An Introduction to

ARTIFICIAL INTELLIGENCE

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What is an Artificial Intelligence?

OR

AN AI

According to Wikipedia:

*"In the field of computer science, **artificial intelligence** (**AI**), sometimes called **machine intelligence**, is intelligence demonstrated by machines, in contrast to the **natural intelligence** displayed by humans and other animals. Computer science defines AI research as the study of "intelligent agents": any device that perceives its environment and takes actions that maximize its chance of successfully achieving its goals."*

I think it's little bit confusing and hard to understand so simply we can say :

"Artificial Intelligence is an approach to make a computer, a robot, or a product to think how smart human think. AI is a study of how human brain think, learn, decide and work, when it tries to solve problems. And finally this study outputs intelligent software systems."

AIM BEHIND THE AI

The aim of AI is to improve computer functions which are related to human knowledge, for example, reasoning, learning, and problem-solving.

The intelligence is intangible. It is composed of

- Reasoning
- Learning
- Problem Solving
- Perception
- Linguistic Intelligence

The objectives of AI research are reasoning, knowledge representation, planning, learning, natural language processing, realization, and ability to move and manipulate objects. There are long-term goals in the general intelligence sector.
Approaches include statistical methods, computational intelligence, and traditional coding AI. During the AI research related to search and mathematical optimization, artificial neural networks and methods based on statistics, probability, and economics, we use many tools. Computer science attracts AI in the field of science, mathematics, psychology, linguistics, philosophy and so on.

APLLICATIONS

- **Gaming** – AI plays important role for machine to think of large number of possible positions based on deep knowledge in strategic games. for example, chess,river crossing, N-queens problems and etc.

- **Natural Language Processing** – Interact with the computer that understands natural language spoken by humans.

- **Expert Systems** – Machine or software provide explanation and advice to the users.

- **Vision Systems** – Systems understand, explain, and describe visual input on the computer.

- **Speech Recognition** – There are some AI based speech recognition systems have ability to hear and express as sentences and understand their meanings while a person talks to it. For example Siri and Google assistant.

- **Handwriting Recognition** – The handwriting recognition software reads the text written on paper and recognize the shapes of the letters and convert it into editable text.

- **Intelligent Robots** – Robots are able to perform the instructions given by a human.

FUTURE OF AI

Answered By : Sandeep Dayananda, Machine Learning Enthusiast
On Quora

Remember the robots you saw in the movies like **Terminator**, **Star Wars**, **Star Trek**?

What if somebody tells you that they might actually walk among us someday. Will you believe that?

Yes! In 10–15 years from this might actually be true! You have special kinds of locking systems been used on your phones that involve Artificial Intelligence. Homes are getting smarter than humans, Cars can drive themselves, so its safe to expect that Artificial Intelligence has come a long way after it was idea-ted.

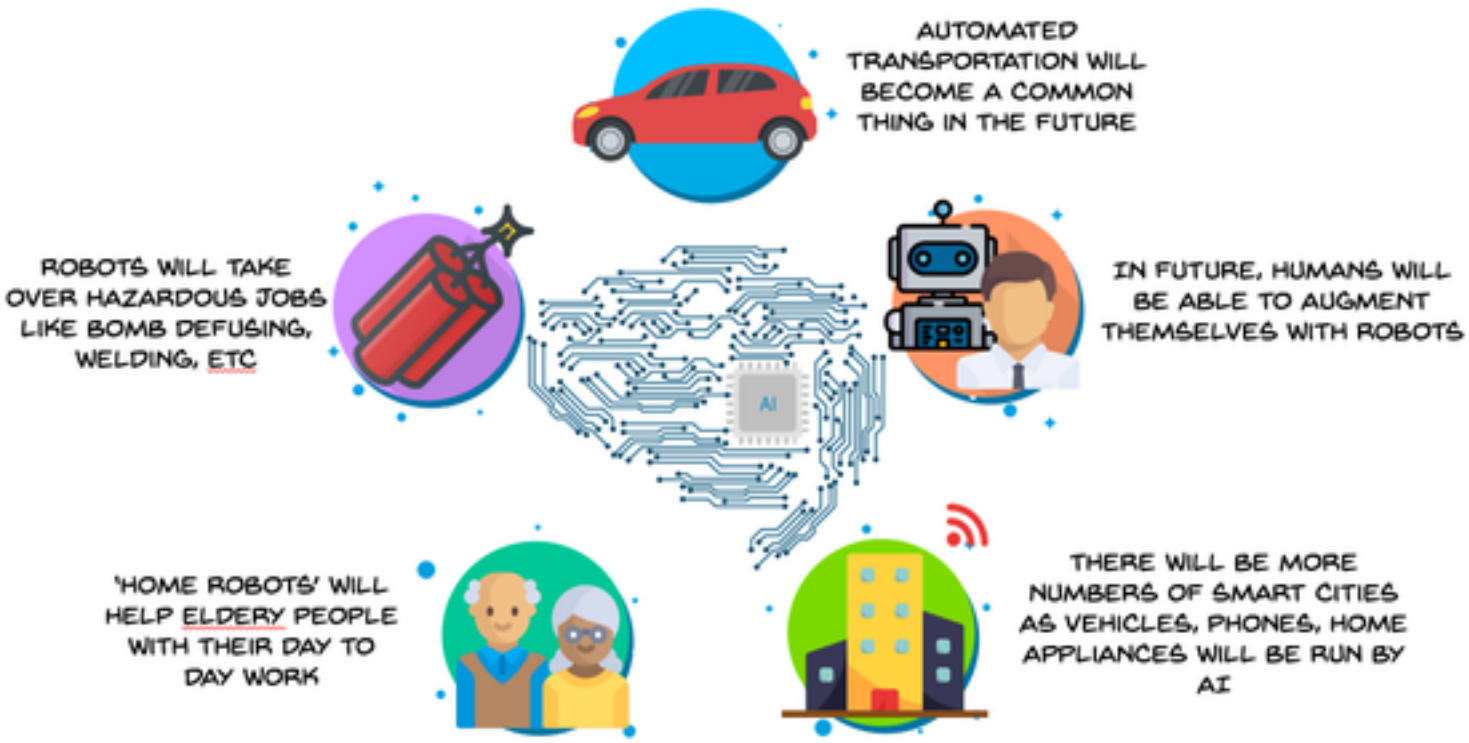
The present world is almost run by Artificial Learning. **Alexa**, **Siri**, **Cortana** and numerous number of virtual assistants make our lives much faster. Ever since The world 'Artificial Intelligence' was coined in the year 1956, it has made little breakthroughs which were never appreciated based on it has seen advancements that has changed humanity a lot.

Speech recognition, dancing robots and smart homes are some of the many applications of AI in the present world. *Check the image for a better idea of the timeline:*

However the future prospects of AI are more interesting:

1. Automated transportation will become a common thing in the future.
2. In future, humans will be able to augment themselves with robots.
3. There will be more numbers of smart cities as vehicles, phones, home appliances will be run by AI.
4. 'Home robots' will help eldery people with their day to day work.
5. Robots will take over hazardous jobs like bomb defusing, welding, etc.

Refer the image below:



To know more about Artificial Intelligence, refer to this video:

Link is given below :

https://youtu.be/15PK38MUEPM

For more please read the article ***The future of Artificial Intelligence: 6 ways it will impact everyday life*** written by ***Ryan Ayers***

https://bigdata-madesimple.com/the-future-of-artificial-intelligence-6-ways-it-will-impact-everyday-life/

BENEFITS & RISKS OF ARTIFICIAL INTELLIGENCE :

https://futureoflife.org/background/benefits-risks-of-artificial-intelligence/?cn-reloaded=1

BBC Future AI :

http://www.bbc.com/future/tags/artificialintelligence

TREADING ARTICLES

1. Cheat Sheets for AI, Neural Networks, Machine Learning, Deep Learning & Big Data

2. Data Science Simplified Part 1: Principles and Process

3. Getting Started with Building Realtime API Infrastructure

4. AI & NLP Workshop

PRE-REQUISITES

AI belongs to Machine learning so if you want to learn. Then you have these quality to learn

Machine Learning Crash Course does not presume or require any prior knowledge in machine learning. However, to understand the concepts presented and complete the exercises, we recommend that students meet the following prerequisites:

- **Mastery of intro-level algebra.** You should be comfortable with variables and coefficients, linear equations, graphs of functions, and histograms. (Familiarity with more advanced math concepts such as logarithms and derivatives is helpful, but not required.)

- **Proficiency in programming basics, and some experience coding in Python.** Programming exercises in Machine Learning Crash Course are coded in Python using TensorFlow. No prior experience with TensorFlow is required, but you should feel comfortable reading and writing Python code that contains basic programming constructs, such as function definitions/invocations, lists and dicts, loops, and conditional expressions.

Prework

Problem Framing

If you're new to machine learning, we recommend starting your journey by taking Introduction to Machine Learning Problem Framing. This one-hour course teaches you how to identify appropriate problems for machine learning.

Getting Started with pandas

The programming exercises in Machine Learning Crash Course use the pandas library for manipulating data sets. If you're unfamiliar with pandas, we recommend completing the Quick Introduction to pandas tutorial, which illustrates the key pandas features used in the exercises.

Key Concepts and Tools

Machine Learning Crash Course discusses and applies the following concepts and tools. For more information, see the linked resources.

Math

Algebra

- Variables, coefficients, and functions
- Linear equations
- Logarithms,
- Sigmoid function

Linear algebra

- Tensor and tensor rank
- Matrix multiplication

Trigonometry

- Tanh (discussed as an activation function; no prior knowledge needed)

Statistics

- Mean, median, outliers, and standard deviation
- Ability to read a histogram

Calculus (*optional, for advanced topics*)

- Concept of a derivative (you won't have to actually calculate derivatives)
- Gradient or slope
- Partial derivatives (which are closely related to gradients)
- Chain rule (for a full understanding of the backpropagation algorithm for training neural networks)

Python Programming

Basic Python

The following Python basics are covered in The Python Tutorial:

- Defining and calling functions, using positional and keyword parameters
- Dictionaries, lists, sets (creating, accessing, and iterating)

- `for` loops, `for` loops with multiple iterator variables (e.g., `for a, b in [(1,2), (3,4)]`)
- `if/else` conditional blocks and conditional expressions
- String formatting (e.g., `'%.2f' % 3.14`)
- Variables, assignment, basic data types (`int`, `float`, `bool`, `str`)
- The `pass` statement

Intermediate Python

The following more advanced Python features are also covered in The Python Tutorial:

- List comprehensions
- Lambda functions

Third-Party Python Libraries

Machine Learning Crash Course code examples use the following features from third-party libraries. Prior familiarity with these libraries is not necessary; you can look up what you need to know when you need it.

Matplotlib (for data visualization)

- `pyplot` module
- `cm` module
- `gridspec` module

Seaborn (for heatmaps)

- `heatmap` function

pandas (for data manipulation)

- `DataFrame` class

NumPy (for low-level math operations)

- `linspace` function
- `random` function
- `array` function
- `arange` function

scikit-learn (for evaluation metrics)

- metrics module

Bash Terminal / Cloud Console

To run the programming exercises on your local machine or in a cloud console, you should be comfortable working on the command line:

- Bash Reference Manual
- Bash Cheatsheet
- Learn Shell

For more information please visit :

https://developers.google.com/machine-learning/crash-course/prereqs-and-prework

MYTHS ABOUT AI

Myth #1: AI will replace human jobs

Many people fear AI will eventually replace them in the workplace leading to widespread job loss. However, the industrial revolutions of the past, such as the shift from agricultural work to factory work in the 19th century, fostered the same fears. The number of jobs has stayed consistent throughout. We forget AI is meant to work with humans, not instead of them. Additionally, technologies like the barcode scanner and ATM machines sparked fears of unemployment when they were first introduced. Instead, they improved their respective industries and created new types of jobs. Artificial Intelligence can change some current job categories, help create entirely new roles, and allow employees to work in a more efficient and clever manner.

Myth #2: AI is only for giant companies with big investments

Since the technology behind artificial intelligence is scientific and complex, people imagine futuristic robots, autonomous drones and self-driving vehicles only beneficial for advanced corporations or technology companies. AI implementation doesn't always require substantial expert research and investments of millions of dollars.This great technology is present in many aspects of our lives, and we do not notice it or think of it as of AI. The most popular examples of it are personal assistants as Siri, chatbots, search engines, Google maps, autopilots, fraud detection functions, purchase predictions, and more. If you've ever received a fraud alert from your bank or credit card, this is a result of AI monitoring activity and processing information as well.

Myth #3: Artificial intelligence has human characteristics

Yes, it's able to perform almost all of what we can do for a certain job, but it doesn't mean it also possesses human qualities and characteristics. Certainly, there are programs featuring a bit of emotion and personality, like iOS Siri and Amazon Alexa, but they're only wired to respond in certain ways. It's not organic.

Software is only used to perform certain tasks, and nothing more. Surely, lots of them have specific, charming characteristics, but it's because they were installed with it. And when any of these AI devices tells you they "like you," it's not real love. They were programmed to tell you that.

Myth No #4: AI will only replace mundane jobs

Every AI technology is based on data, rules and other kinds of input from human experts. Because all humans are intrinsically biased in one way or another, so is the AI. Systems that are frequently retrained – for example, using new data from social media – are even more vulnerable to unwanted bias or intentional malevolent influences.

"Even if your current AI strategy is 'no AI', this should be a conscious decision based on research and consideration"

"At the moment, there is no way to completely banish bias; however, we have to try our best to reduce it to a minimum," Linden says. "In addition to technological solutions, such as diverse datasets, it is crucial to also ensure diversity in the teams working with the AI and have team members review each other's work. This simple process can significantly reduce selection and confirmation bias."

Myth No #5: My business does not need an AI strategy

Every organization should consider the potential impact of AI on its strategy and investigate how this technology can be applied to the organization's business problems. In many ways, eschewing AI exploitation is the same as forgoing the next phase of automation, and could place enterprises at a competitive disadvantage.

"Even if your current AI strategy is 'no AI', this should be a conscious decision based on research and consideration. And – as with every other strategy – it should be periodically revisited and changed according to the organization's needs," Linden says.

FOR MORE IN DESCRIPTION

https://www.edge.org/conversation/jaron_lanier-the-myth-of-ai

CARRER IN AI

To make carrer in AI here read these well written blog just the link is given below just visit and take a look

https://www.springboard.com/blog/5-careers-in-artificial-intelligence/

https://www.computersciencedegreehub.com/faq/skills-job-artificial-intelligence/

https://www.simplilearn.com/how-to-build-career-in-ai-and-machine-learning-article

IMPORTANT BLOGS

ARTIFICIAL INTELLIGENCE 101: HOW TO GET STARTED :

https://www.hackerearth.com/blog/artificial-intelligence/artificial-intelligence-101-how-to-get-started/

TOP 75 ARTIFICIAL INTELLIGENCE WEBSITES AND BLOGS FOR AI ENTHUSIAST

https://blog.feedspot.com/ai_blogs/

PLACE TO LEARN AI

10 BEST ARTIFICIAL INTELLIGENCE COURSE & CERTIFICATION

https://digitaldefynd.com/best-artificial-intelligence-courses-training-certifications/

18 ARTIFICIAL INTELLIGENCE COURSES TO TAKE ONLINE

https://www.marketingaiinstitute.com/blog/17-artificial-intelligence-courses-to-take-online