



In [35]:

```
#Extract content from two text files attached
fopen = open('Artificiaial intelligence.txt', 'r')
data=fopen.read()
print(data)
```

Since the invention of computers or machines, their capability to perform various tasks went on growing exponentially. Humans have developed the power of computer systems in terms of their diverse working domains, their increasing speed, and reducing size with respect to time.

A branch of Computer Science named Artificial Intelligence pursues creating the computers or machines as intelligent as human beings.  
What is Artificial Intelligence?

According to the father of Artificial Intelligence, John McCarthy, it is "The science and engineering of making intelligent machines, especially intelligent computer programs".

Artificial Intelligence is a way of making a computer, a computer-controlled robot, or a software think intelligently, in the similar manner the intelligent humans think.

AI is accomplished by studying how human brain thinks, and how humans learn, decide, and work while trying to solve a problem, and then using the outcomes of this study as a basis of developing intelligent software and systems.  
Philosophy of AI

While exploiting the power of the computer systems, the curiosity of human, lead him to wonder, "Can a machine think and behave like humans do?"

Thus, the development of AI started with the intention of creating similar intelligence in machines that we find and regard high in humans.  
Goals of AI

To Create Expert Systems - The systems which exhibit intelligent behavior, learn, demonstrate, explain, and advice its users.

To Implement Human Intelligence in Machines - Creating systems that understand, think, learn, and behave like humans.

What Contributes to AI?

Artificial intelligence is a science and technology based on disciplines such as Computer Science, Biology, Psychology, Linguistics, Mathematics, and Engineering. A major thrust of AI is in the development of computer functions associated with human intelligence, such as reasoning, learning, and problem solving.

Out of the following areas, one or multiple areas can contribute to build an intelligent system.

Components of AI

Programming Without and With AI

The programming without and with AI is different in following ways -

Programming Without AI    Programming With AI

A computer program without AI can answer the specific questions it is meant to solve.                      A computer program with AI can answer the generic questions it is meant to solve.

Modification in the program leads to change in its structure.    AI programs

can absorb new modifications by putting highly independent pieces of information together. Hence you can modify even a minute piece of information of program without affecting its structure. Modification is not quick and easy. It may lead to affecting the program adversely. Quick and Easy program modification. What is AI Technique?

In the real world, the knowledge has some unwelcomed properties -

- Its volume is huge, next to unimaginable.
- It is not well-organized or well-formatted.
- It keeps changing constantly.

AI Technique is a manner to organize and use the knowledge efficiently in such a way that -

- It should be perceivable by the people who provide it.
- It should be easily modifiable to correct errors.
- It should be useful in many situations though it is incomplete or inaccurate.

AI techniques elevate the speed of execution of the complex program it is equipped with.

Applications of AI

AI has been dominant in various fields such as -

Gaming - AI plays crucial role in strategic games such as chess, poker, tic-tac-toe, etc., where machine can think of large number of possible positions based on heuristic knowledge.

Natural Language Processing - It is possible to interact with the computer that understands natural language spoken by humans.

Expert Systems - There are some applications which integrate machine, software, and special information to impart reasoning and advising. They provide explanation and advice to the users.

Vision Systems - These systems understand, interpret, and comprehend visual input on the computer. For example,

- A spying aeroplane takes photographs, which are used to figure out spatial information or map of the areas.

- Doctors use clinical expert system to diagnose the patient.

- Police use computer software that can recognize the face of criminal with the stored portrait made by forensic artist.

Speech Recognition - Some intelligent systems are capable of hearing and comprehending the language in terms of sentences and their meanings while a human talks to it. It can handle different accents, slang words, noise in the background, change in human's noise due to cold, etc.

Handwriting Recognition - The handwriting recognition software reads the text written on paper by a pen or on screen by a stylus. It can recognize the shapes of the letters and convert it into editable text.

Intelligent Robots - Robots are able to perform the tasks given by a human. They have sensors to detect physical data from the real world such as light, heat, temperature, movement, sound, bump, and pressure. They have effic

ient processors, multiple sensors and huge memory, to exhibit intelligence. In addition, they are capable of learning from their mistakes and they can adapt to the new environment.

In [42]:

```
#Extract content from two text files attached
fopen = open('machine learning.txt', 'r')
data=fopen.read()
print(data)
```

## Artificial Intelligence and Machine Learning: Policy Paper Foreword

Artificial intelligence is a technology that is already impacting how users interact with, and are affected by the Internet. In the near future, its impact is likely to only continue to grow. AI has the potential to vastly change the way that humans interact, not only with the digital world, but also with each other, through their work and through other socioeconomic institutions i% for better or for worse.

If we are to ensure that the impact of artificial intelligence will be positive, it will be essential that all stakeholders participate in the debates surrounding AI.

In this paper, we seek to provide an introduction to AI to policymakers and other stakeholders in the wider Internet ecosystem.

The paper explains the basics of the technology behind AI, identifies the key considerations and challenges surrounding the technology, and provides several high-level principles and recommendations to follow when dealing with the technology.

If more stakeholders bring their points of view and expertise to the discussions surrounding AI, we are confident that its challenges can be addressed and the vast benefits the technology offers can be realized.

### Executive Summary

Artificial Intelligence (AI) is a rapidly advancing technology, made possible by the Internet, that may soon have significant impacts on our everyday lives. AI traditionally refers to an artificial creation of human-like intelligence that can learn, reason, plan, perceive, or process natural language[1]. These traits allow AI to bring immense socioeconomic opportunities, while also posing ethical and socio-economic challenges.

As AI is an Internet enabled technology, the Internet Society recognizes that understanding the opportunities and challenges associated with AI is critical to developing an Internet that people can trust.

This policy paper offers a look at key considerations regarding AI, including a set of guiding principles and recommendations to help those involved in policy making make sound decisions. Of specific focus is machine learning, a particular approach to AI and the driving force behind recent developments. Instead of programming the computer every step of the way, machine learning makes use of learning algorithms that make inferences from data to learn new tasks.

As machine learning is used more often in products and services, there are some significant considerations when it comes to users' trust in the Internet. Several issues must be considered when addressing AI, including, socioeconomic impacts; issues of transparency, bias, and accountability; new uses for data, considerations of security and safety, ethical issues; and, how AI facilitates the creation of new ecosystems.

At the same time, in this complex field, there are specific challenges facing

g AI, which include: a lack of transparency and interpretability in decision-making; issues of data quality and potential bias; safety and security implications; considerations regarding accountability; and, its potentially disruptive impacts on social and economic structures.

In evaluating the different considerations and understanding the various challenges, the Internet Society has developed a set of principles and recommendations in reference to what we believe are the core abilities[2] that underpin the value the Internet provides.

While the deployment of AI in Internet based services is not new, the current trend points to AI as an increasingly important factor in the Internet's future development and use. As such, these guiding principles and recommendations are a first attempt to guide the debate going forward. They include: ethical considerations in deployment and design; ensuring the interpretability of AI systems; empowering the consumer; responsibility in the deployment of AI systems; ensuring accountability; and, creating a social and economic environment that is formed through the open participation of different stakeholders.

## Introduction

Artificial intelligence (AI) has received increased attention in recent years. Innovation, made possible through the Internet, has brought AI closer to our everyday lives. These advances, alongside interest in the technology's potential socio-economic and ethical impacts, brings AI to the forefront of many contemporary debates. Industry investments in AI are rapidly increasing [3], and governments are trying to understand what the technology could mean for their citizens. [4]

The collection of Big Data and the expansion of the Internet of Things (IoT), has made a perfect environment for new AI applications and services to grow. Applications based on AI are already visible in healthcare diagnostics, targeted treatment, transportation, public safety, service robots, education and entertainment, but will be applied in more fields in the coming years. Together with the Internet, AI changes the way we experience the world and has the potential to be a new engine for economic growth.

## Current Uses of AI:

Although artificial intelligence evokes thoughts of science fiction, artificial intelligence already has many uses today, for example:

**Email filtering:** Email services use artificial intelligence to filter incoming emails. Users can train their spam filters by marking emails as spam.

**Personalization:** Online services use artificial intelligence to personalize your experience. Services, like Amazon or Netflix, learn from your previous purchases and the purchases of other users in order to recommend relevant content for you.

**Fraud detection:** Banks use artificial intelligence to determine if there is strange activity on your account. Unexpected activity, such as foreign transactions, could be flagged by the algorithm.

**Speech recognition:** Applications use artificial intelligence to optimize speech recognition functions. Examples include intelligent personal assistants, e.g. Amazon's Alexa or Apple's Siri.

The Internet Society recognizes that understanding the opportunities and challenges associated with AI is critical to developing an Internet that people trust. This is particularly important as the Internet is key for the technology behind AI and is the main platform for its deployment; including significant new means of interacting with the network. This policy paper offers a

look at the key things to think about when it comes to AI, including a set of guiding principles and recommendations to help make sound policy decisions. Of particular focus is machine learning, a specific approach to AI and the driving force behind recent developments.

Artificial Intelligence *What it's all about*

Artificial intelligence (AI) traditionally refers to an artificial creation of human-like intelligence that can learn, reason, plan, perceive, or process natural language. [5]

Artificial intelligence is further defined as *narrow AI* or *general AI*. Narrow AI, which we interact with today, is designed to perform specific tasks within a domain (e.g. language translation). General AI is hypothetical and not domain specific, but can learn and perform tasks anywhere. This is outside the scope of this paper. This paper focuses on advances in narrow AI, particularly on the development of new algorithms and models in a field of computer science referred to as machine learning.

In [22]:

```
#Count the total number of words in each text file
fopen = open('Artificiaial intelligence.txt', 'r')
data = fopen.read()
words = data.split()
print(len(words))
```

812

In [43]:

```
#Count the total number of words in each text file
fopen = open('machine learning.txt', 'r')
data = fopen.read()
words = data.split()
print(len(words))
```

1087

In [25]:

```
#Count the frequency of repetition of each word found in each file.
fopen = open("Artifical intelligence.txt", "r")
d = dict()
for line in fopen:
    line = line.strip()
    words = line.split(" ")
    for word in words:
        if word in d:
            d[word] = d[word] + 1
        else:
            d[word] = 1
for key in list(d.keys()):
    print(key, ":", d[key])
```

```
Since : 1
the : 39
invention : 1
of : 33
computers : 2
or : 8
machines, : 2
their : 5
capability : 1
to : 25
perform : 2
various : 2
tasks : 2
went : 1
on : 6
growing : 1
exponentially. : 1
Humans : 1
have : 3
```



In [45]:

```
#Count the frequency of repetition of each word found in each file.
```

```
fopen = open("machine learning.txt", "r")
```

```
d = dict()
```

```
for line in fopen:
```

```
    line = line.strip()
```

```
    words = line.split(" ")
```

```
    for word in words:
```

```
        if word in d:
```

```
            d[word] = d[word] + 1
```

```
        else:
```

```
            d[word] = 1
```

```
for key in list(d.keys()):
```

```
    print(key, ":", d[key])
```

```
with, : 1
```

```
are : 10
```

```
affected : 1
```

```
by : 4
```

```
the : 61
```

```
Internet. : 2
```

```
In : 3
```

```
near : 1
```

```
future, : 1
```

```
its : 4
```

```
impact : 2
```

```
likely : 1
```

```
to : 37
```

```
only : 2
```

```
continue : 1
```

```
grow. : 2
```

```
AI : 22
```

```
has : 7
```

```
potential : 4
```

```
vastly : 1
```

In [44]:

```
#Group in a list the words common for two text files and show their total count
f1 = open("machine learning.txt").readlines()
f2 = open("Artifical intelligence.txt").readlines()
if len(f1) != 0 | len(f2) != 0:
    uniq1 = set(words for line in f1 for words in line.strip().split())
    uniq2 = set(wordss for lines in f2 for wordss in lines.strip().split())
    for words in uniq1:
        for wordds in uniq2:
            if words == wordds:
                print(words)
```

intelligence  
developed  
tasks  
their  
natural  
different  
They  
such  
technology  
world,  
of  
development  
While  
is  
are  
way  
we  
have  
provide  
change  
from  
language  
use  
made  
with  
while  
this  
Applications  
it  
new  
increasing  
as  
not  
to  
developing  
data  
AI  
paper  
possible  
has  
like  
and  
world  
based  
Intelligence  
In  
a  
how

learn,  
humans  
machine  
people  
creating  
interact  
The  
associated  
be  
recognition  
its  
can  
by  
in  
perform  
intelligent  
that  
complex  
learning  
What  
may  
many  
trying  
learning,  
used  
an  
Artificial  
the  
making  
work  
These  
or  
on  
think  
computer  
which  
fields  
Speech  
science  
various  
specific  
programming  
some  
applications

In [ ]: