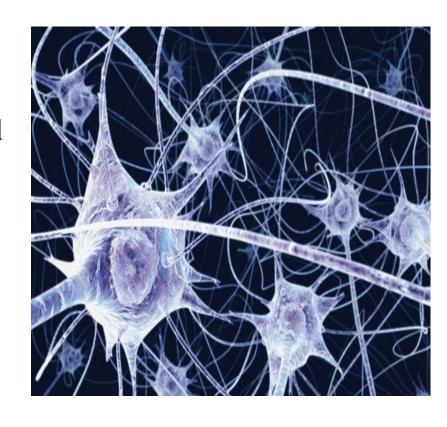


#### What is Intelligence???

\*Intelligence is the ability to learn about, to learn from, to understand about, and interact with one's environment.

**❖Intelligence is the faculty of understanding** 

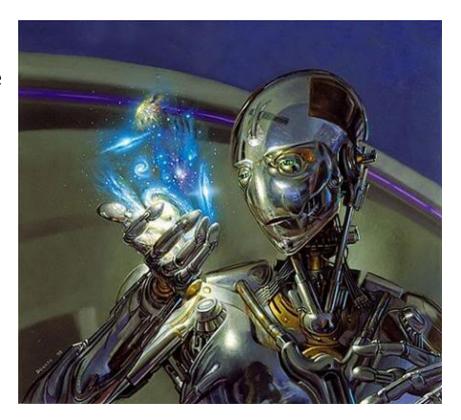


Intelligence is not to make no mistakes but quickly to understand how to make them good

(German Poet)

#### What Is Artificial Intelligence???

- Artificial Intelligence (AI) is usually defined as the science of making computers do things that require intelligence when done by humans.
- **❖** A.I is the study of ideas that enable computers to be intelligent



#### **How Does Al Works??**

Artificial intelligence works with the help of

Artificial Neurons
 (Artificial Neural
 Network)



#### And

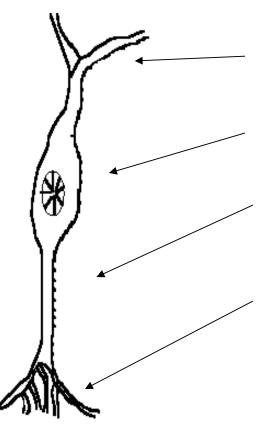
• Scientific theorems(If-Then Statements, Logics)

#### What is Neural Networking??

Artificial neural networks are composed of interconnecting artificial neurons (programming constructs that mimic the properties of biological neurons).



# Structure of a Biological Neuron

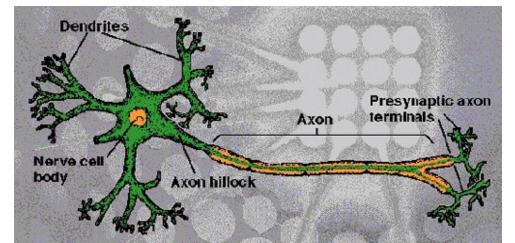


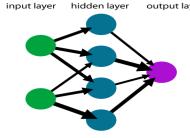
Dendrites: Accepts Inputs

Soma: Processes the Inputs

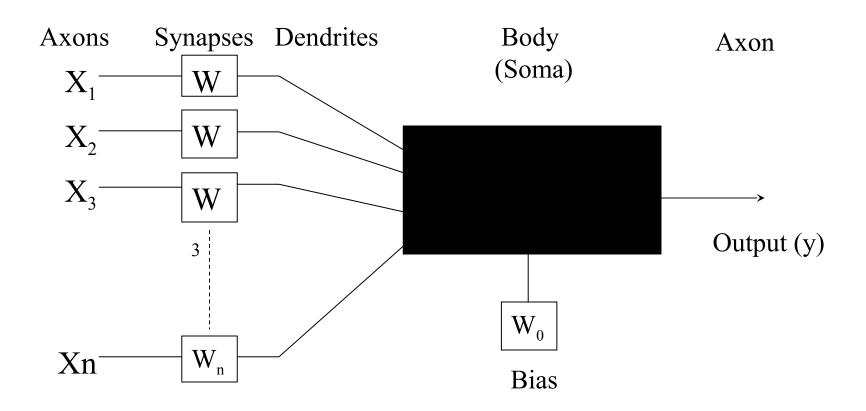
Axon: Turns the processed inputs into outputs

Synapses: The electrochemical contact between neurons





### An Artificial Neuron

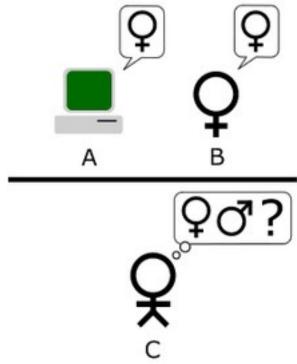


Sec 2: ANN

#### **Turing Test**

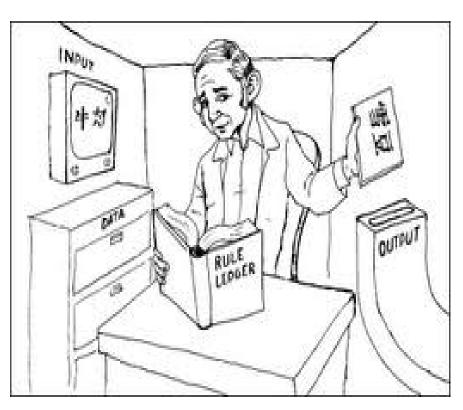
**Imitation Game Test!!!!** 

The **Turing test** is a test of a machine's ability to demonstrate intelligence



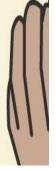
## **Chinese Room Test**

A Counter Argument to Turing Test

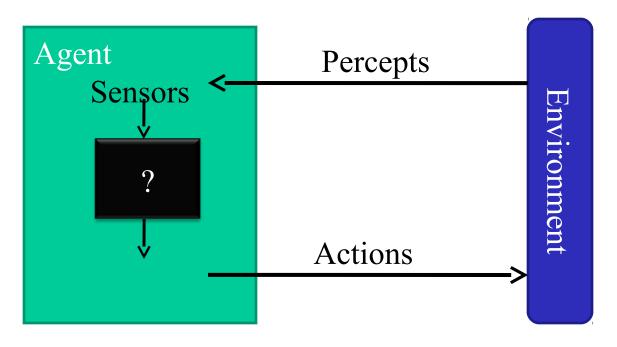


If you see this shape,
"什麼"
followed by this shape,
"帶來"
followed by this shape,
"快樂"

then produce this shape,
"為天"
followed by this shape,
"下式".



# Intelligent agents



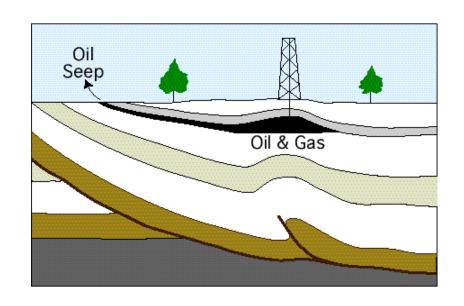
Actuators

# **Examples Of Artificial Intelligence Expert Systems!!**



- An expert system is a computer program that is designed to hold the accumulated knowledge of one or more domain experts
- ❖It reasons with knowledge of some specialist subject with a view to solving problems or giving advice
- They are tested by being placed in the same real world problem solving situation

#### **Applications of Expert Systems**



PUFF:
Medical system
for diagnosis of respiratory
conditions

PROSPECTOR:
Used by geologists to identify sites for drilling or mining

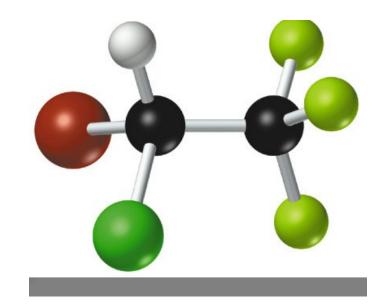


#### **Applications of Expert Systems**



DENDRAL: Used to identify the structure of chemical compounds. First used in 1965

LITHIAN: Gives advice to archaeologists examining stone tools



#### **Machine Learning!**

Machine learning is a scientific discipline concerned with the design and development of algorithms that allow machines to mimic human intelligence.



#### There are Three ways that A.I learns

- Failure Driven Learning
- Learning by being Told
- Learning by Exploration

#### Resemblance To Human Mind....

\*The special ability of artificial intelligence is to reach a solution based on facts rather than on a preset series of steps—is what most closely resembles the thinking function of the human brain



#### **Human Intelligence VS Artificial Intelligence**



#### Human Intelligence VS Artificial Intelligence Pros

#### **Human Intelligence**

- Intuition, Common sense,
   Judgement, Creativity,
   Beliefs etc
- The ability to demonstrate their intelligence by communicating effectively
- Plausible Reasoning and Critical thinking

#### **Artificial Intelligence**

- Ability to simulate human behavior and cognitive processes
- Capture and preserve human expertise
- Fast Response. The ability to comprehend large amounts of data quickly.

# Human Intelligence VS Artificial Intelligence Cons

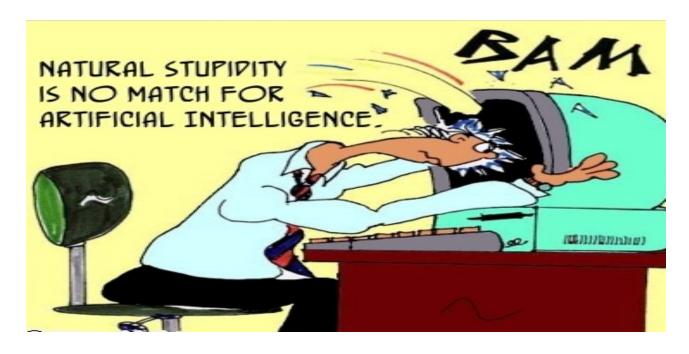
#### **Human Intelligence**

- Humans are fallible
- They have limited knowledge bases
- Information processing of serial nature proceed very slowly in the brain as compared to computers
- Humans are unable to retain large amounts of data in memory.

#### **Artificial Intelligence**

- No "common sense"
- Cannot readily deal with "mixed" knowledge
- May have high development costs
- Raise legal and ethical concerns

#### Human Intelligence VS Artificial Intelligence



We achieve more than we know. We know more than we understand. We understand more than we can explain (Claude Bernard, 19th C French scientific philosopher)

#### **Artificial Intelligence VS Conventional Computing**

#### **Artificial Intelligence**

- AI software uses the techniques of search and pattern matching
- Programmers design AI
   software to give the
   computer only the problem,
   not the steps necessary to
   solve it

#### **Conventional Computing**

- Conventional computer software follow a logical series of steps to reach a conclusion
- Computer programmers originally designed software that accomplished tasks by completing algorithms

#### Psychology And Artificial intelligence

The functionalist approach of AI views the mind as a representational system and psychology as the study of the various computational processes whereby mental representations are constructed, organized, and interpreted.

(Margaret Boden's essays written between 1982 and 1988)

#### **Artificial intelligence & Our society**

#### Why we need AI??

❖ To supplement natural intelligence for e.g we are building intelligence in an object so that it can do what we want it to do, as for example-- robots, thus reducing human labour and reducing human mistakes

#### My Perspective

For Humans Intelligence is no more than TAKING a right decision at right time

And

For Machines Artificial Intelligence is no more than CHOOSING a right decision at right time



I think Artificial intelligence is the Second intelligence ever to exist

Go Ahead With Question

#### Be Not Afraid Of Falling Be Afraid Of Not Trying



