

Artificial Intelligence – Opportunities, Now & Future

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BIO



SAMSUNG



Open-Minded



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Outline

- What is Artificial Intelligence?
- Applications of AI
- Categories of AI
- How to learn AI?
- Future of AI
- AI – Fun vs. Dangerous
- Q&A

What is Artificial Intelligence?

Robots?

Artificial Human-being?

Artificial Animal?

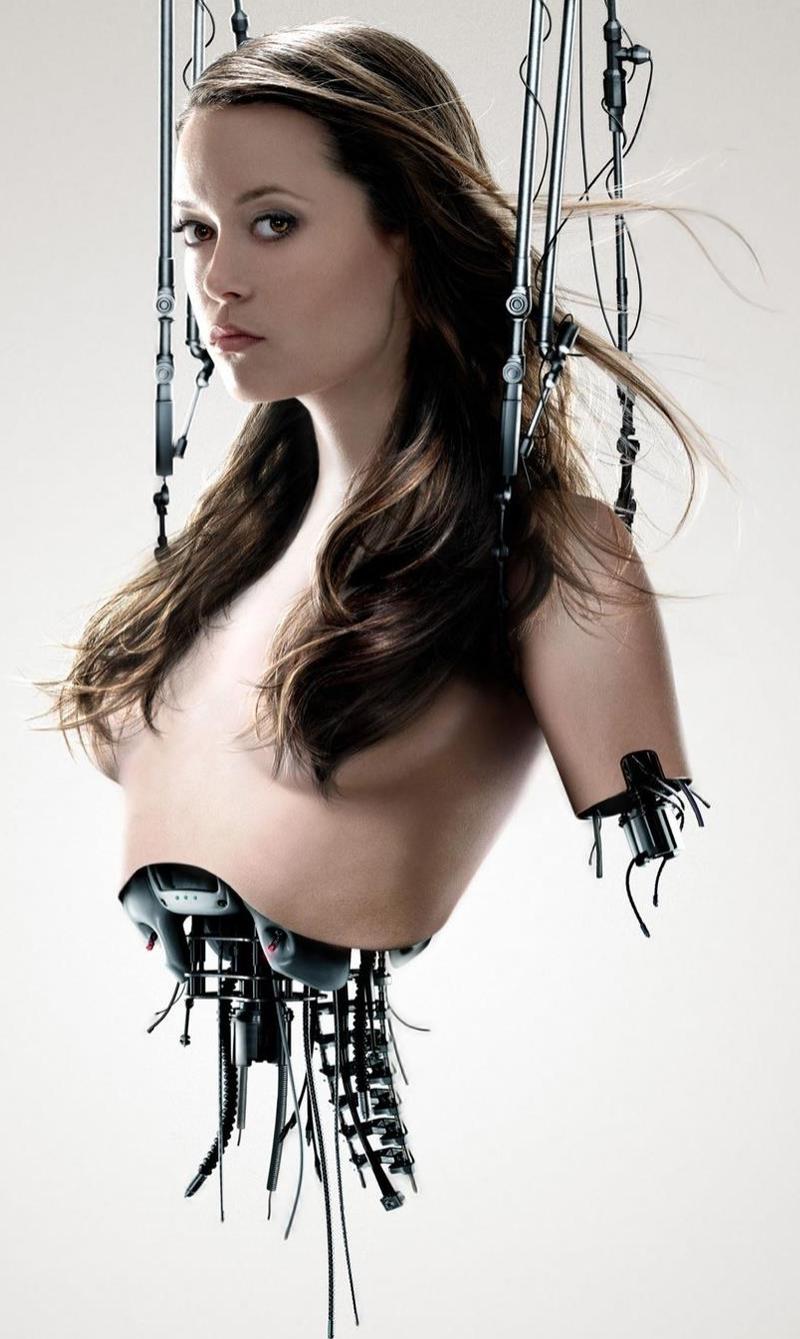
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A threat to human being?

...

...

etc.?



Information Overload

- “People read around 10 MB worth of material a day, hear 400 MB a day, and see 1 MB of information every second” - The Economist, November 2006.
- In 2015, consumption will raise to 74 GB a day - UCSD Study 2014



What is Artificial Intelligence?

Human being has two capabilities that makes him uniquely intelligent:

- **Learning**
- **Problem Solving**

Any system with these two abilities can mimic the cognitive functions associated to human mind.



Sony Aibo Robot

AI Applications

- **Personalization**
 - *Recommendation*
 - *Online Advertising*
 - *Gmail auto-complete*
 - ...
- *Map Routing*
- *Autonomous Driving*
- *Medical Image Processing*
- *Banking Mortgage Approval*
- **Voice Assistance**
 - *Amazon Alexa*
 - *Apple Siri*
 - *Samsung Bixby*
 - *Text-2-Speech & Speech-2-Text*
- *Weather Forecast*
- *Auto Smile Photo Shooting*
- *Online Security Systems*
- *and many more...*

Personalization



Recommendation



Example: Benefits of Recommender System

- **Netflix:** 2/3 of the movies watched are recommended
- **Google News:** recommendations generate 38% more click-through
- **Amazon:** 35% sales from recommendations
- **Choicestream:** 28% of the people would buy more music if they found out what they like.



Future of Advertising...



Minority Report (2002) By Steven Spielberg

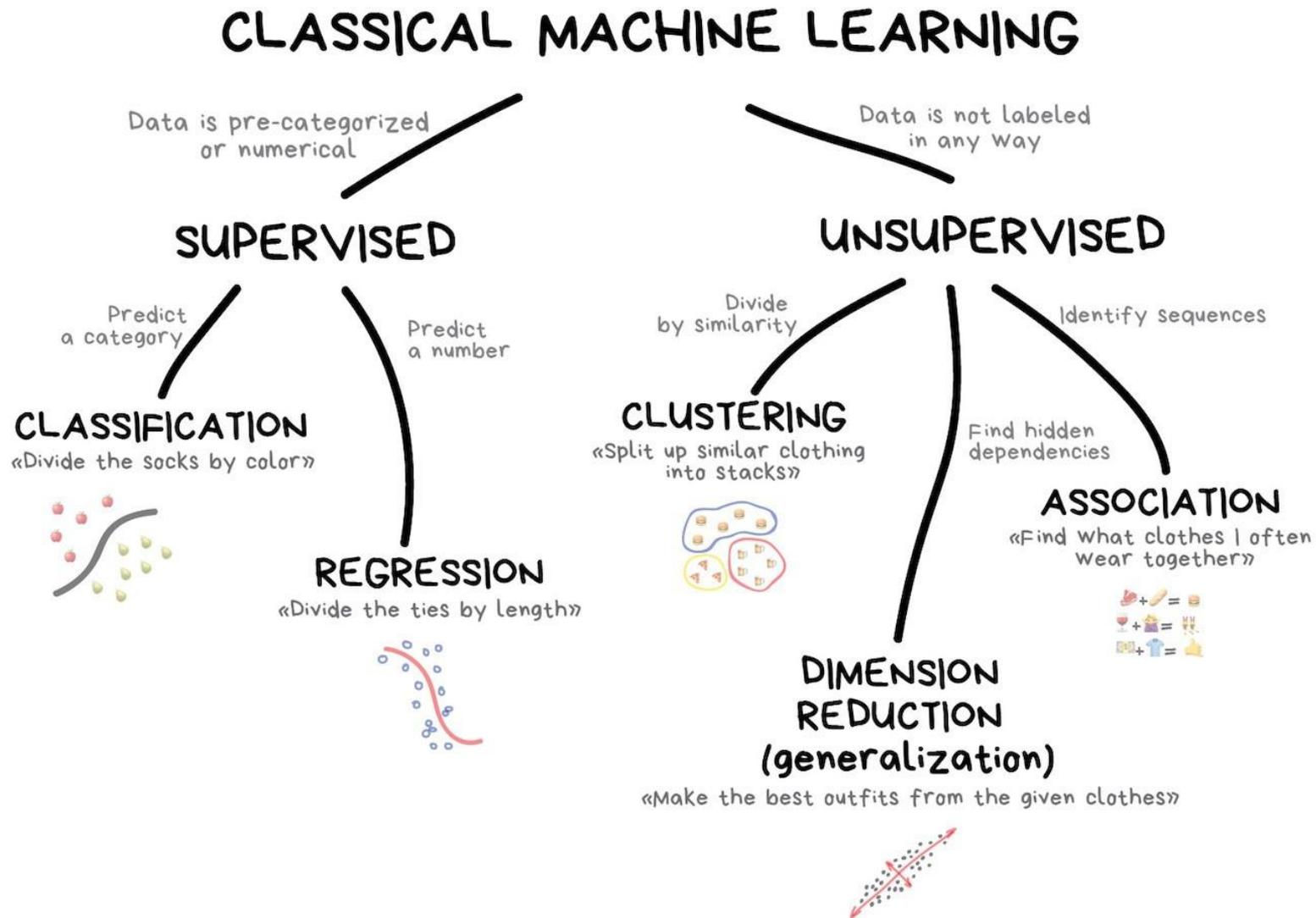
IMDb: 7.6/10

<https://www.imdb.com/title/tt0181689/>

P E R F E C T I O

P U R S U I T

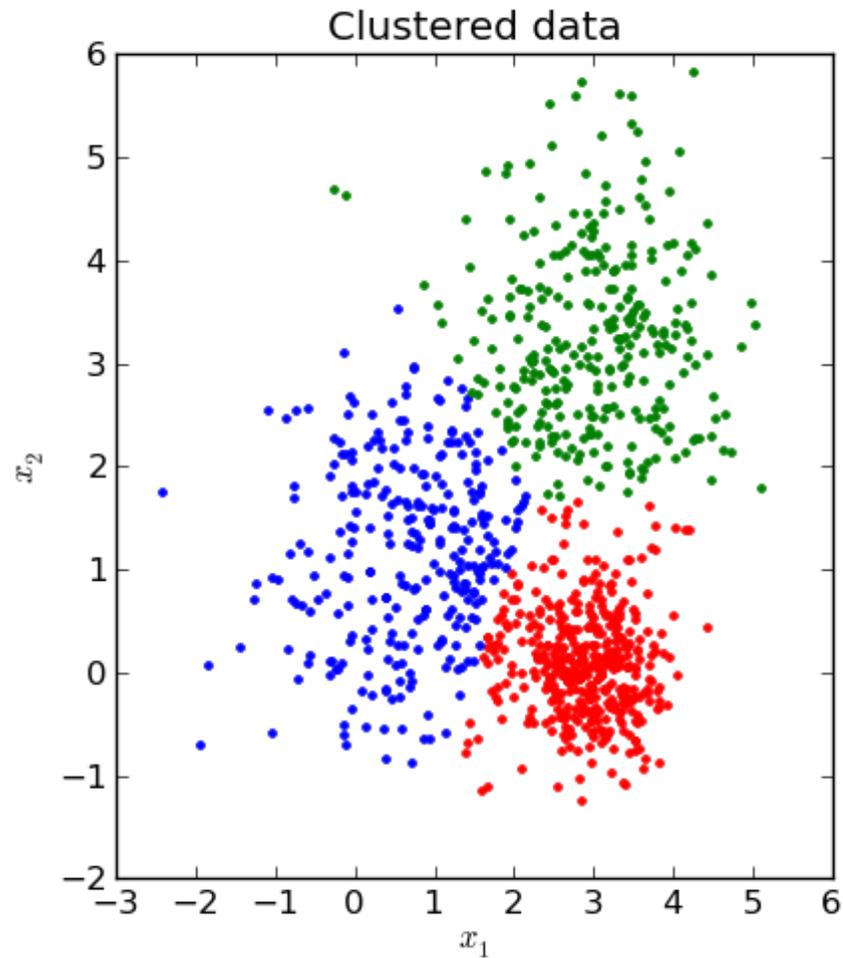
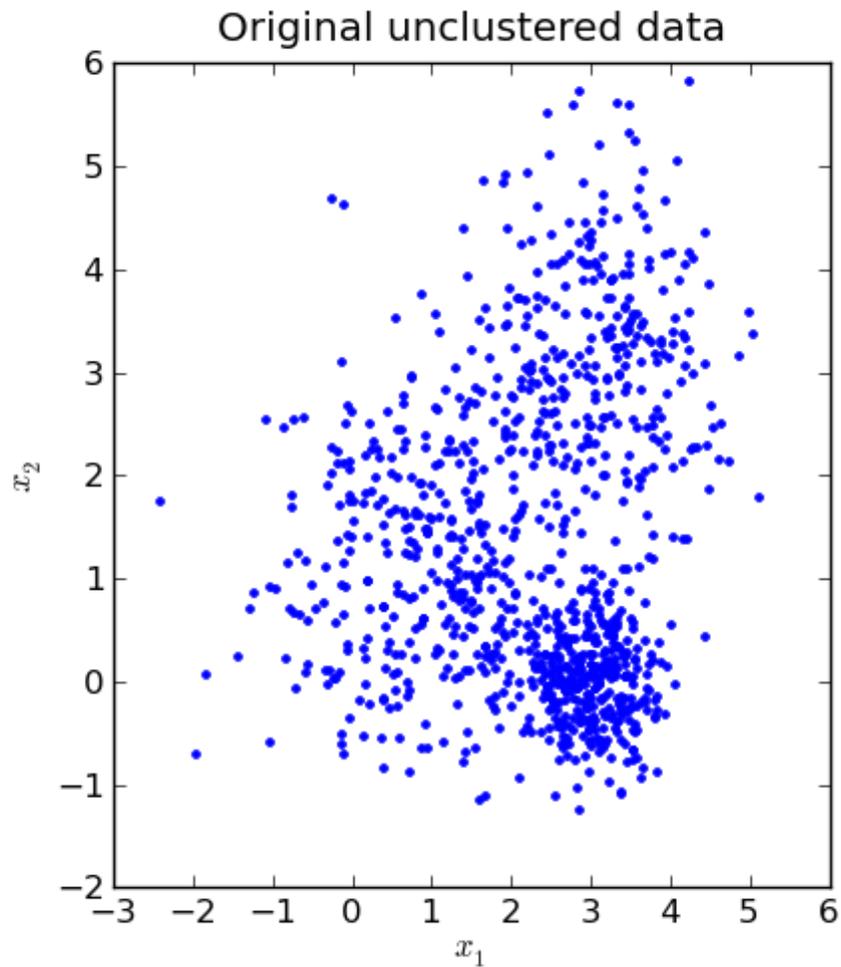
Categories in AI



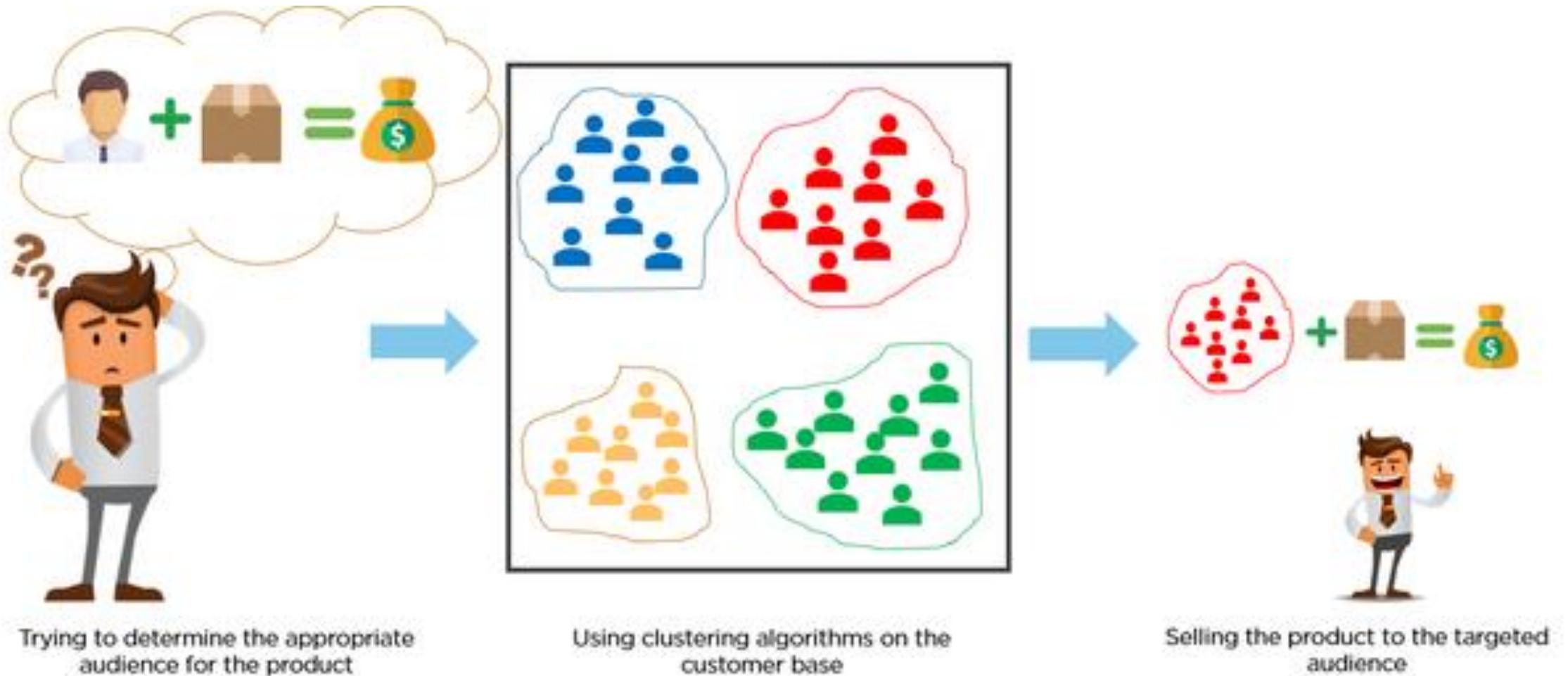
Categories in AI

- *Clustering*
- *Classification*
- *Regression*
- *Optimization*
- *Association*
- *Reinforcement Learning*

Clustering (Unsupervised Learning)



Clustering



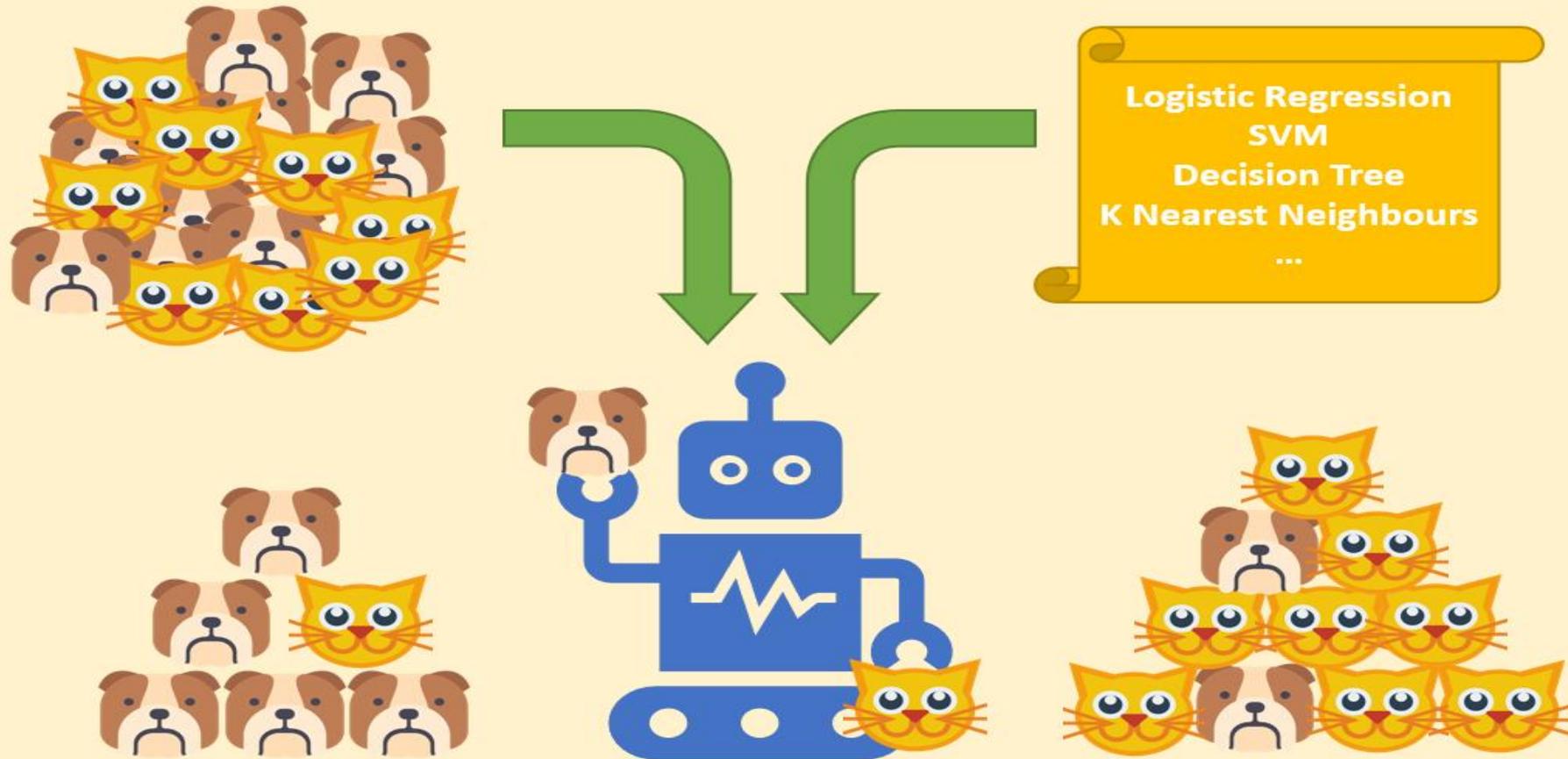
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Classification (Supervised Learning)



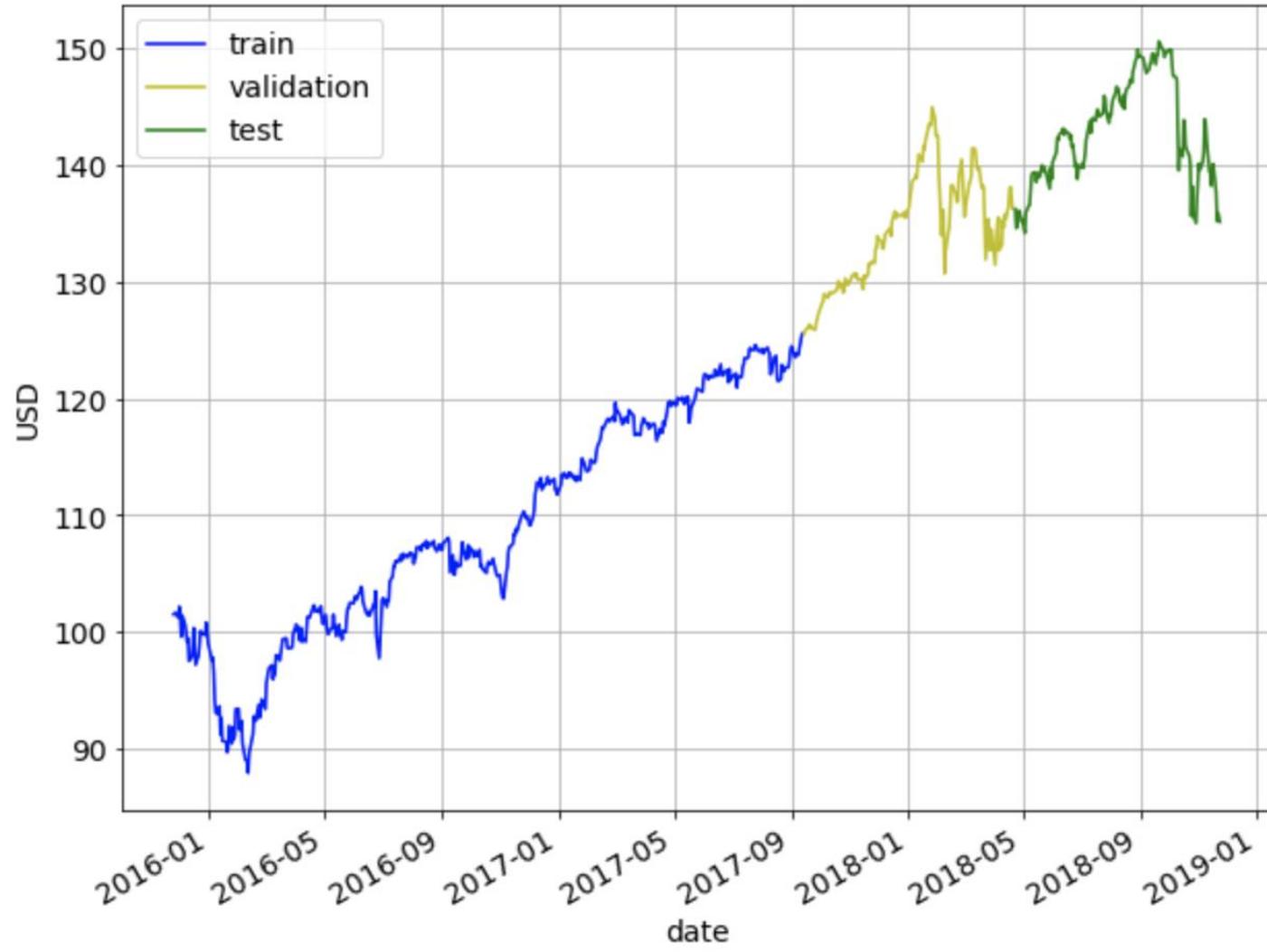
Classification (Supervised Learning)



Categories in AI

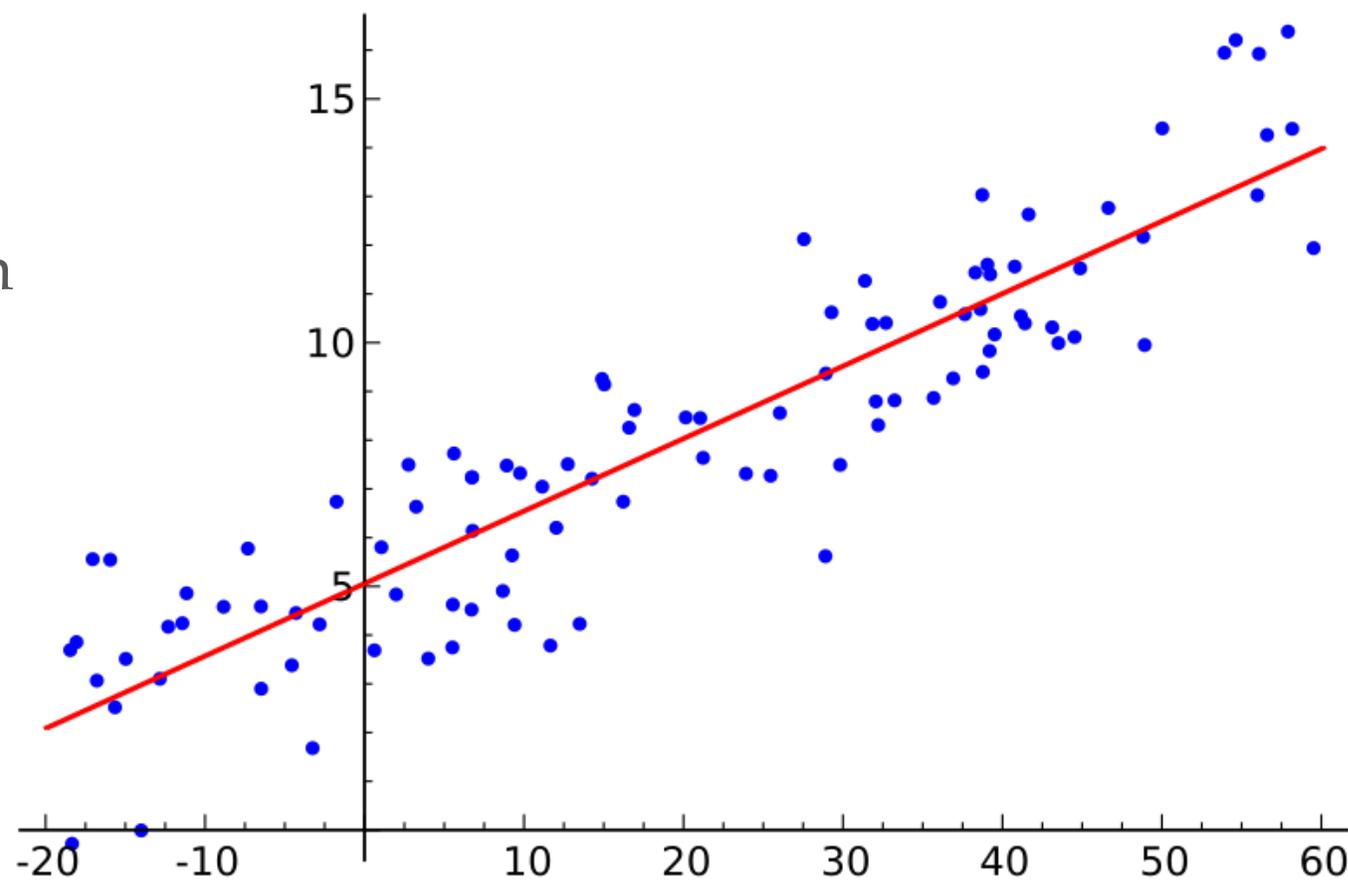
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Regression



Regression

- Sale's Prediction
- Weather Forecast
- Stock Exchange Prediction
- ...

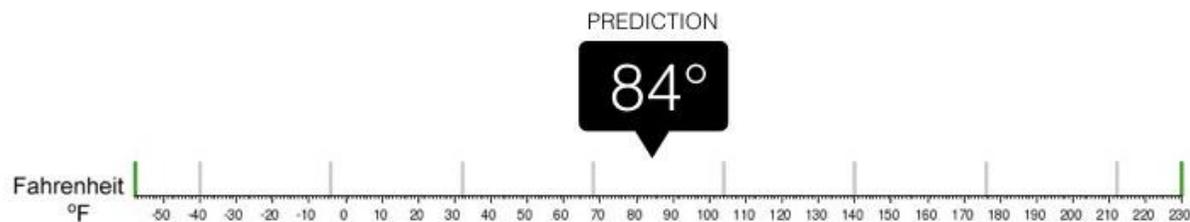


Regression



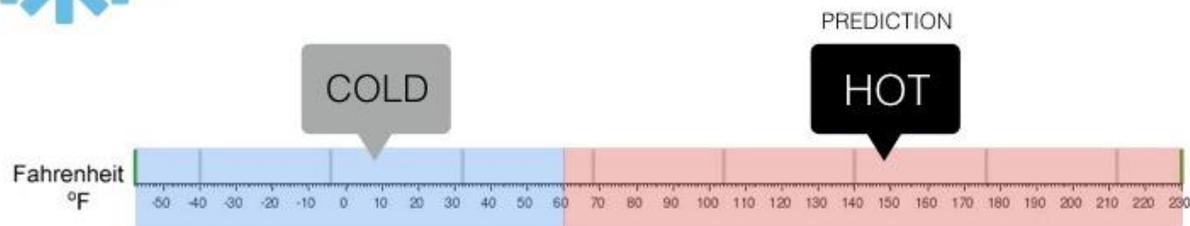
Regression

What is the temperature going to be tomorrow?



Classification

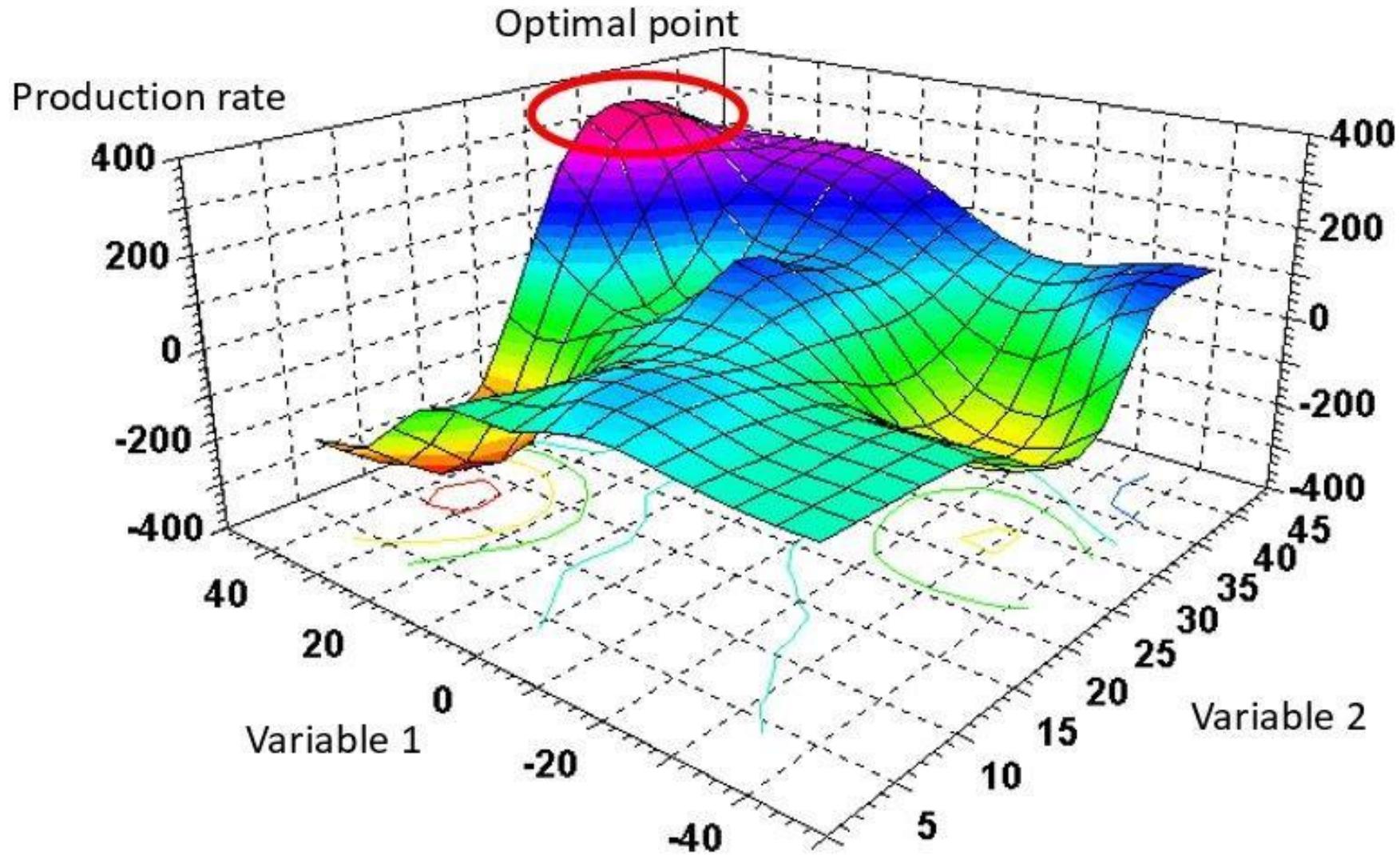
Will it be Cold or Hot tomorrow?



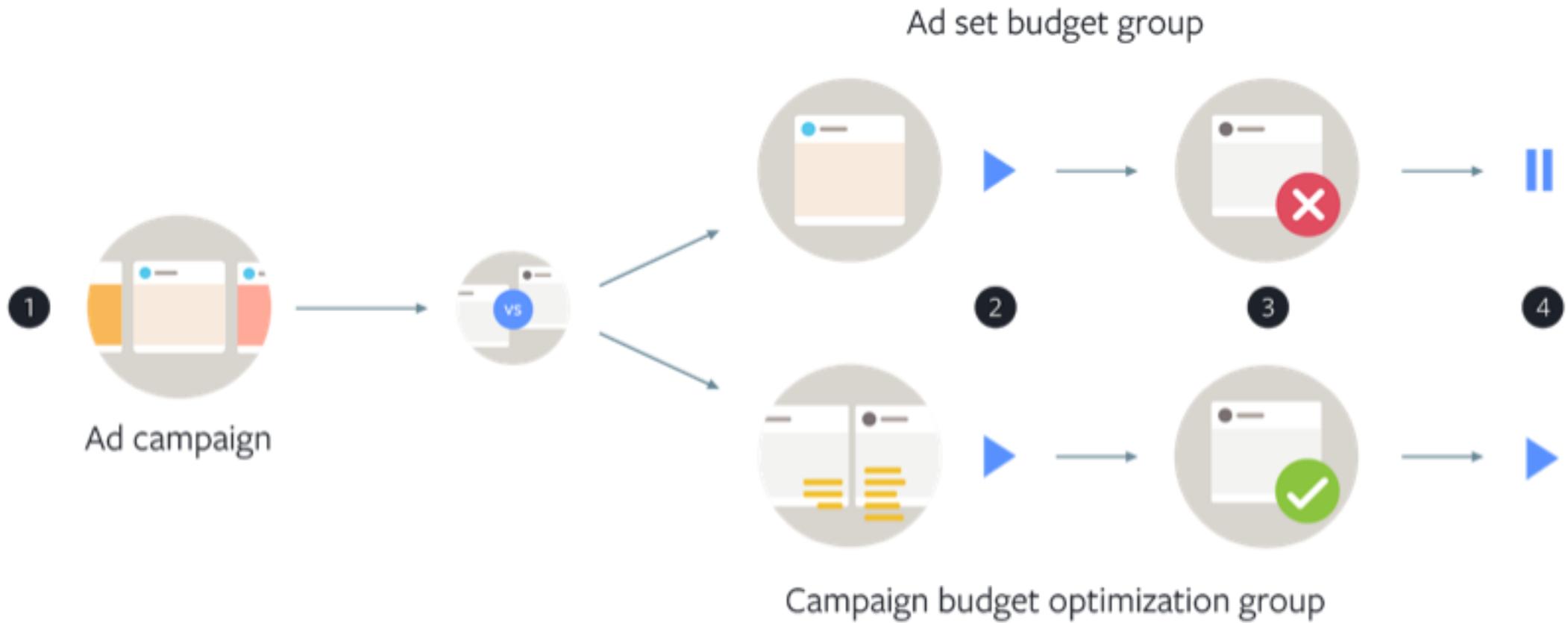
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Optimization



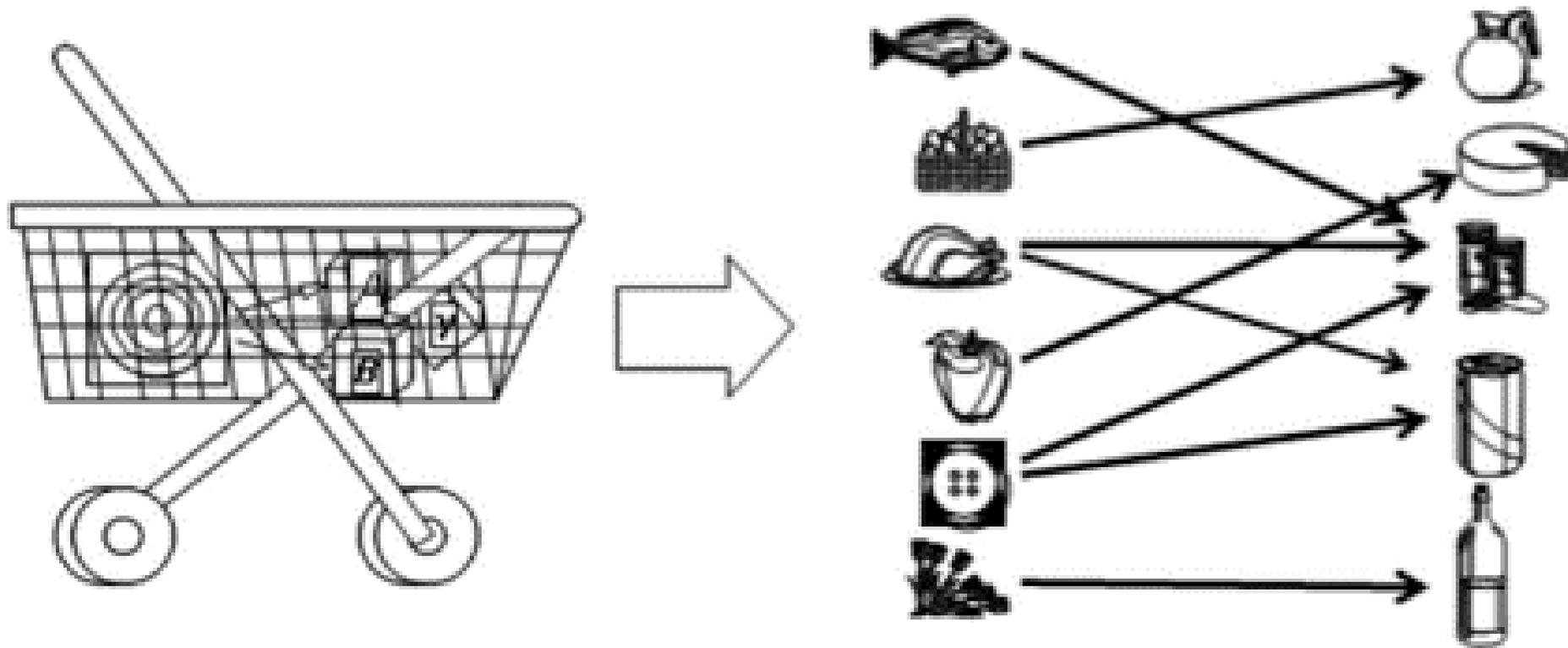
Optimization



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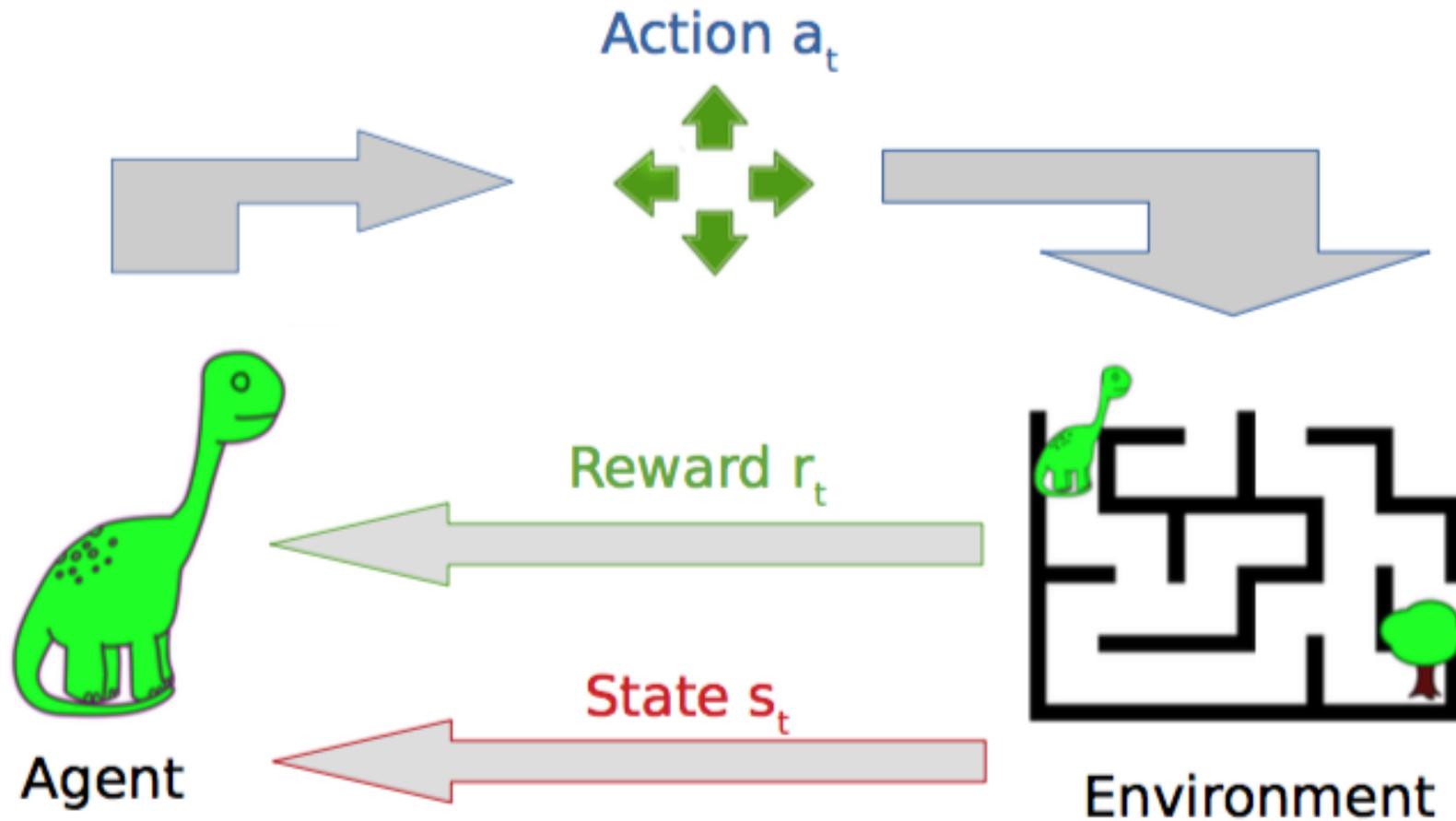


*98% of people who purchased items A and B
also purchased item C*

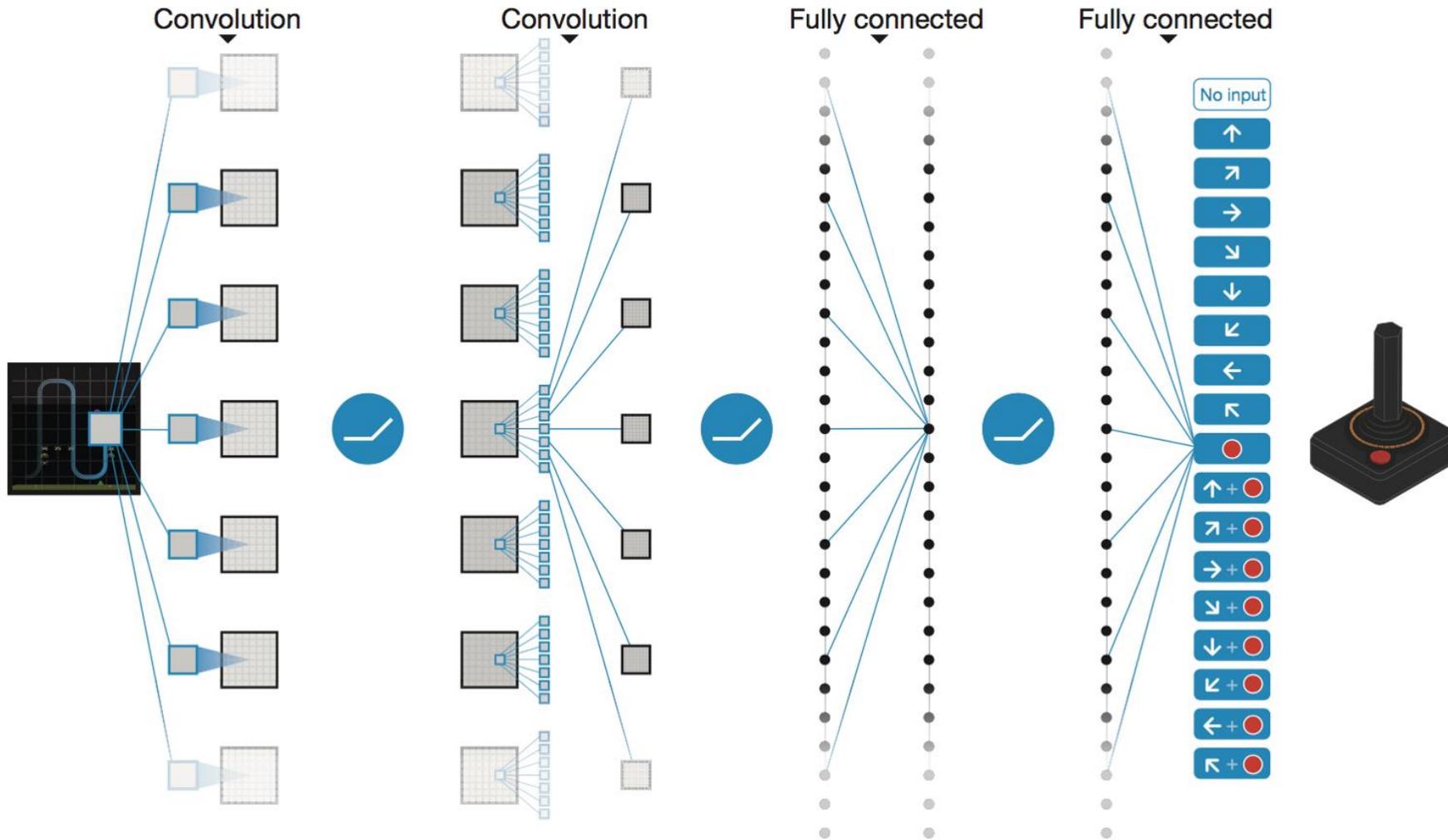
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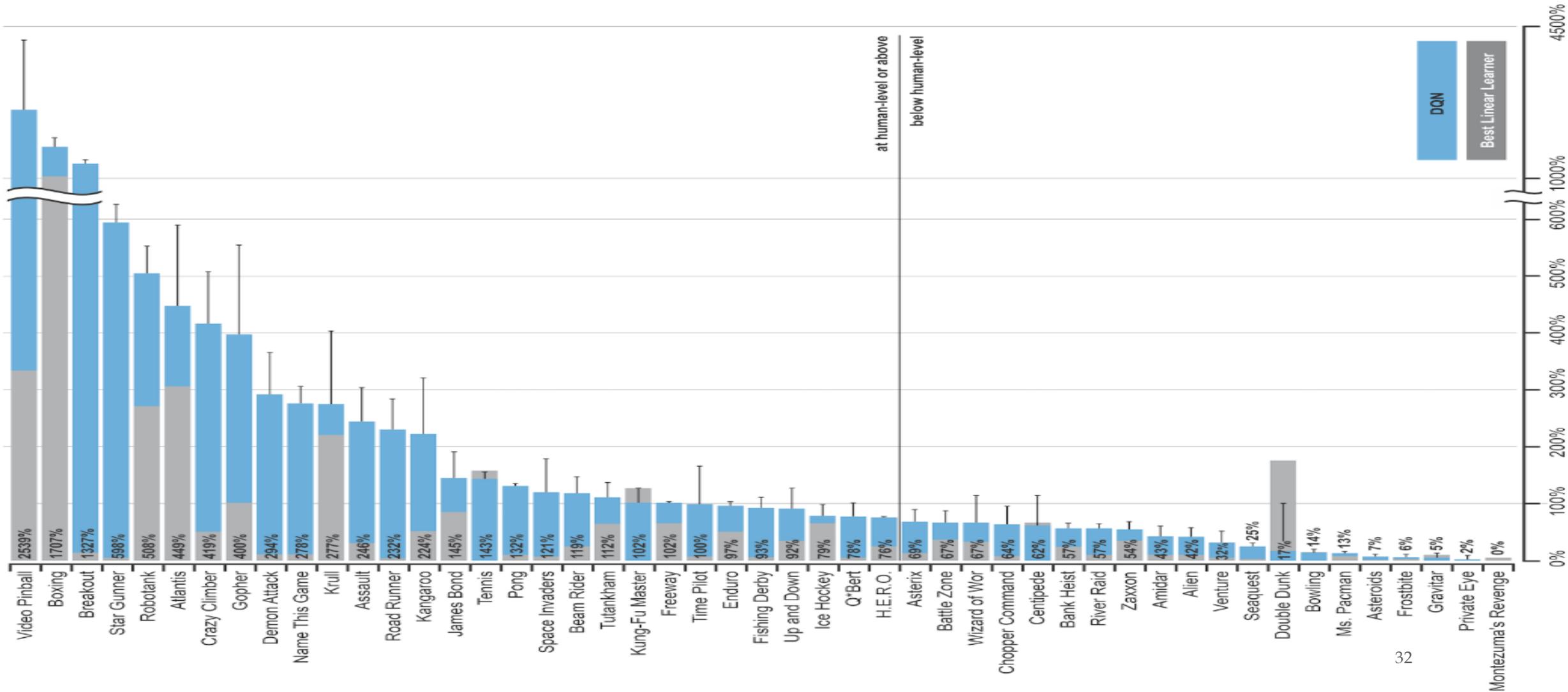
Reinforcement Learning



Reinforcement Learning



Reinforcement Learning



Autonomous Self-Driving Cars



How to Learn Artificial Intelligence

Start with Math & Statistics

- *Math, Math, Math*
- *If you want to learn AI, and apply them efficiently, you need to be friend with "MATH".*

How to Learn Artificial Intelligence

Programming Languages

- *Intelligent system is nothing other than a software, therefore you need to learn computer programming.*
- *Today, the following programming languages are being used the most for Artificial Intelligence:*
 - *Python*
 - *Go! Lang*
 - *R*
 - *Julia*
 - *etc.*



How to Learn Artificial Intelligence

Supplementary Tools

- *Database / Big Data: Using data is inevitable in AI, so, the knowledge of database and SQL is mandatory.*
- *AI / Stats / Math tools: There are various tools that can be a help to implement intelligent systems:*
 - *Rapid Miner*
 - *Weka*
 - *SPSS*
 - *Matlab*

Future of Artificial Intelligence

Artificial General Intelligence (AGI)

Having an intelligent system which can be suitable for anything and any purpose.

- *Assistant Robots*



Future of Artificial Intelligence

Autonomous Driving

Cars are becoming more and more intelligent to bring more comfort and safety.

- *Pedestrian Detection*
- *Intelligent Cruise Control*
- *Voice Assistance*
- *Auto Parallel Park*

Future of Artificial Intelligence

Emotional Intelligence

Intelligent systems are becoming more emotional aware to interact with human being effectively.

They tend to understand you and your emotions and mimic a proper emotion in response.



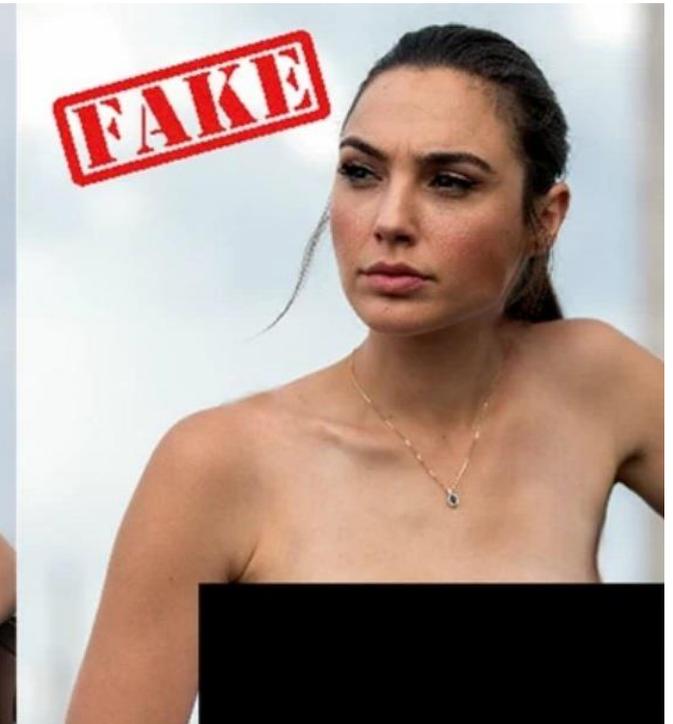
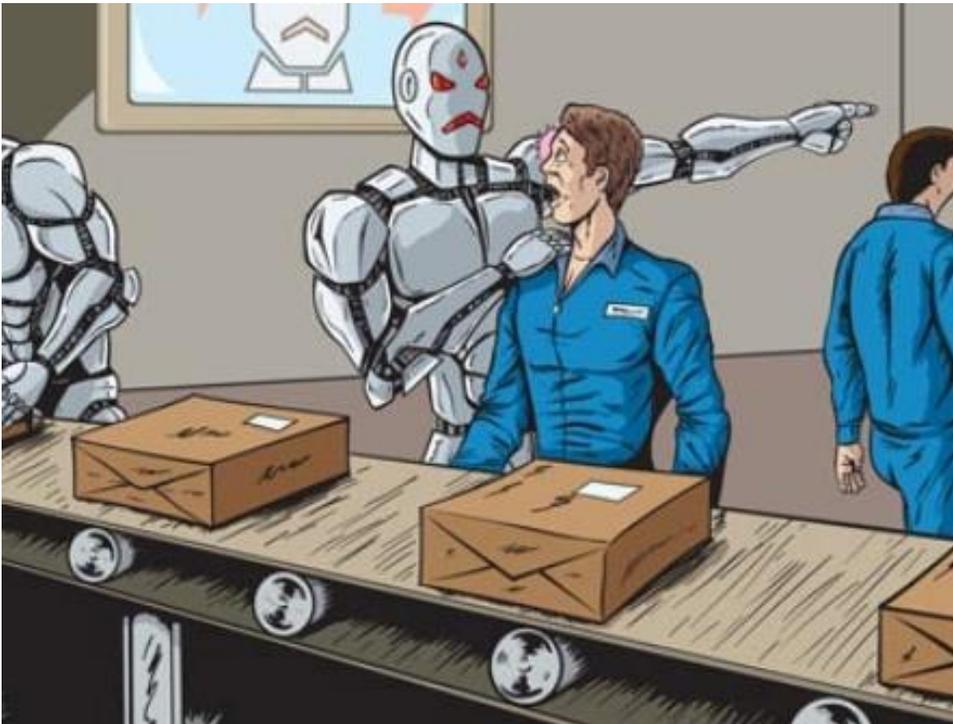
AI can be FUN...



FaceApp

and Dangerous!

AI can become unethical and dangerous if it is trained and used for those purposes.

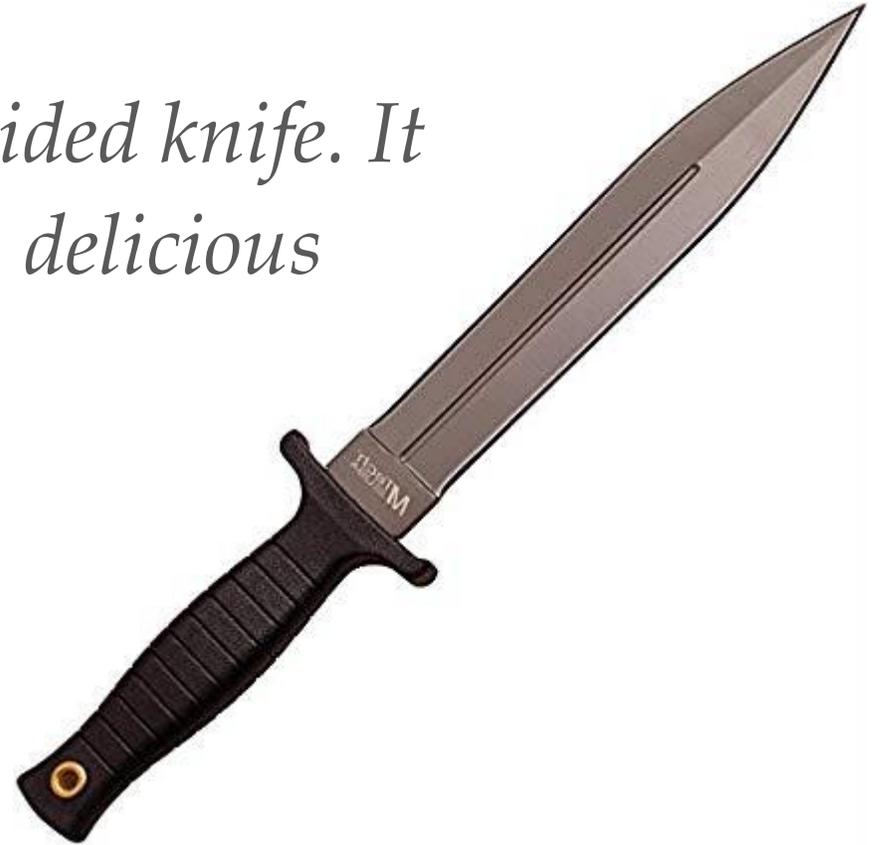


Deepfakes - Deep Nude

Last Word...

“Artificial Intelligence is a double-sided knife. It is up to you how to use it. To cook a delicious meal, or to threat and kill.”

– Kaveh Bakhtiyari



Q&A

