# 1. What is the definition of artificial intelligence?

Over the years, many different definitions of artificial intelligence have been suggested. Because AI comes from a complex set of technologies, there are multiple ways to define it. Perhaps the most common and accurate way to describe it is as a way of computer systems analyzing data to be able to make decisions like a human would.

Here is a definition of artificial intelligence from European Union:

"*Artificial intelligence (AI) refers to systems that show intelligent behaviour: by analysing their environment they can perform various tasks with some degree of autonomy to achieve specific goals.*"
– European Union

One of the primary benefits of artificial intelligence is that it can analyze much more data than a human could. It can also dive deeper into the data with much more accuracy than a person, which makes AI a powerful tool for us to use as we make decisions about our daily lives.

AI is driven by data—in fact, it could not exist without a huge amount of data. If you're considering using AI within your own business, you should think about the kinds of internal and external data that you have access to, as well as how to find and collect additional high quality data that could be used to create AI systems to perform different tasks. You might also want to see the definition of AI by Wikipedia.

# 2. Who coined the term artificial intelligence?

The term "artificial intelligence" actually goes back many decades, dating back to the year 1955 when John McCarthy first coined the term. The concept was so fascinating that just one year later, in 1956, he joined with others to create the very first artificial intelligence conference.

As you can imagine, back then there was much less data available, which is crucial for AI to be able to operate correctly. For this reason, it has only been recently that AI technologies have been able to evolve into the powerful tools that we see today.

Today, most of the commercial benefits of artificial intelligence come from a subfield known as "deep learning," which uses huge amounts of data to analyze it, discover patterns, and help people and companies to make better decisions. You might like to see this deep learning course by Fast.AI

## 3. Does artificial intelligence exist?

Most people were first exposed to the idea of artificial intelligence from Hollywood movies, long before they ever started seeing it in their day-to-day lives. This means that many people misunderstand the technology. When they think about common examples that they've seen in movies or television shows, they may not realize that the killer robots they've seen were created to sell emotional storylines and drive the entertainment industry, rather than to reflect the actual state of AI technology.

The thought of AI can also make people nervous, especially if they are worried that they might lose their jobs to AI tools. Because of these fears, there is a lot of fake news and misinformation that gets spread about artificial intelligence.

AI does exist and is already being used in many industries. Because it is developing so quickly, it can be hard for us to imagine the eventual impact it will have on our world.

Right now, AI is excellent at dealing with very narrow tasks, analyzing data, and making accurate decisions based on that data. However, it is not necessarily excellent at doing several kinds of tasks all at once. This is known as narrow AI.

For example, artificial intelligence is perfect at successfully driving a car, as self-driving car technologies have shown. In fact, it may be better at doing so than the average human! But using that same AI tool for fraud protection, as many banks and financial institutions are starting to do, would not work. While you can develop an AI tool to go very deeply into one task, it cannot usually do two very different things at the same time.

General AI, which refers to artificial intelligence being able to do multiple things simultaneously, is something that experts have been predicting for many years. However, based on my own research, I believe it could take many years, even decades, to fully achieve this, so for now we should focus on bringing narrow AI into as many industries as possible.

## 4. AI terminology – What are the most common AI terms you should know?

As I mentioned before, AI is made up of a complex set of different technologies. This means that as the field grows and evolves, we'll begin to see more terms being used to describe what the technology does.

For now, here are some of the most common AI terms that you should know:

Algorithm
*The step-by-step method that a computer uses to complete each task. Since a computer understands numbers best, the steps are put together as mathematical equations, for example: "If x=1, then....".*

Artificial Neural Networks
*The term used to refer to AI systems that simulate connected neural units, modeling the way neurons interact in the brain.*

Cognitive Science
*A discipline that examines the various processes of the human brain such as linguistics, information processing and decision making. The goal is to discover more about cognition.*

Deep Learning
*The use of neural networks consisting of many layers of large numbers (millions) of artificial neurons. Deep learning is perfect for projects involving huge, complex datasets.*

Expert System
*A computer system that models the decision-making ability of a human expert. Expert systems are rule-based and normally use "if-then" statements.*

Another term that you should become familiar with is computer vision. This refers to a computer's ability to see. It's important because until now, computers relied on human reporting for things that required vision. Now, computers can mimic this ability. Computer vision can be used for many purposes, especially in the security industry and for quality control.

The applications for computer vision will be wide ranging and are likely to grow in the next few years. There are already cloud-based computer vision services that allow companies to buy the technology

from outside vendors so that they can take advantage of it right away without having to create their own tools from scratch.

The other term that you should know is natural language translation. This is the ability of a computer to hear something that is said to it and then answer back to the user. You might be familiar with this technology if you've ever used a chatbot or a smart assistant like Amazon's Alexa or Google Home.

Thanks to these tools, AI can be used at home and on the go. A smart assistant can search information for us, reading through answers available online and communicating the best results back to us. We can use these tools to ask something like, "What is the weather like today?" and even more complicated questions, and get short and accurate answers back.

Over time, these features will continue to grow and develop, allowing AI tools to perform even harder tasks, like doing market research for businesses. For now, companies should start becoming familiar with these tools so that they can leverage them quickly and effectively as they become more advanced.

## 5. Can artificial intelligence be dangerous?

Artificial intelligence is a tool, and like many tools, its danger is fully dependent on humans and the ways that they use it.

Think about a hammer. It can be used for wonderful things, like building a home, but it can also be used to hurt someone else.

Unlike a hammer, however, which can only be used by one person at a time with relatively little impact, AI can be created by a single person and spread around, which can multiply its power for good or evil.

One way that artificial intelligence can be dangerous is when it is used to create autonomous weapons. Currently, almost every large nation is spending a lot of resources on the creation of autonomous weapons that can be used in upcoming conflicts.

This is a dangerous precedent for the application of AI. Currently, there is a petition that was created by the Future of Life Institute to help prevent the creation and spread of these kinds of weapons. I've signed it myself and I highly recommend that you do the same. You can find it in this link:
https://futureoflife.org/lethal-autonomous-weapons-pledge/

Another way that AI can be dangerous is when it is applied in societies without due consideration and analysis of the long-term ethical and moral implications that it might create.

For example, there is a danger to building a society where certain decisions are made purely based on an AI algorithm.

For example, who will receive jail time for a crime? In the US, "criminal risk assessment algorithms" are already being used to analyze whether a person is likely to reoffend in the future. Many civil rights groups are against the use of these kinds of tools, claiming that they can make wrong suggestions and send innocent people to prison. You can read more about it in this in-depth article by Karen Hao:
https://www.technologyreview.com/s/612775/algorithms-criminal-justice-ai/

AI will be used in a similar fashion to influence decision making in different areas of society such as finance and education, and it's highly likely that the first machine learning models to be used will be biased. To learn more about this I recommend watching this presentation by my friend Tonima Afroze, which covers several

examples.
https://www.youtube.com/watch?v=5uc6jFFKgiI

When AI tools are used within a society, the algorithms that they are based upon should be transparent, allowing us to verify decisions made through the tools after the fact. They should also be designed to be secure against the efforts of hackers to change the algorithms behind the artificial intelligence.

Instead of relying fully on AI to make important decisions within a society, systems should always be created in such a way that the AI analysis is used along with human input.

## 6. How will artificial intelligence change the future?

The impact of artificial intelligence will be greater and will happen sooner than we can prepare for. It will likely change or disrupt just about everything we experience in our lives and in society as a whole.

This will have a positive impact in many ways, creating opportunities for those who are early to adopt new tools and follow trends as changes happen, but it will also be stressful, disappointing and confusing for people who ignore or aren't fully prepared for the changes that AI will bring.

To stay on top of the changes and challenges that will come about from the introduction of AI tools, I recommend watching new trends on three different levels:

- Individually: It can be helpful to create a "map" of the ways that the world around us is likely to change over the next 5 to 7 years. To do this, think outside the box, analyze new trends, and think critically about the information you encounter. Consider the ways that you can leverage new tools to make a positive impact for yourself and for society at large.

- As a society: Politicians and decision makers need to use big data and AI correctly when making decisions. These decisions should be evidence-based and able to be independently verified after the fact, rather than made on the basis of political philosophy. This will be a huge challenge for most countries, as many policymakers don't have a common understanding of the ways that AI can be used to make decisions. To leverage AI tools in the best possible way, there will need to be a consensus among leaders about the ways that AI will be used. When applied correctly, artificial intelligence systems can be used to positively impact public services like healthcare, education and transportation. The countries that are the quickest to apply AI in these areas will gain the greatest benefits.
- For business: Many companies are already working in a digital economy and should be prepared to harness the power of AI, running pilot projects to test their ideas. For example, a business can begin to create AI-based chatbots for customer service. Leadership teams within the company should begin thinking about how they can introduce AI into their strategic plan for the next 2 to 3 years, while also considering how their business models could change over the next 5 to 7 years as a result of employing AI technologies. Companies that aren't prepared to use AI may be left behind.

## 7. Why do we need artificial intelligence?

Life would be much simpler and easier to understand if we did not have all the technologies that are growing at an exponential speed (artificial intelligence, blockchain, 3D printing, Internet of Things) and affecting every area of our lives.

The basic premise of AI is that it allows computer programs to learn, rather than needing to be specifically programmed to perform certain tasks.

Because of AI, computers can now learn to do huge amounts of tasks and activities that used to require human intelligence. The more data the AI has, the better results it can produce.

One positive result of this is that AI will make our lives easier in certain areas in which we need to analyze data. Here are four simple examples:

- Health care: analyzing patient data and conducting predictive analysis.
- Agriculture: precision agriculture that helps save natural resources.
- Business processes: AI has the ability to make almost everything better, faster and cheaper.
- Education: Analyzing study data and providing teachers and students with tips on how to study better.

Another enormous benefit of AI is that it is already helping to improve the lives of children around the world. For example, in the developing world, many children currently spend their childhoods working in factories.

However, thanks to the developments of AI, these factories are increasingly being operated by robots and automation, allowing more children to spend their time studying, playing and enjoying their childhoods.

Additionally, AI will be able to help carry out many tasks and jobs which are too dangerous for humans.

## 8. Why should you study artificial intelligence?

Excited to study the Python and C++ programming languages?

Even though doing so would be useful, many of us, including myself, don't have the time or patience to learn these languages, which are typically used for developing artificial intelligence applications.

If you are currently attending college or are interested in learning them, I highly encourage you to do so.

However, it can be much more beneficial to learn how to apply artificial intelligence than to actually code it. This is because finding skillful coders is now easier than ever because of freelance sites such as Upwork.

I strongly believe that everyone should study and learn about these areas related to artificial intelligence:

- What is artificial intelligence?
- How could I apply it in my area of interest?
- How will it change our short term and long-term future?
- What are the challenges and opportunities presented by AI?

These are some of the topics I cover in my book on artificial intelligence.

Everyone can benefit from learning about AI. Even if you have no interest in learning how to code, I urge you to develop an interest in artificial intelligence and seek to understand the impact it will have on our society.

## 9. How can we apply artificial intelligence?

How we can apply AI in our day-to-day lives is one of the most common question on artificial intelligence.

As with the other technologies of the third industrial revolution, you don't need to be an AI developer, or work in the industry, to want to

learn about AI. Every one of us should be thinking about how we can apply AI in the different areas of our personal and professional lives.

## Smart Virtual Assistants

By now, most of us have used smart virtual assistants such as Siri, Google Assistant, or Cortana.

Although most of these still work in a quite rudimentary manner, they will undoubtedly improve significantly in the coming years.

Some experts predict that by 2025, most business communications will be handled directly between the participants' virtual assistants.

## Chatbots

One of the best ways to apply AI is to learn how to create chatbots. Although most of today's chatbots are rule-based and work without AI, learning how to create them will give you a good head start for developing AI-based chatbots in the future.

Probably the easiest way to create a basic chatbot is by using chatfuel.com, a chatbot building tool which works on Facebook Messenger.

You can also create a chatbot that includes some AI features with the help of IBM's Watson or Dialogflow by Google.

In my book about AI, I have devoted an entire chapter to this topic, which you might want to check out.

## Market Research

Another useful area where AI can be applied is market research. There is a growing number of tools that promise to use AI for analyzing public opinion on certain topics. Meltwater is one example, but soon there will probably be several other similar services.

In addition to chatbots and market research, there are a multitude of other areas to which artificial intelligence could be applied.

One interesting exercise is to list all the business activities your company does on a daily basis, and then analyze what would happen if AI took over part or all of each of these tasks.

I think it's important to highlight that however you apply AI in your life, it is crucial to always maintain high ethical guidelines and standards.

## 10. What are the typical jobs related to artificial intelligence?

AI is quickly creating large numbers of new jobs, the biggest challenge of which is having enough qualified workers to fill these positions.
These are some of the AI-related job titles that are currently in the highest demand on job search portals: data scientists, software engineers, research scientists, machine learning experts, and deep learning experts.

However, there will be an even greater demand for professionals who understand how AI works in general, as well as how to help companies and individuals apply these technologies for the benefit of businesses and society

Here are some of the jobs related to AI that I cover in my book:

- AI Chatbot Designer: A professional who knows how to design AI-based chatbots that can attend to basic customer service needs and provide a positive user experience.

- AI Digital Marketing Expert: Someone who understands how to leverage various digital marketing and social media tools that employ AI to create more effective marketing strategies.
- AI Business Strategy Consultant: An expert who analyzes a company and recommends ways that company can build AI services and products with tools like IBM's Watson, Microsoft Azure, or Amazon Web Services. While it can be helpful to develop internal AI tools, it is also possible to purchase existing solutions from well-known providers like the ones listed above.
- AI Strategy Consultant for the Public Sector: An expert who can identify potential challenges that will arise due to the introduction of AI into society and can solve problems through AI training. This is an important role for helping society to become familiar and comfortable with the use of new AI technologies. This type of professional could also serve those who have lost their jobs to AI and automation by matching individuals with suitable retraining programs to help them obtain new types of employment.
- Tech-Addiction Counselor or Coach: A skilled counselor or coach who understands, and knows how to treat, the emotional and physical impacts of the rapid growth of AI and the problems that may arise from overuse. With the increasing presence of AI technologies in our everyday lives comes the potential for users to become addicted to some of these products. Also, some people may suffer from negative emotional consequences due to an overreliance on AI at the expense of normal social interactions and relationships with humans.
- Creativity Coach: A trained professional with experience in helping others to develop human-based skills including social and emotional intelligence, and creativity. This is an important role that, because it cannot be filled by robots, will hold a great deal of value for people in the future.

## 11. Will China be the AI super power?

The simple answer to this question is YES.

How China is achieving this is quite intriguing. China has created a national AI team comprised of its top artificial intelligence technology companies such as Baidu, Alibaba and Tencent.

The objective is to be the world leader in AI by 2030, and China is currently one of the only countries that has set this type of goal.

In general, the Chinese have the reputation of being much more hardworking than the Americans or Europeans, and to me it is quite obvious that they will reach their goal.

In the first stage of China's AI plan, the country wants to focus and work on these seven key areas of artificial intelligence:

1. Intelligent Connected Vehicles (ICV)
2. Intelligent Service Robots
3. Intelligent Unmanned Arial Vehicles
4. Computer Aided Medical Imaging Diagnosis Systems
5. Video Image Recognition
6. Artificial Audio Intelligence (AAI)
7. Computer Translation

(source: ChinaLawBlog.com)

This basically means that people in China's largest cities will soon see many AI applications such as intelligent connected vehicles (self-driving cars) and intelligent service robots.

However, being an AI super power does not necessarily equal having the citizens with the greatest sense of wellbeing, or ensuring that the wealth generated by AI is distributed fairly among the country's population.

For this, I predict that European countries will take the lead, demonstrating to the rest of the world the importance of applying AI ethically and fairly, and sharing the benefits equally throughout society. Here you can read how Finland adapts to the future of artificial intelligence.

## 12. Which are the most powerful artificial intelligence companies?

This is one of the most typical question on artificial intelligence.

Virtually every big technology company has the number one goal of being an important player in the AI marketplace, providing artificial intelligence products and services to consumers.

Google

At this time, it's safe to say that Google has a head start, including the most interesting AI products, as well as the most profound and complete AI research activities.

In fact, Google has changed the name of its research center to "Google AI," demonstrating just how important AI research is to the company.

Google recently announced some new features that its AI assistant can handle, including making phone calls and booking appointments and reservations in an incredibly life-like voice.

You can hear a demo of Google Assistant calling to book an appointment at a hair salon here:

https://www.youtube.com/watch?v=NO0-5MuJvew

This product is not yet available to the public, and it might take a long time before Google releases it.

I cover Google's AI activities in more depth in my book, but you can start researching their AI undertakings here: https://ai.google/

Amazon, Microsoft, Apple, Facebook, IBM and Nvidia

All of these companies are working in several key areas in order to offer AI products and solutions. They are also all competing to employ the best AI talent and trying to improve their AI research efforts.

Out of these six companies, I would say that Apple is currently the one with the weakest AI activities. Meanwhile, Amazon is probably growing the fastest in the consumer AI product field, by offering Amazon Alexa powered software, which can be embedded in almost every device.

Chinese AI companies

Baidu, Alibaba and Tencent are leading the Chinese AI efforts, as mentioned earlier. These companies are growing quickly in every area and should be carefully followed by everyone interested in the future of the AI field.

## 13. What are some common benefits of artificial intelligence technology?

As AI will impact so many areas of our lives and businesses, there are actually enormous amounts of direct and indirect benefits that can be brought about thanks to artificial intelligence.

Here is a list of some of the key benefits.

- AI and Poverty: AI will be used to fight extreme poverty and improve quality of life for people in remote areas.
- AI and Everyday Life: AI and robotics can take on tasks that are dangerous, boring or difficult for humans.
- AI and Travel: AI will power autonomous vehicles, which will help to generate improved traffic efficiency, cheaper mobility options and greater safety on the streets.
- AI and World Peace: AI research and development can be used to help in the quest for world peace.
- AI and Businesses Opportunities: AI will create amazing opportunities for entrepreneurs and businesses worldwide and also increase productivity.
- AI and Business Processes: AI will generate improvements to almost every business process.
- AI and Industries: AI will drastically transform almost every commercial industry.

When talking about the benefits, we should also highlight the disadvantages and challenges generated by the growth of AI. This is especially important since there is not enough public discussion about the topic. This is in large part because the tech leaders who appear in the media rarely mention the possible disadvantages, naturally preferring to focus on the benefits instead, to generate more profits for their companies. I also recommend reviewing the infographic called "9 Reasons Why Artificial Intelligence is Important Now"

There are clearly many exceptions such as Elon Musk and Richard Branson, who advocate for a universal basic income, which would be a way to essentially provide "money for nothing" to those people whose jobs have been displaced by automation and AI.