

Topic:

Artificial Intelligence

NOTES FOR THE LECTURER

15/07/2020

Workshop structure

- Capabilities of AI
- Together with AI
 - The Impact of AI on Human Labor
- Applications and Innovations
 - Areas of Application
 - Specific Applications
- AI Games
- Fails of AI
- Understanding the process
- Questions to think about



Understanding the process

The lecturer should be thoroughly familiar with the concepts of AI.

Youtube videos for understanding the basic concept:

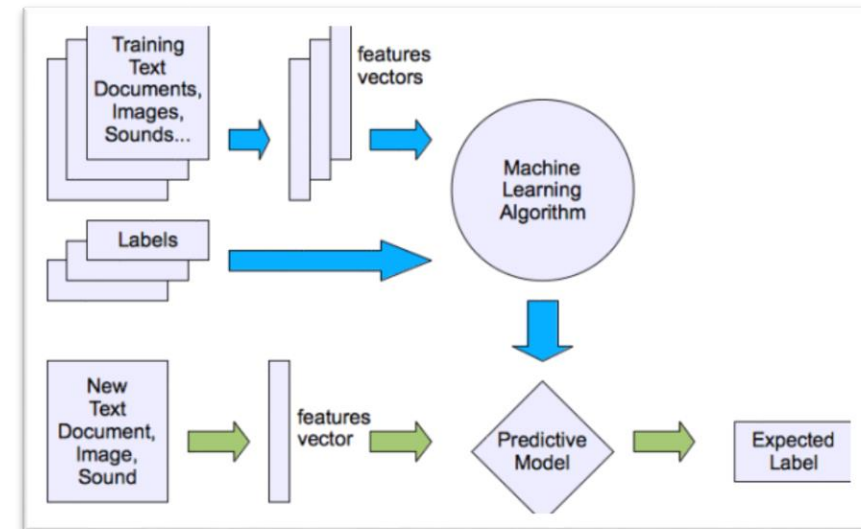
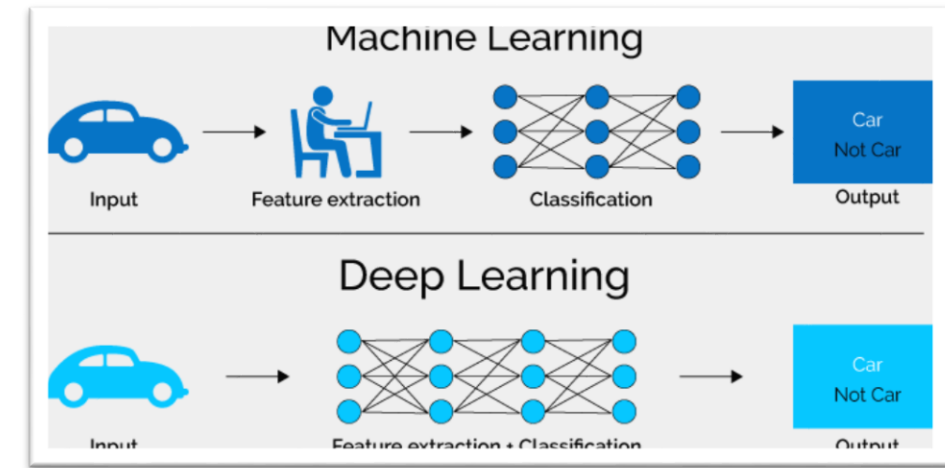
<https://www.youtube.com/watch?v=aircAruvnKk>

<https://www.youtube.com/watch?v=VwVg9jCtqaU>

<https://www.youtube.com/watch?v=nKW8Ndu7Mjw>

White papers for diving deep into the topic:

<https://www.journals.elsevier.com/artificial-intelligence>



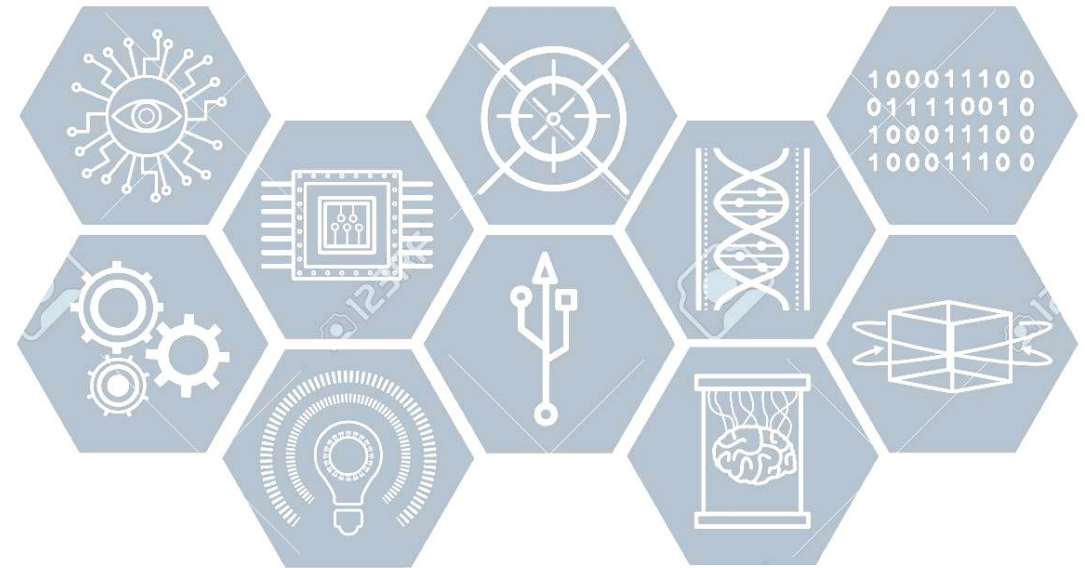
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15/07/2020

Artificial Intelligence

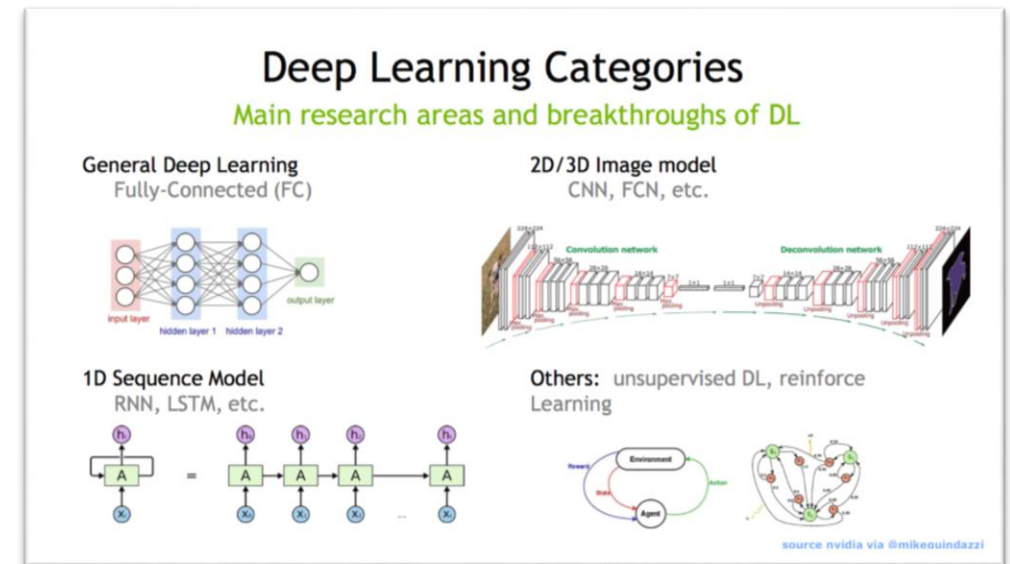
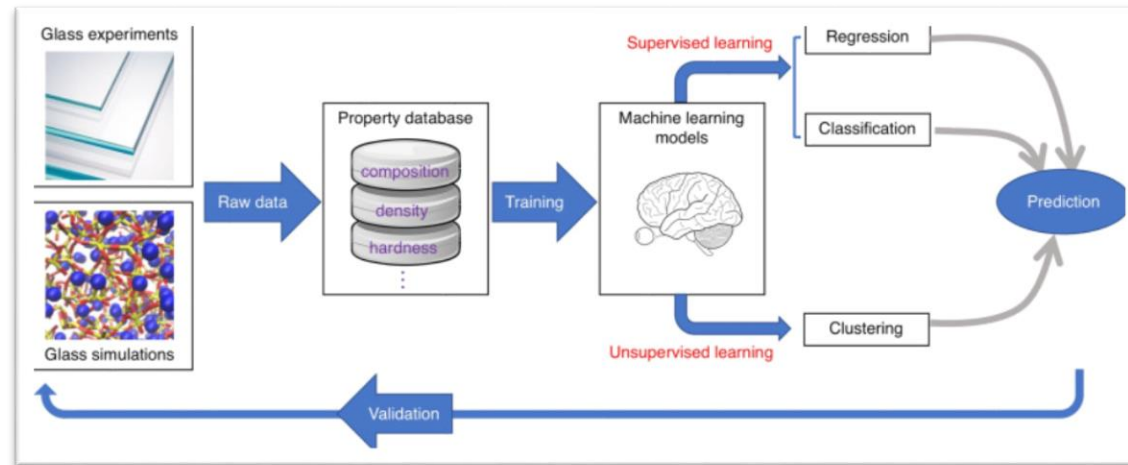
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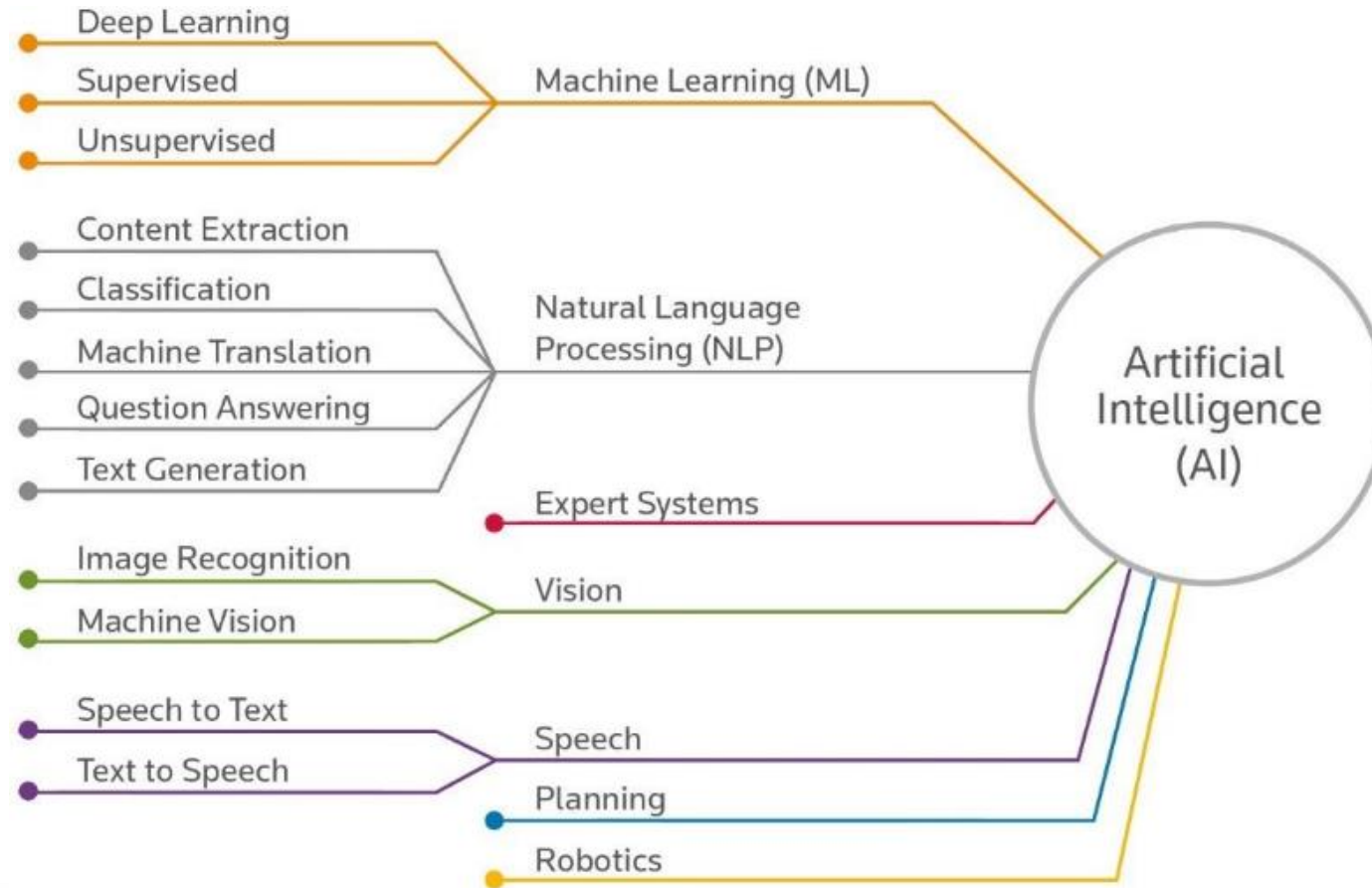


Understanding the process

What is Artificial Intelligence?



Capabilities of AI



Questions to think about:

- What is computer vision?
- What is speech recognition?
- What is Machine Learning?
- Can a computer be smarter than a human being?
- How do we use individual abilities of AI in Applications?
- Which abilities do you think AI is still missing?

Importance of AI

- AI automates repetitive learning
- AI adapts through progressive learning algorithms
- AI achieves accuracy

Together with AI

The Impact of AI on Human Labor



Questions to think about:

- Is AI going to take away my job?
- Which jobs are most at risk?
- In future, why should we work if we can live in comfort without jobs?

AI is not going to replace us. It supports our abilities.

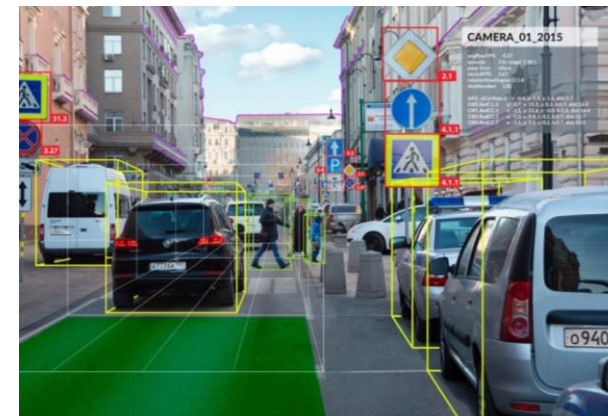
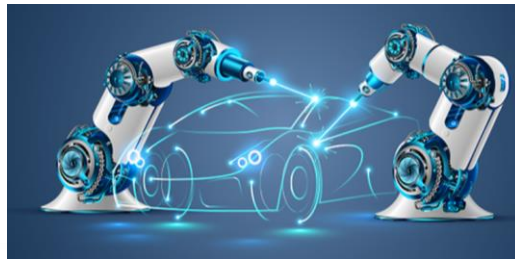
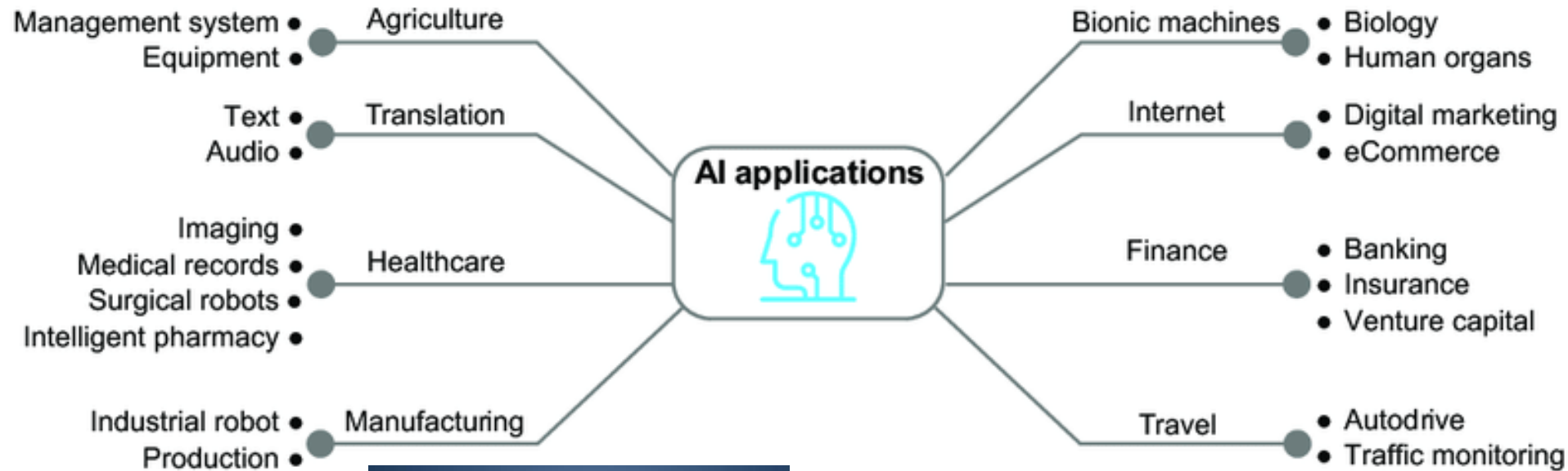
AI algorithms learn differently than humans. AI is able to see relationships between things that can escape to humans. Partnership between AI and humans offers many opportunities, e.g.:

- Improve the performance of analytic technologies, like computer vision
- Break down translation barriers
- Make faster and more precise results for us, augment our abilities
- Give better vision, understanding, memory to us

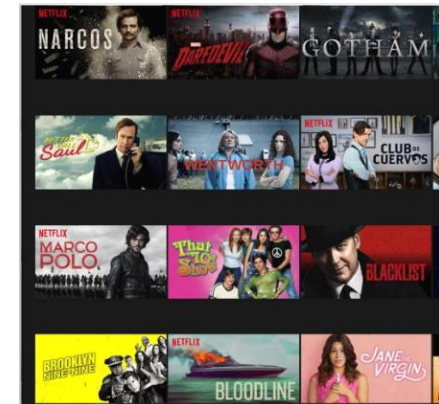


Applications and Innovations

Areas of Application



- Siri, Alexa
- Tesla
- Cogito
- Netflix, Spotify, YouTube



Applications and Innovations

Specific Applications

- Manufacturing robots
- Smart assistants
- Proactive healthcare management
- Disease mapping
- Automated financial investing
- Conversational marketing bot
- AI Autopilot in Commercial Flights
- Spam Filter in Email
- Plagiarism Checker
- Natural Language Processing (NLP) tools
- Recommendations in online shopping based on your previous search
- Social media monitoring – e.g.: Facial Recognition on photos posted on Facebook
- Space Exploration – e.g.: AI sift through data from Kepler telescope to identify a distant planet solar system



Artificial Intelligence Games

Experiments with Google:

- <https://experiments.withgoogle.com/collection/ai>

Drawing recognition:

- Quick, Draw: <https://quickdraw.withgoogle.com/>

Usage of the Quick, Draw data set:

- Cribbling Speech: <https://xinyue.de/scribbling-speech.htm>
- Cartoonify: <https://www.kapwing.com/cartoonify>

Creating photo from a drawing:

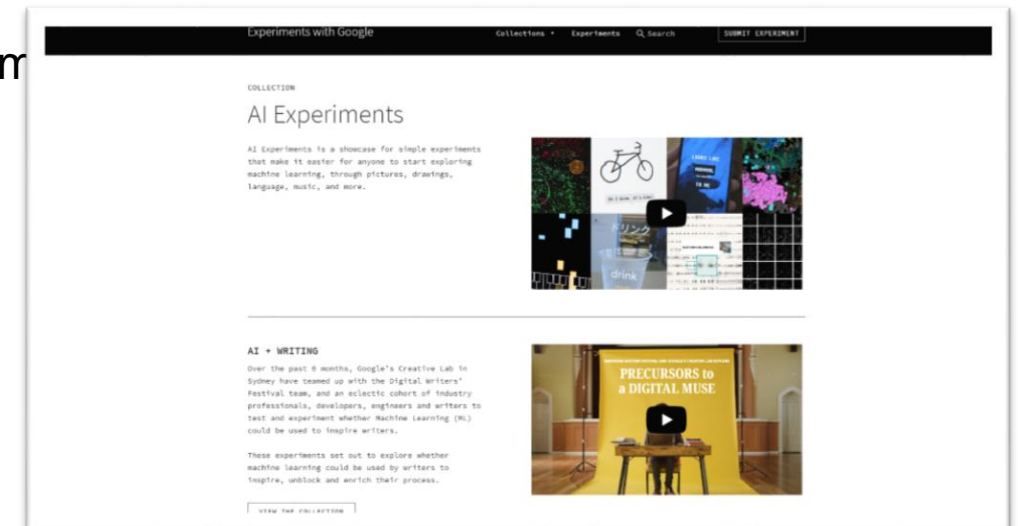
- <https://affinelayer.com/pixsrv/>

Visualization of handwriting analysis with neural network:

- <https://distill.pub/2016/handwriting/>

What neural networks see:

- <https://github.com/NVIDIA/FastPhotoStyle>



Fails of AI Videos

Tesla autopilot fail



Fails of AI

Videos

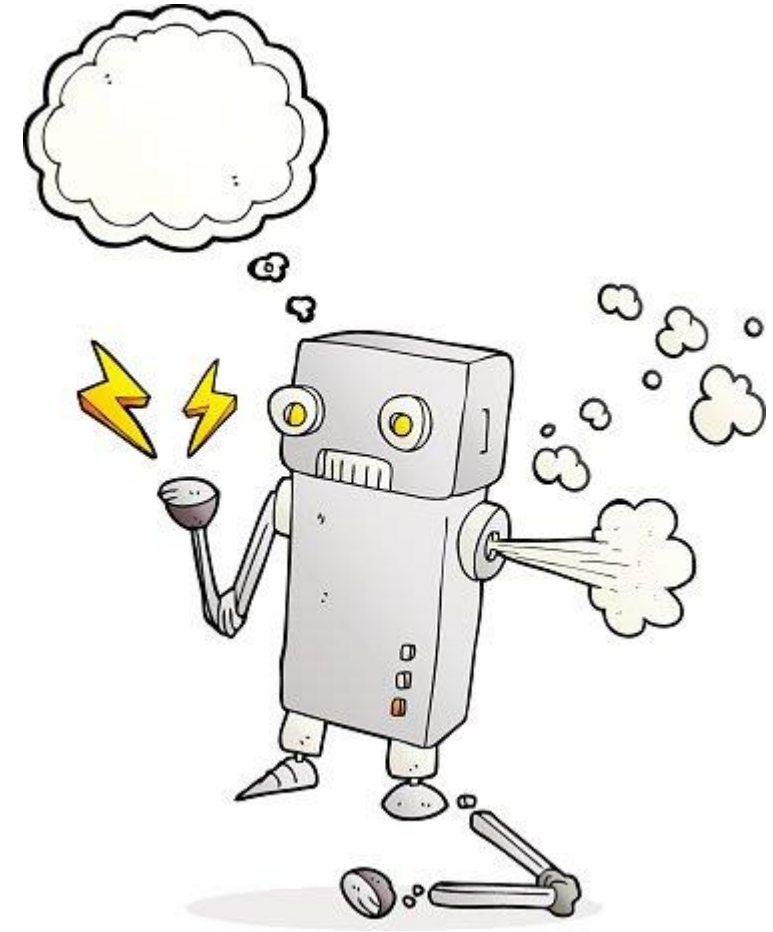
Face recognition fail



Fails of AI

Questions to think about

- Is progress in AI sufficient?
- Will AI/robots ever get out of control?
- How can we minimise the future risks?
- Are there risks of making robots that behave like humans?



Questions to think about

Philosophy of AI:

Can a computer “think”?

Can a computer have free will?

Can a computer be conscious?

Can a computer “feel”?

Law of AI:

How will AI affect the law? How will AI change the practice of law?

Should an AI system be permitted to own property?

Can an AI system commit a crime?

How can an AI system be held accountable for criminal acts?

