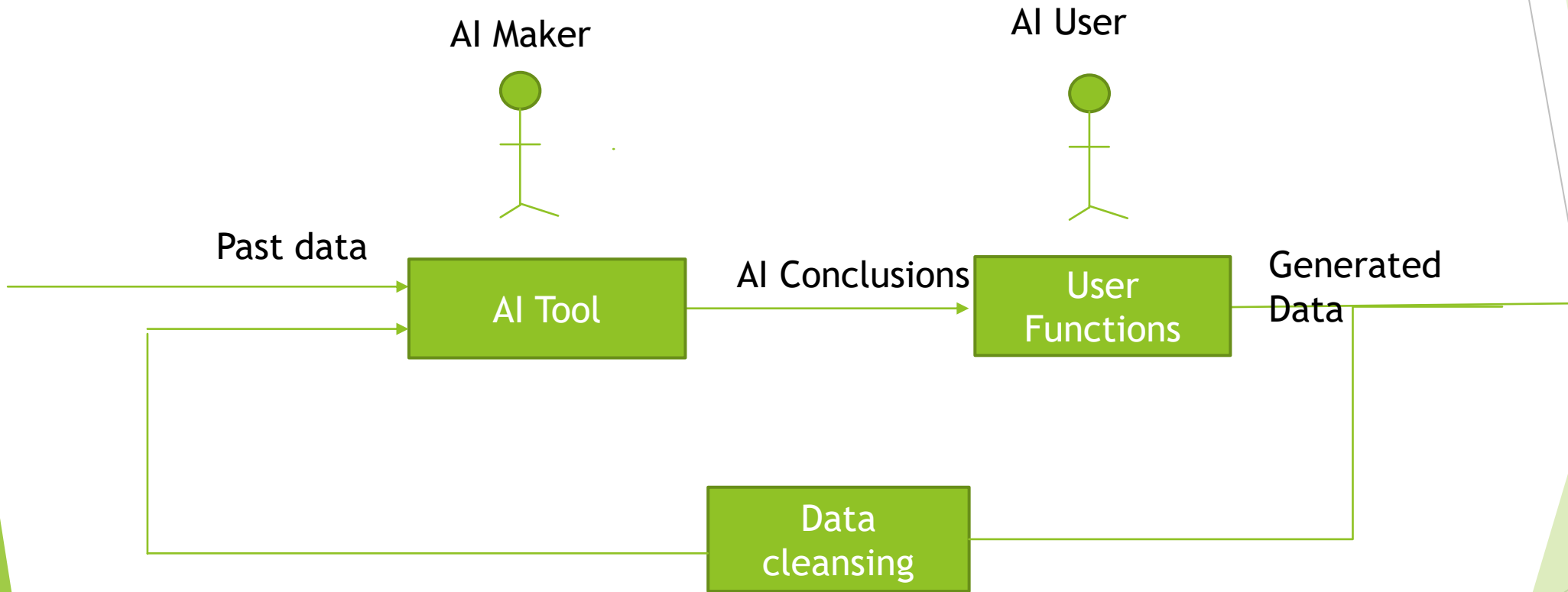
What is Artificial Intelligence and What is not! (Continued..)

- ▶ AI is not yet closer to human intelligence
 - ▶ AI can not work across fields
- ▶ AI will not replace human but it will support human
 - ▶ People will not lose their jobs to AI processes

AI - Some Common Terms

- ▶ Machine Learning (ML)
 - ▶ Deep Learning
 - ▶ Neural Network
- ▶ Natural Language Processing (NLP)
- ▶ AI Maker
- ▶ AI User
- ▶ Chatbot

How AI Works? - AI Data Flow



- AI needs the “maker” and the “user” both to be responsible
- “Data” is considered the backbone of AI
- The data has to be provided and used very carefully (securely)

Future of AI (AI by 2050)

- ▶ Customize medical treatment to the genes, environment and lifestyle of each patient
- ▶ High availability of artificial body parts using 3D printing and AI
 - ▶ Artificial heart, kidney, lungs transplant are on their way to success in next 30 years
- ▶ Provide cyber-security by looking for patterns of viruses, before they can affect the data
- ▶ Autonomous ships, trains, cars, and planes will transport human and cargo
- ▶ Artificial Intelligence will host TV shows and forecast news

Education and Careers in AI (continued ..)

- ▶ Bachelor's degree in IT, Computer Science, Statistics, Data Science or Finance
- ▶ Master's Degree in Computer Science, Mathematics, Cognitive Science or Data Science
- ▶ Job Roles
 - ▶ Business Intelligence Developer
 - ▶ AI Engineer
 - ▶ Machine Learning Engineer
 - ▶ Robotic Scientist
 - ▶ Research Scientist

Google tools to learn AI

- ▶ [Top 8 Google AI Tools | ActiveWizards: data science and engineering lab](#)

The above link has pointers to tools and dataset that students can use to come up with their own AI.

Some exercises:

- ▶ Cat Vs. Dog image classification - **Already provided example**
 - ▶ [image_classification_part1.ipynb - Colaboratory \(google.com\)](#)
- ▶ Handwritten Character Recognition - **Students need to perform this experiment on their own**

References

- ▶ [Teaching Kids About Artificial Intelligence | Bricks 4 Kidz | Bricks 4 Kidz - Kids Franchise](#)
- ▶ [AI - what artificial intelligence is and is not | Digital Leaders \(digileaders.com\)](#)
- ▶ [What is Artificial Intelligence? How Does AI Work, Applications and Future? \(mygreatlearning.com\)](#)
- ▶ [Artificial Intelligence: Terms marketers need to know \(twitter.com\)](#)
- ▶ [AI in 3D Bioprinting - Dataconomy](#)
- ▶ [Top 5 in-demand job roles in Artificial Intelligence \(AI\) \(nationalskillsnetwork.in\)](#)