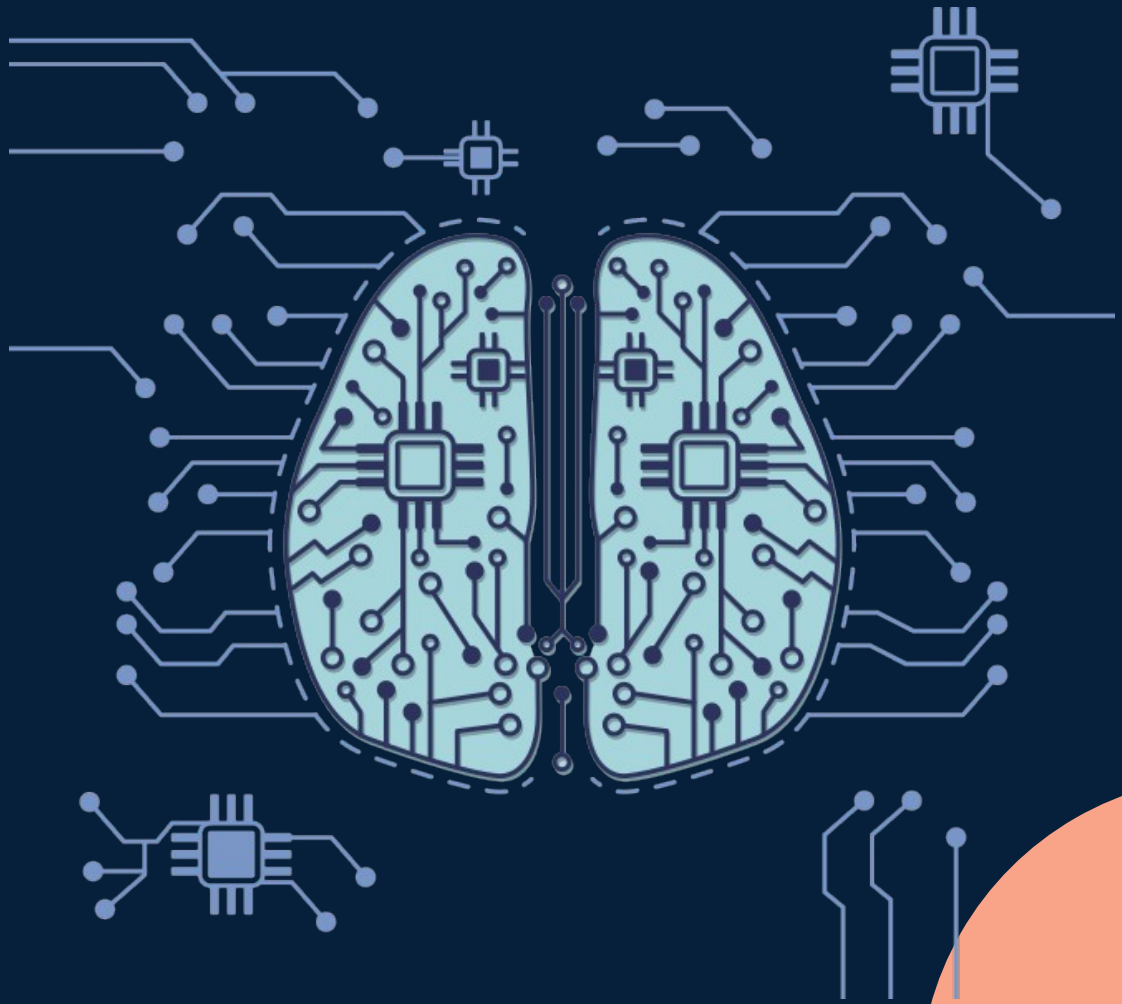
Types of AI & ML



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Types of AI

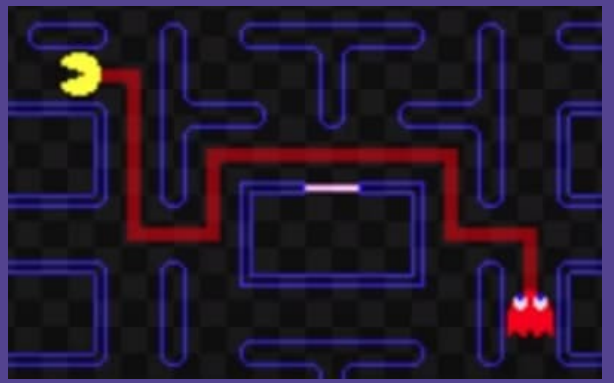
REACTIVE
No memory
Respond to stimuli

LIMITED MEMORY
Uses memory
Learn and improve

THEORY OF MIND
Understand the needs
of others

SELF AWARE
Human-like intelligence
Self awareness

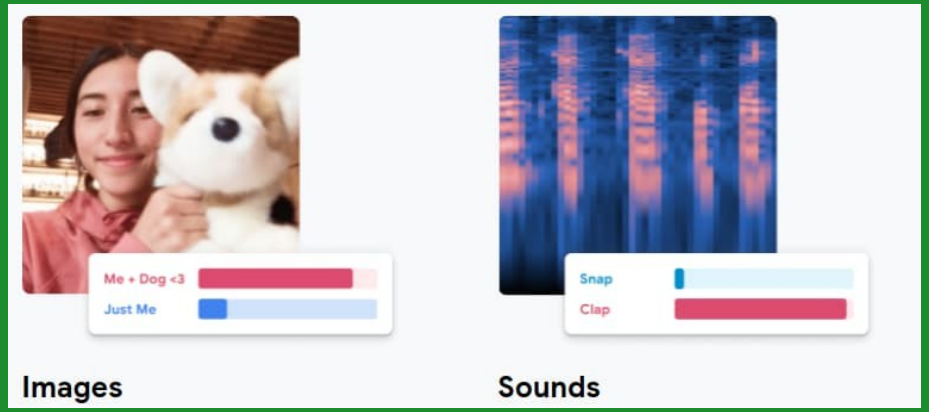
Reactive Machines



- No memory
- Doesn’t learn
- Examples:
  - Pacman (...and most games AI)
  - Deep Blue (computer that beat the chess Grandmaster)

Limited Memory

- Uses memory
- Learn and Improve
- Example:
  - Teachable machine
  - Most modern AI systems falls into this category



Theory of Mind

- Understand the needs of others
- Examples:
  - None! It doesn’t exist!
- What would it look like?
  - Holding the lift

Self Aware

- Human like intelligence
- Self awareness
- Examples:
  - Only in movies

Machine Learning

Machine Learning

- Limited Memory type AI
- Broadly classified into:
  - Supervised Learning
  - Unsupervised Learning
  - Reinforcement Learning
- * Not everyone classifies things the same way, and some may have other categories such as “semi-supervised”

Supervised Learning

- Two types of problems:
  - Classification
    - For data that are organized into groups
    - Eg. Cat images, Dog images, Otter images
    - Eg. Teachable machine, ML2Scratch
  - Regression
    - For data that are continuous
    - Eg. Prices of HDB flats, Amount of rainfall

Supervised Learning (Classification)

Samples:

Labels: “Dog” “Cat”

Machine Learning Model

Labelled samples are provided to train the machine learning model

Supervised Learning (Classification)

Input

Machine Learning Model

Result

“It’s a **Dog**”

ML Model classifies based on what it had learned.

Supervised Learning (Regression)

Town	Type	Storey	Area	Model	Remaining	Price
TAMPINES	3 ROOM	04 TO 06	67	Model A	92 years 07 months	$435,000
TAMPINES	3 ROOM	07 TO 09	62	DBSS	91 years 06 months	$515,000
TAMPINES	3 ROOM	07 TO 09	61	DBSS	91 years 06 months	$500,000
TAMPINES	3 ROOM	07 TO 09	79	Model A	60 years 09 months	$395,000
TAMPINES	3 ROOM	04 TO 06	68	New Generation	62 years 01 month	$420,000
TAMPINES	3 ROOM	07 TO 09	75	Model A	60 years 10 months	$392,000
TAMPINES	3 ROOM	04 TO 06	67	New Generation	61 years 10 months	$380,000

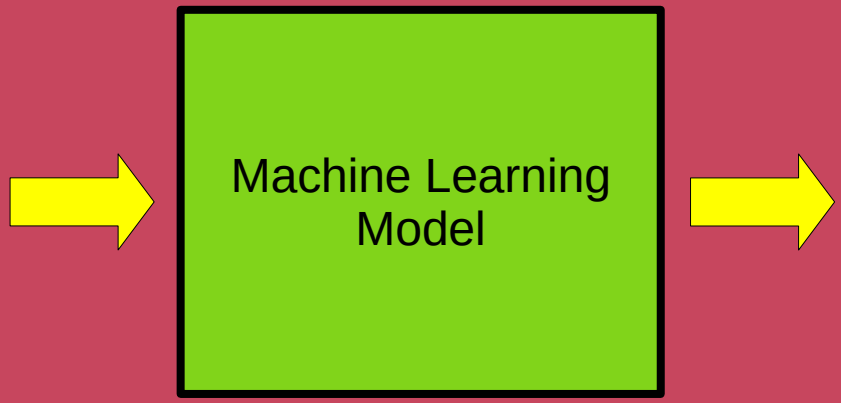
Machine Learning Model

Numeric data are provided as samples.
Non-numeric data (eg. Town) are assigned a number (eg. 12).

Supervised Learning (Regression)

Input

Tampines
3 room
7 to 9 storey
65 sqm
Model A
70 years remaining



Result

“$500,000”

ML Model makes prediction based on input and what it had learned.

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