

Artificial intelligence (AI)

Machines that mimic cognitive functions that humans associate with the human mind, such as learning and problem solving

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Flere bruker kunstig intelligens i markedsføring

En ny undersøkelse viser at stadig flere CMO-er, også i Norden, allerede er i gang med kunstig intelligens.



Salesforce



Bygg

INNHold ≡

LEDIGE JOBBER

WEBINARER

BLI EKSTRA-ABONNENT +

SØK



LOGG INN



KUNSTIG INTELLIGENS

NCC vil redusere arbeidsulykker med kunstig intelligens

Digitalisering, kameraer og kunstig intelligens skal hindre ulykker under byggekraner. Den svenske entreprenøren har gått sammen med Microsoft, Arrow electronics, Sigma og to svenske universiteter for å øke sikkerheten rundt tunge løft.



Kunstig intelligens mot flom og styrtregn

Nå gjør kunstig intelligens sitt inntog i planlegging av byggeprosjekter. Oppstartselskapet Spacemaker utvikler avanserte datamodeller for sol-, vind- og støyanalyser, og jobber nå også eksperimentelt med overvannsproblematikk for bruk i planlegging av urban bebyggelse.

Tekna Magasinet

Publisert: 26. aug. 2020

TEKST

Anne Grete Nordal

Jo tidligere du kan få fullstendig innsikt i forhold som påvirker planleggingen av et byggeprosjekt, jo større sjanse er det for at du oppnår et bedre sluttprodukt der du ikke trenger å gjøre forbedrende tiltak i etterkant. Det sier «data scientist» Knut Sverdrup i oppstartselskapet Spacemaker. På [Vannbransjens innovasjonskonferanse 3. september](#) skal han holde innlegg om hvordan de driver innovasjon i selskapet.



Studie: Kunstig intelligens avdekker brystkreft like bra som en lege

Forskere ved Karolinska Institutet og Karolinska universitetssjukhuset mener kunstig intelligens (AI) klarer å avdekke brystkreft fra mammografibilder like godt som en røntgenlege.

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Publisert: 2020-09-14 — 08.08



De svenske forskerne har sammenlignet tre ulike AI-algoritmer og mener den beste av dem er på høyde med en gjennomsnittlig røntgenlege når det gjelder å avdekke brystkreft fra mammografibilder.

Dagens Medisin har tidligere omtalt et forskerprosjekt fra NYU Langone Health og Facebook

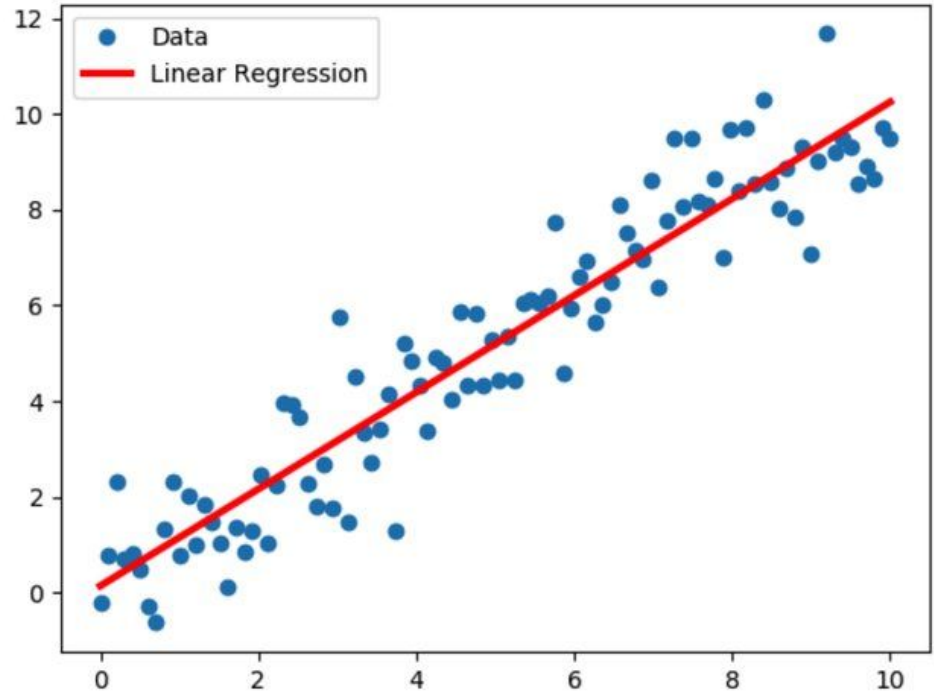
AI is based on mathematical algorithms

AI is based on mathematical algorithms

$$y = ax + b$$

$$\frac{\partial}{\partial a} \sum_i (y(x_i) - y_i)^2 = 0$$

$$\frac{\partial}{\partial b} \sum_i (y(x_i) - y_i)^2 = 0$$

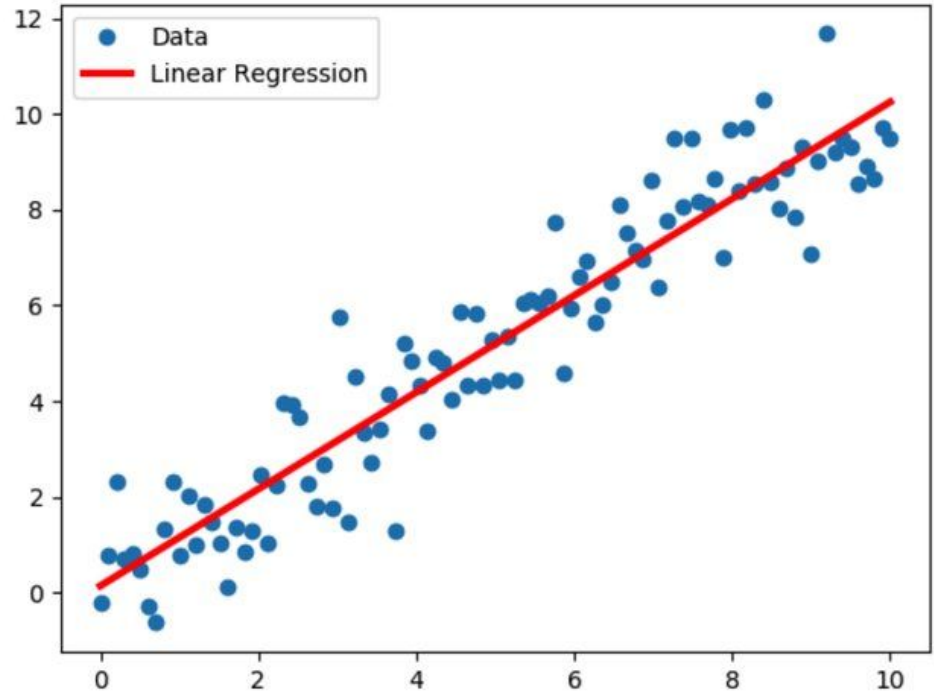


AI is based on mathematical algorithms

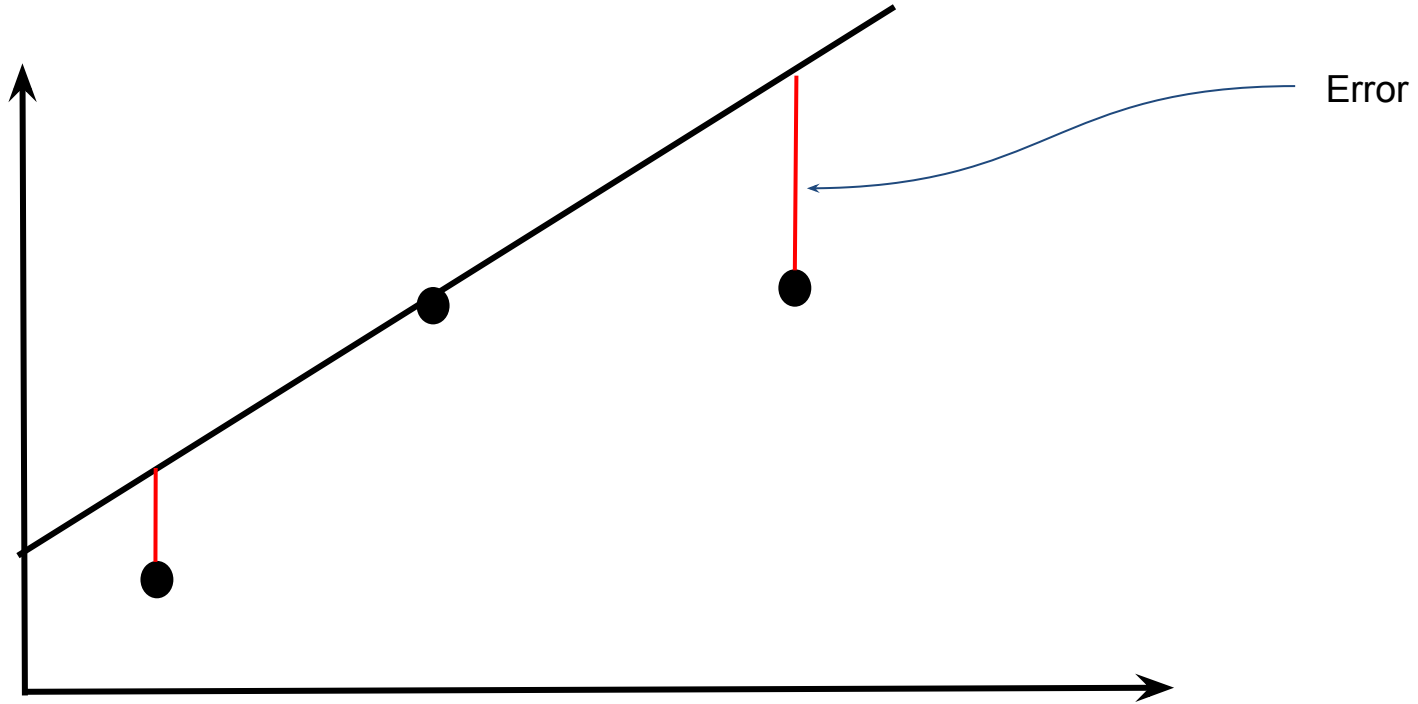
$$y = ax + b$$

$$\frac{\partial}{\partial a} \sum_i (y(x_i) - y_i)^2 = 0$$

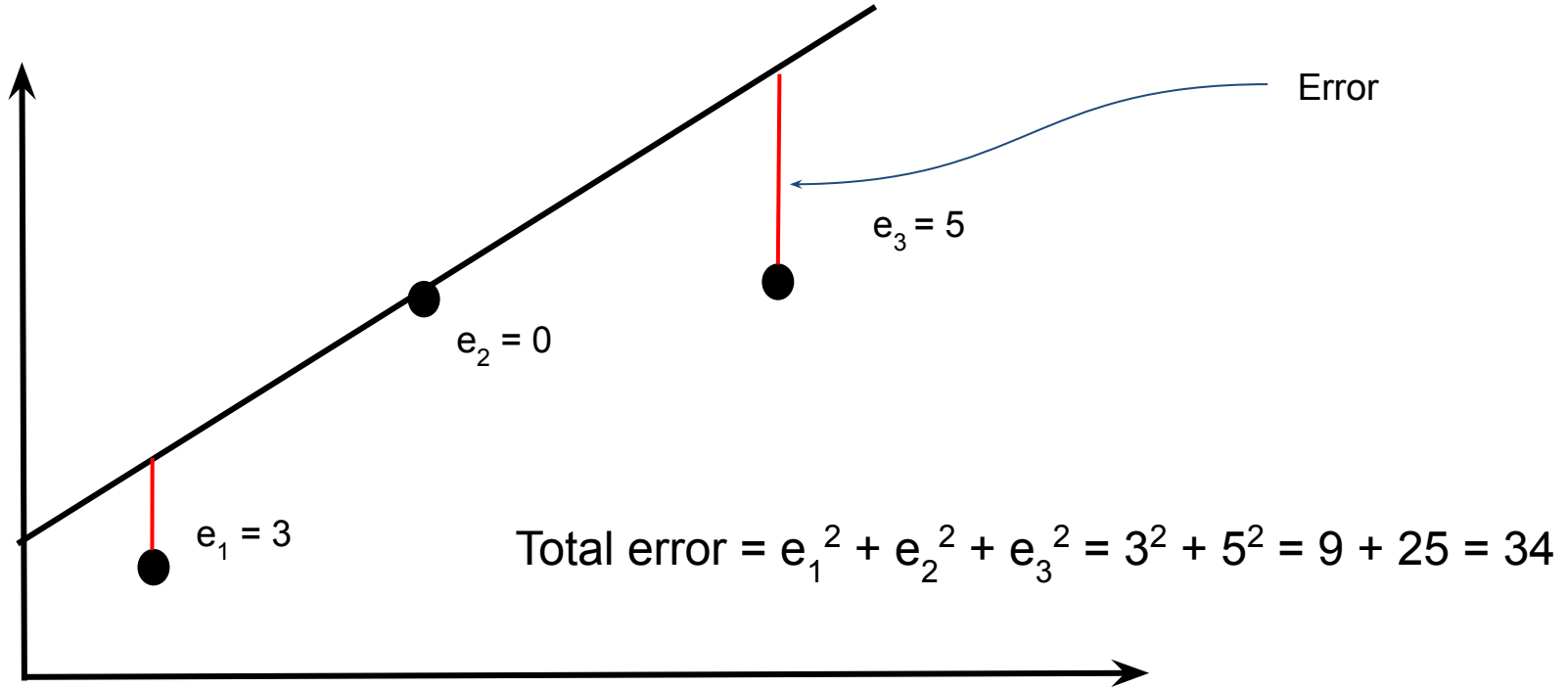
$$\frac{\partial}{\partial b} \sum_i (y(x_i) - y_i)^2 = 0$$



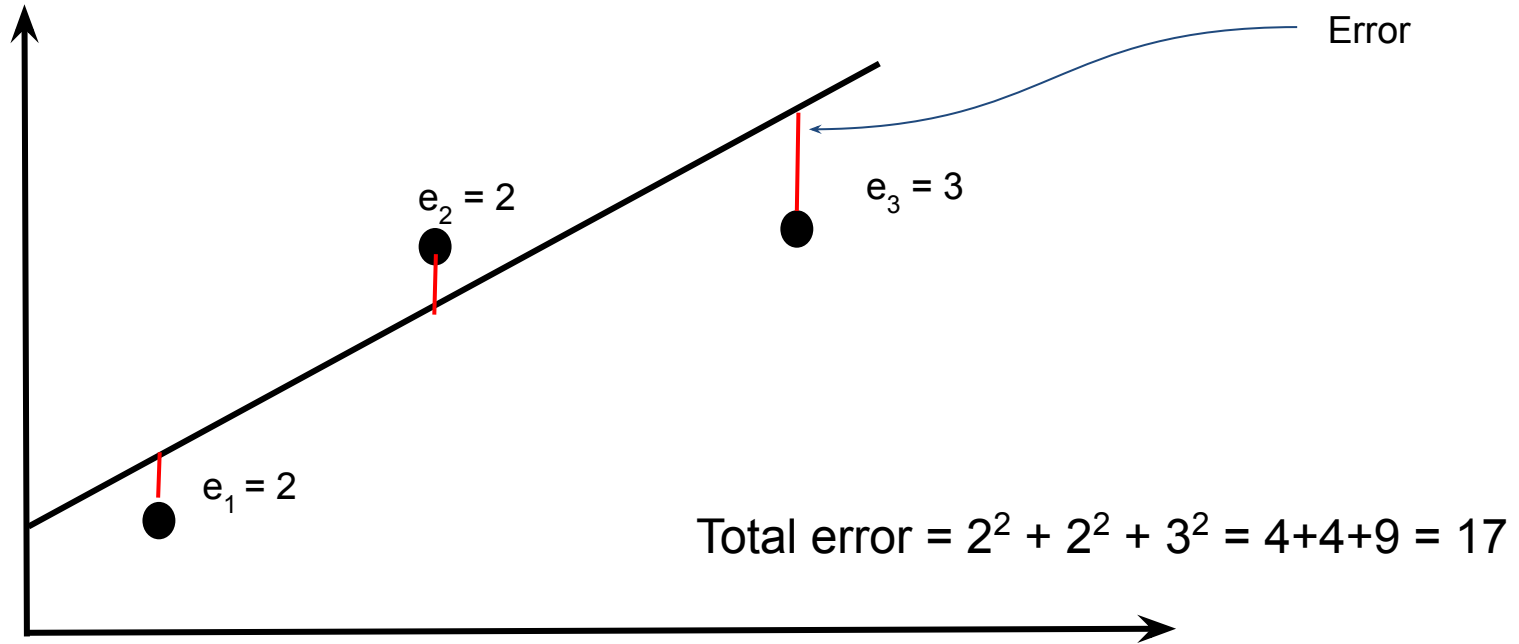
We need to define a *cost function*



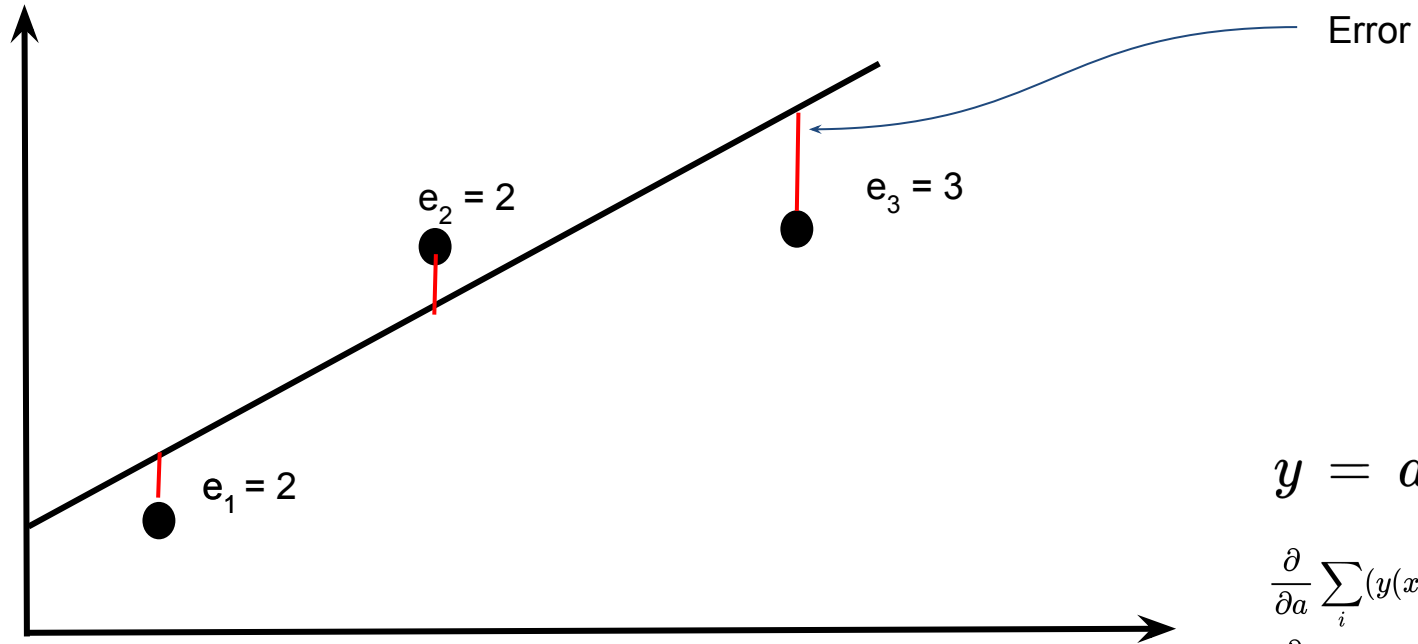
We need to define a *cost function*



The goal is to minimize the cost function



In this example, an analytical/exact solution exist



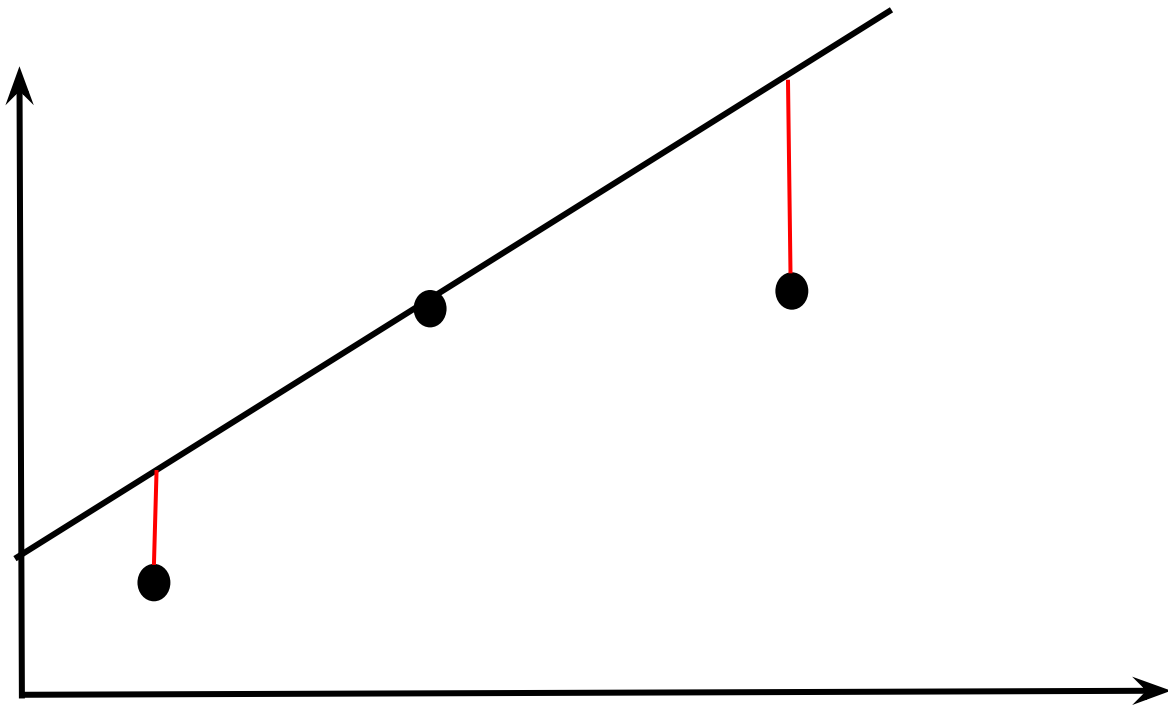
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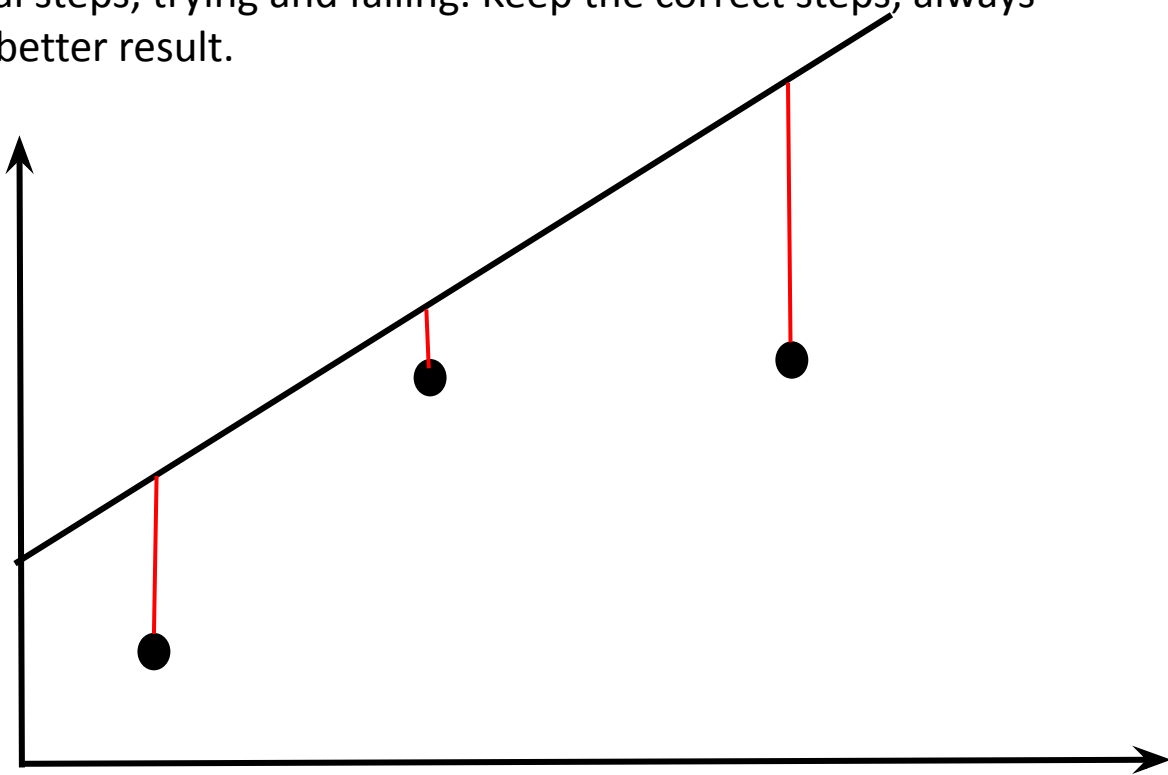
More often, the model is tuned by *training*

Incremental steps, trying and failing. Keep the correct steps, always towards a better result.



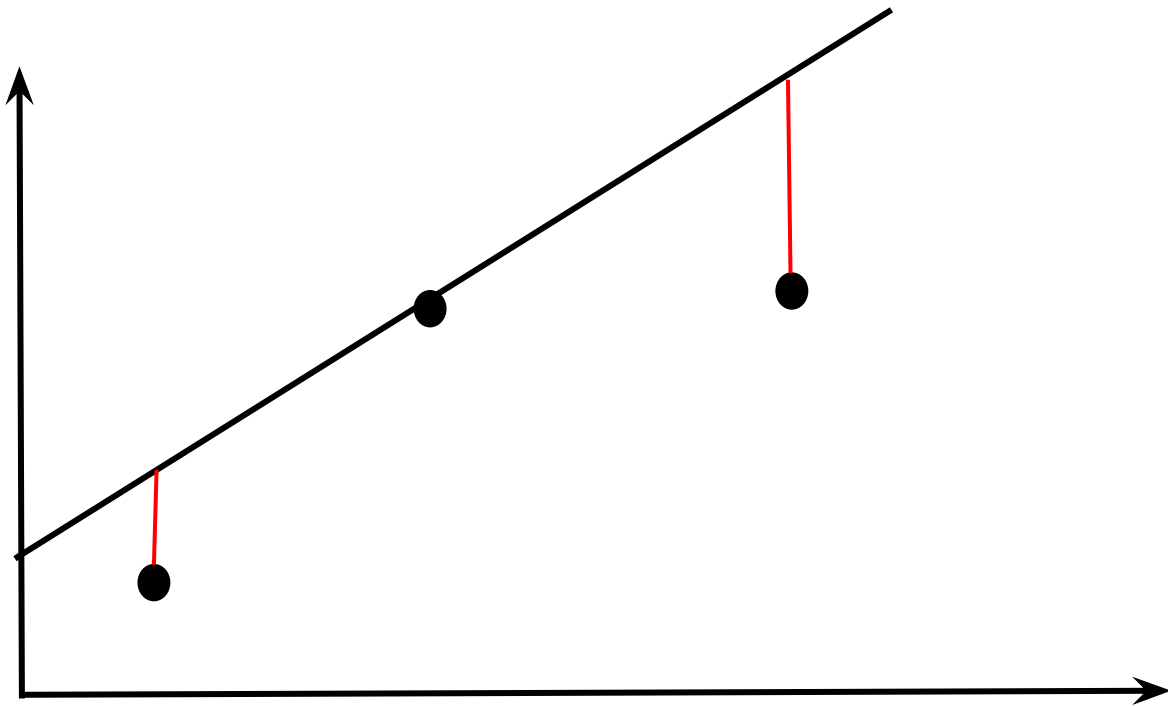
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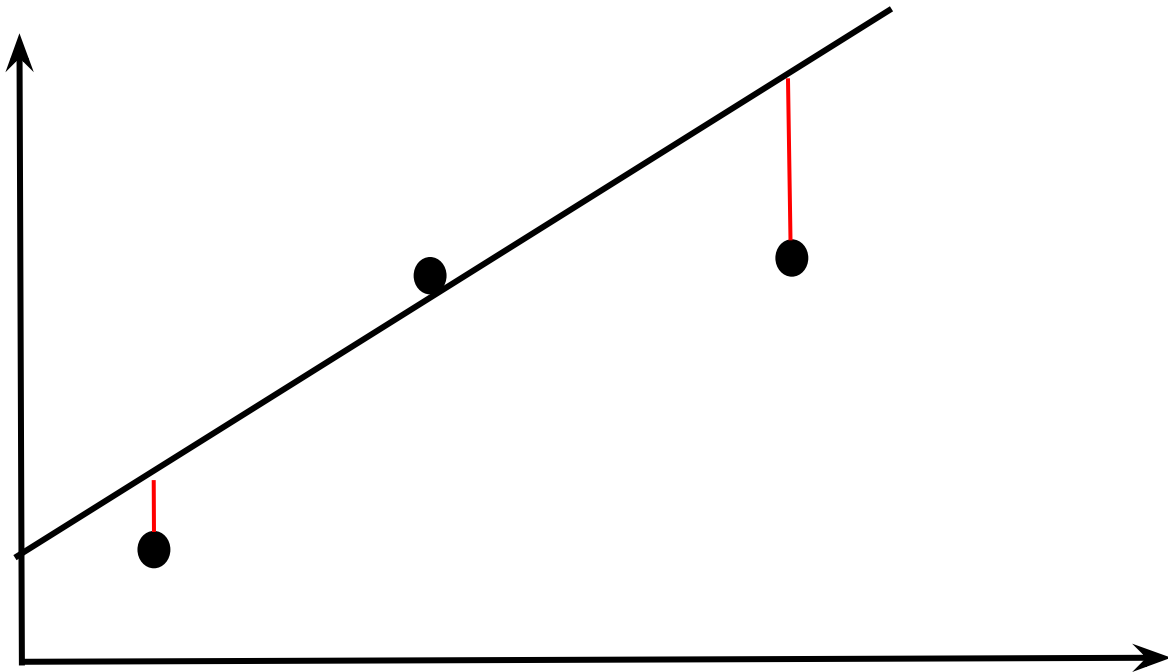


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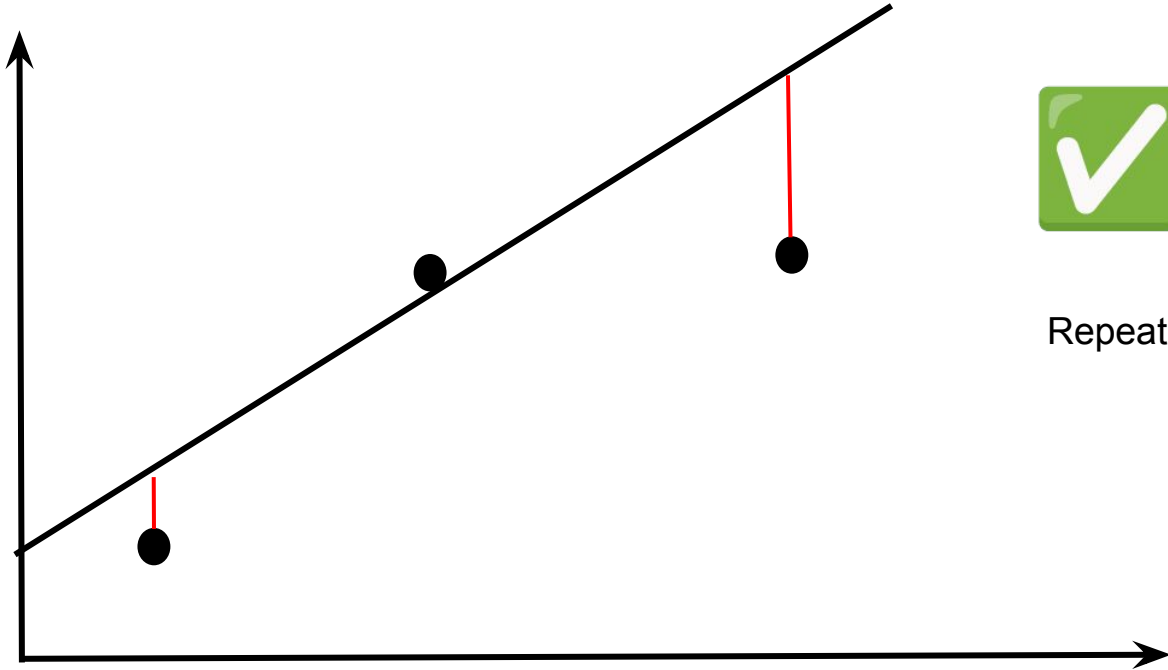
Incremental steps, trying and failing. Keep the correct steps, always towards a better result.



More often, the model is tuned by *training*

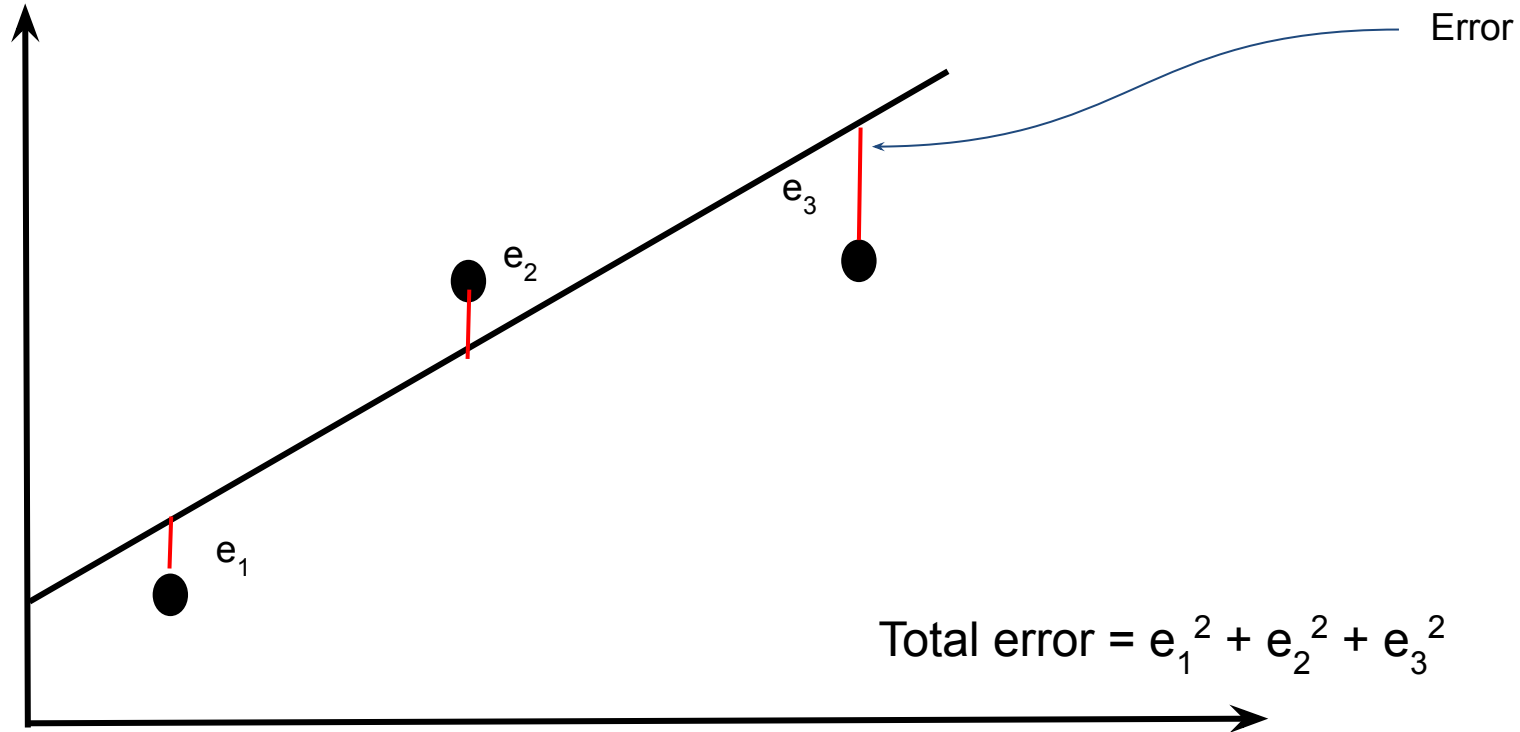


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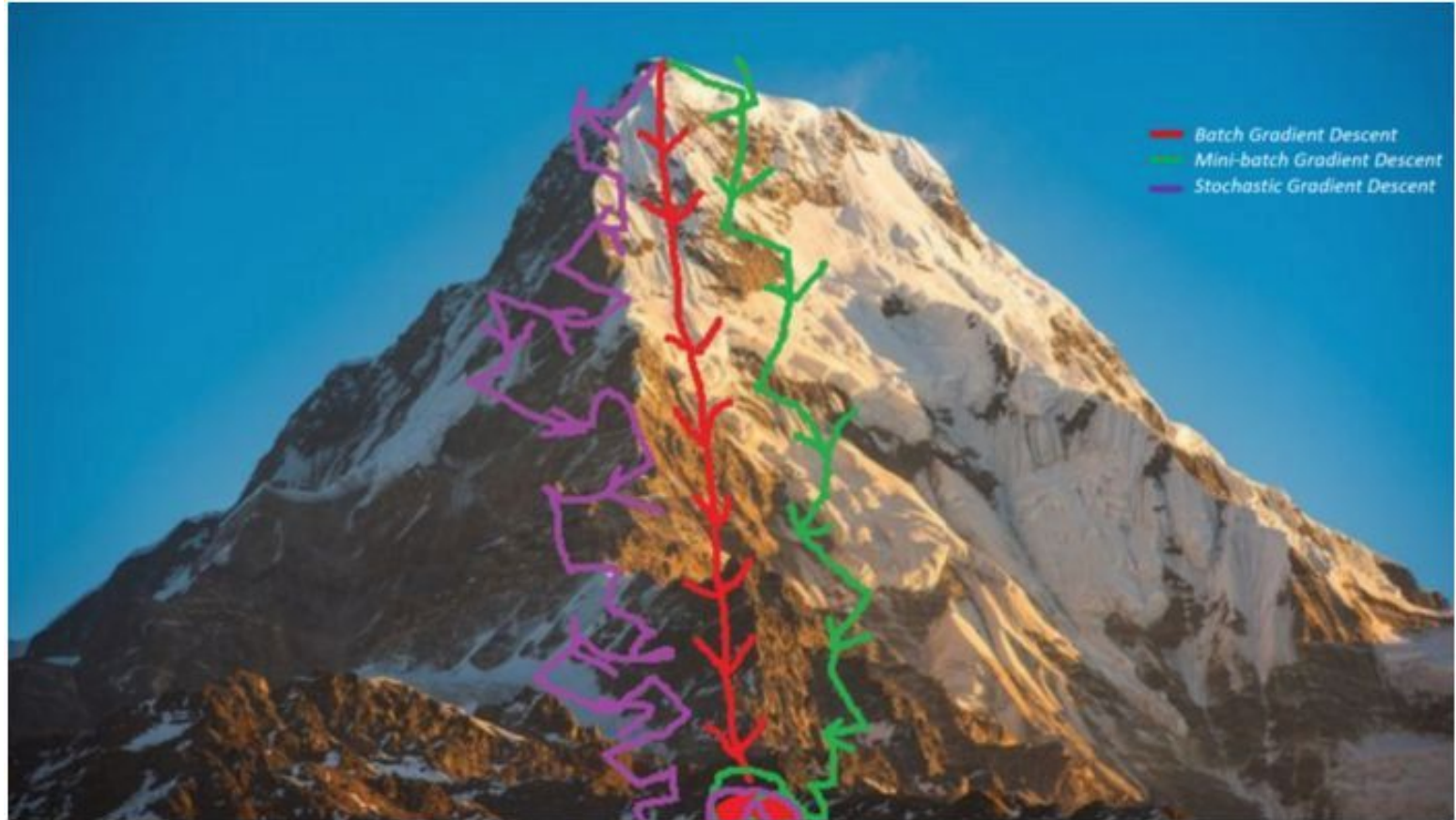


Repeat the process

The goal is to minimize the cost function



Training an AI is analogous to mountain climbing



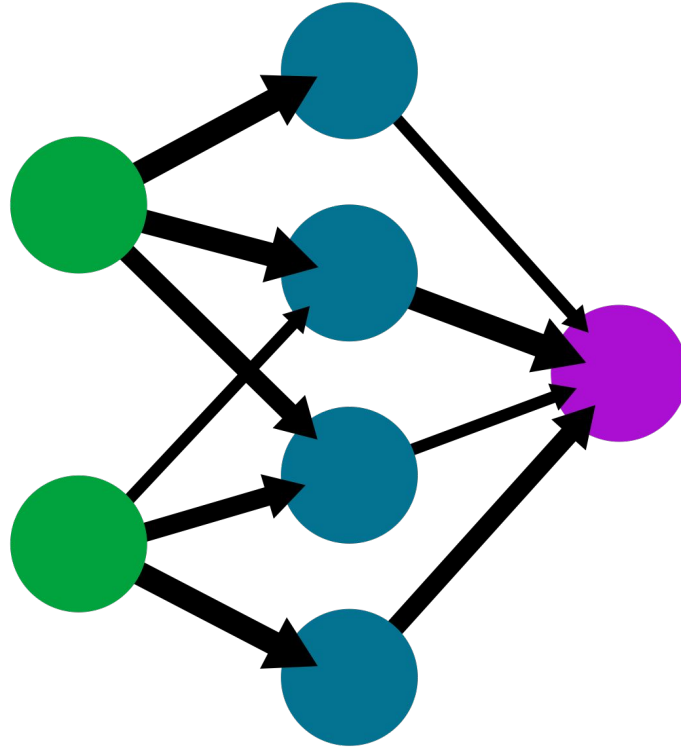
The mathematics in the previous example is relatively simple. In most applications, the mathematics behind AI is way more complex!

A simple neural network

input
layer

hidden
layer

output
layer

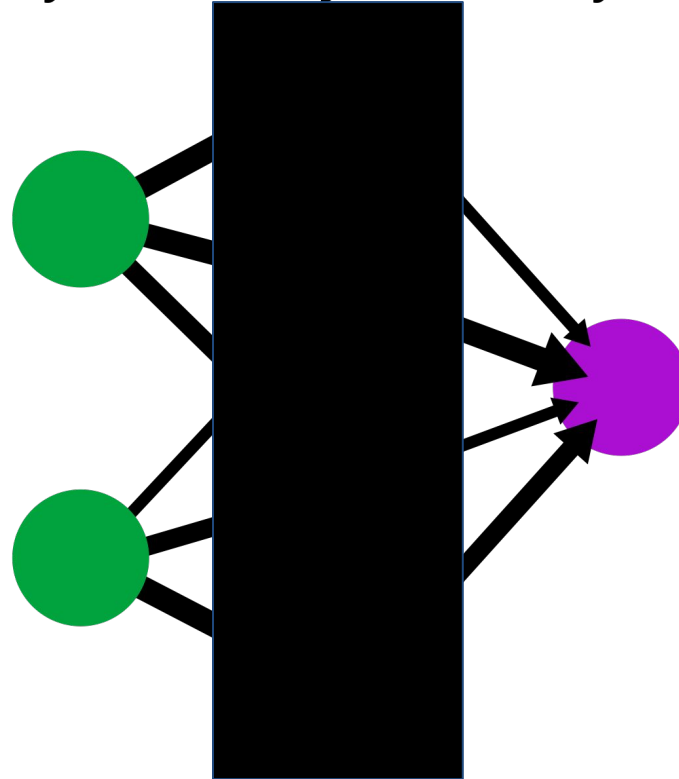


A simple neural network

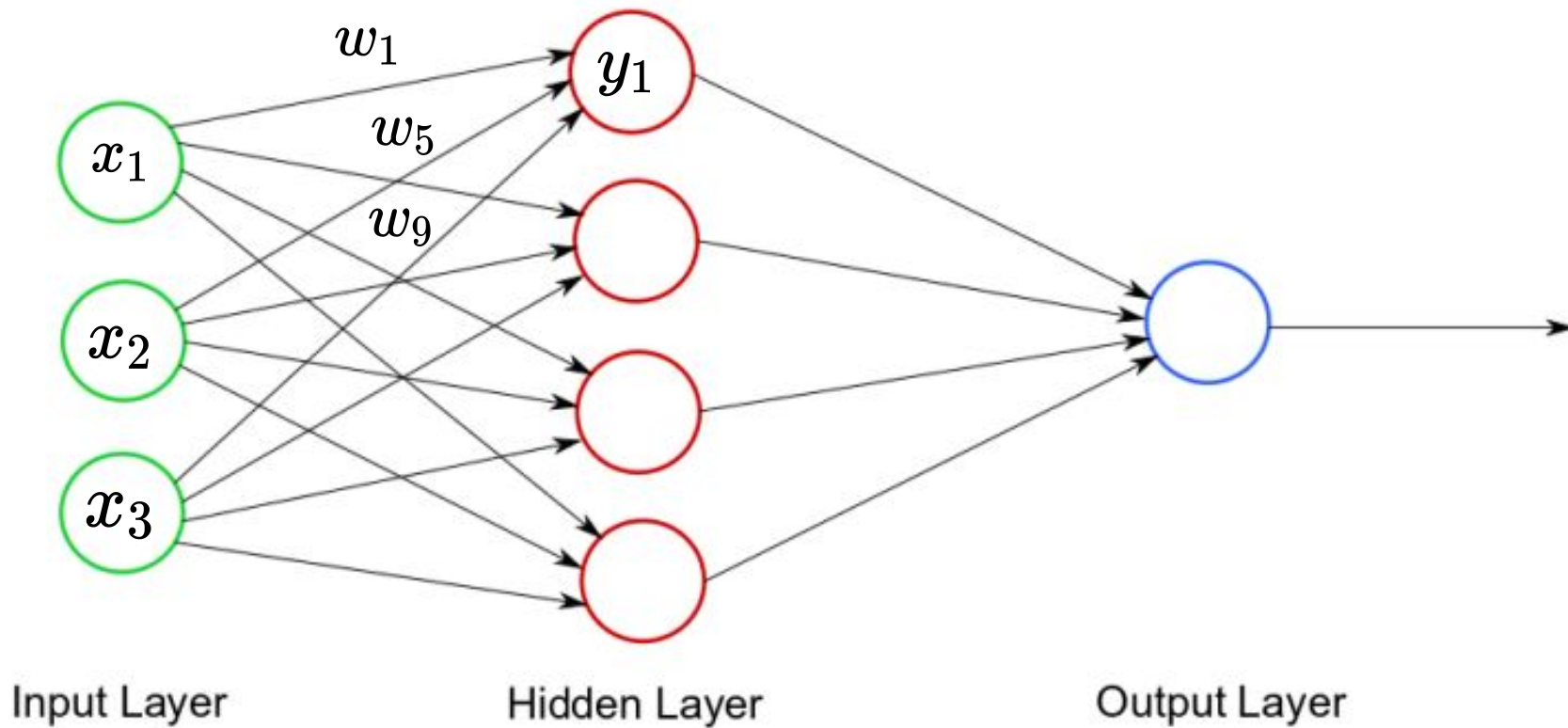
input
layer

hidden
layer

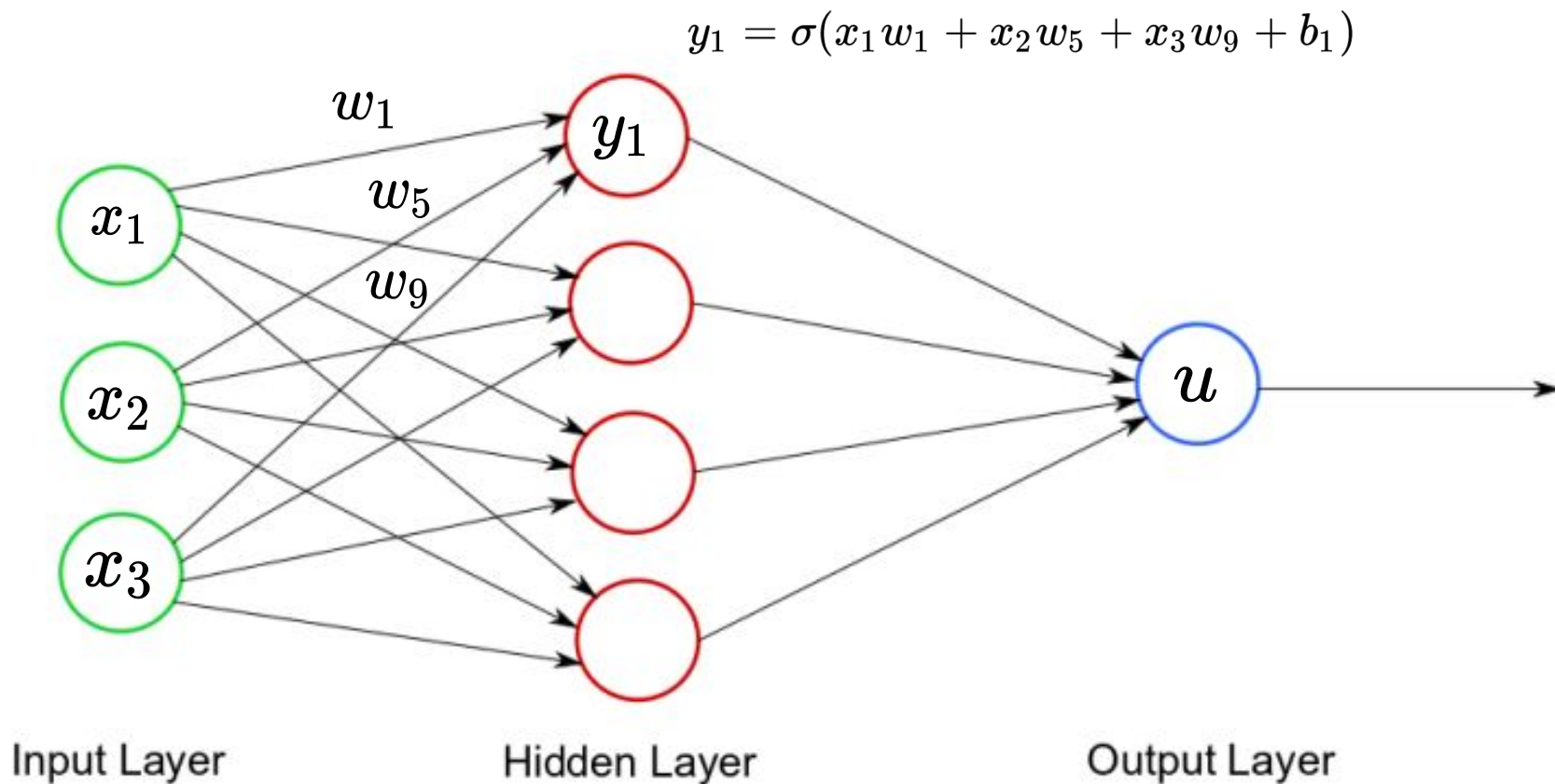
output
layer



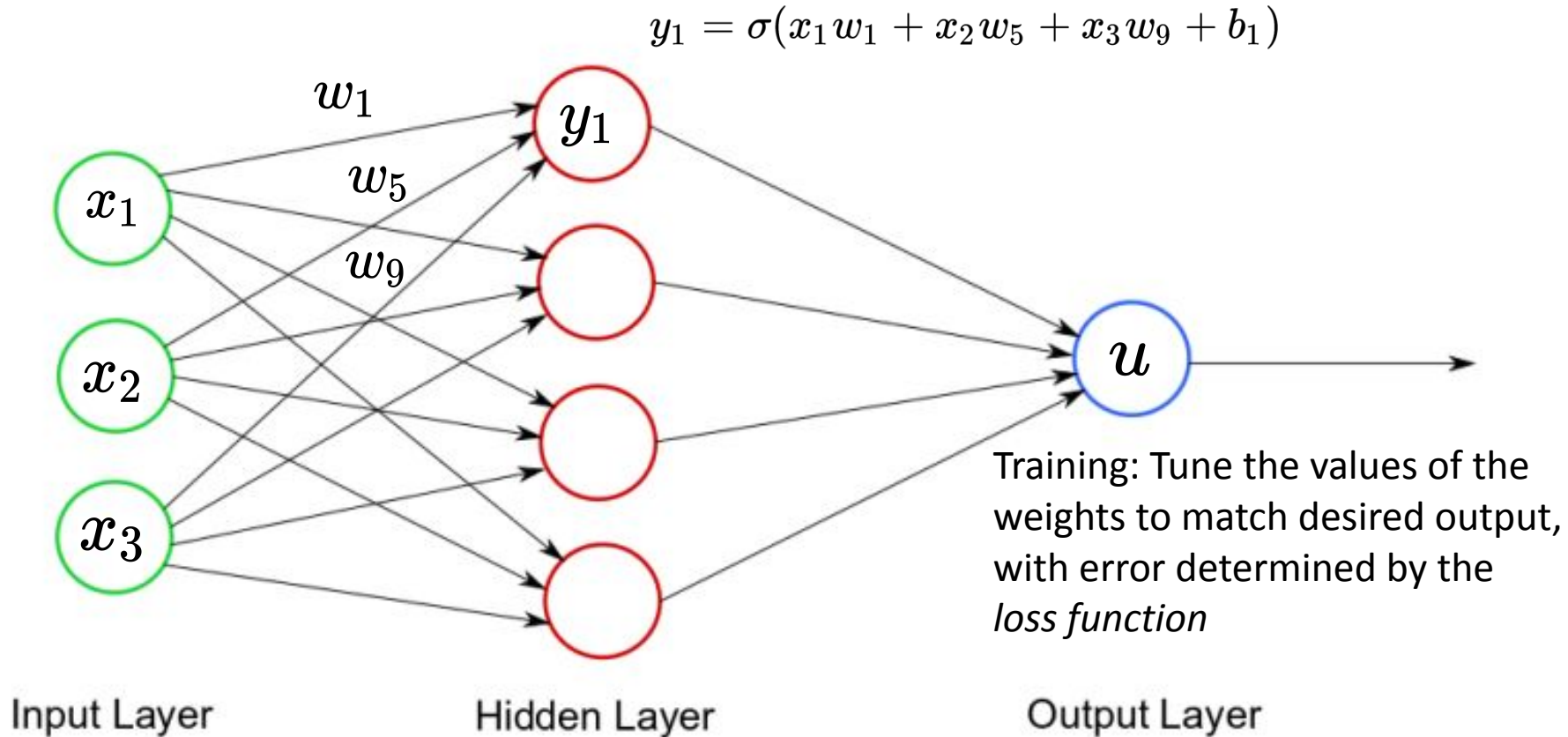
Neural Networks



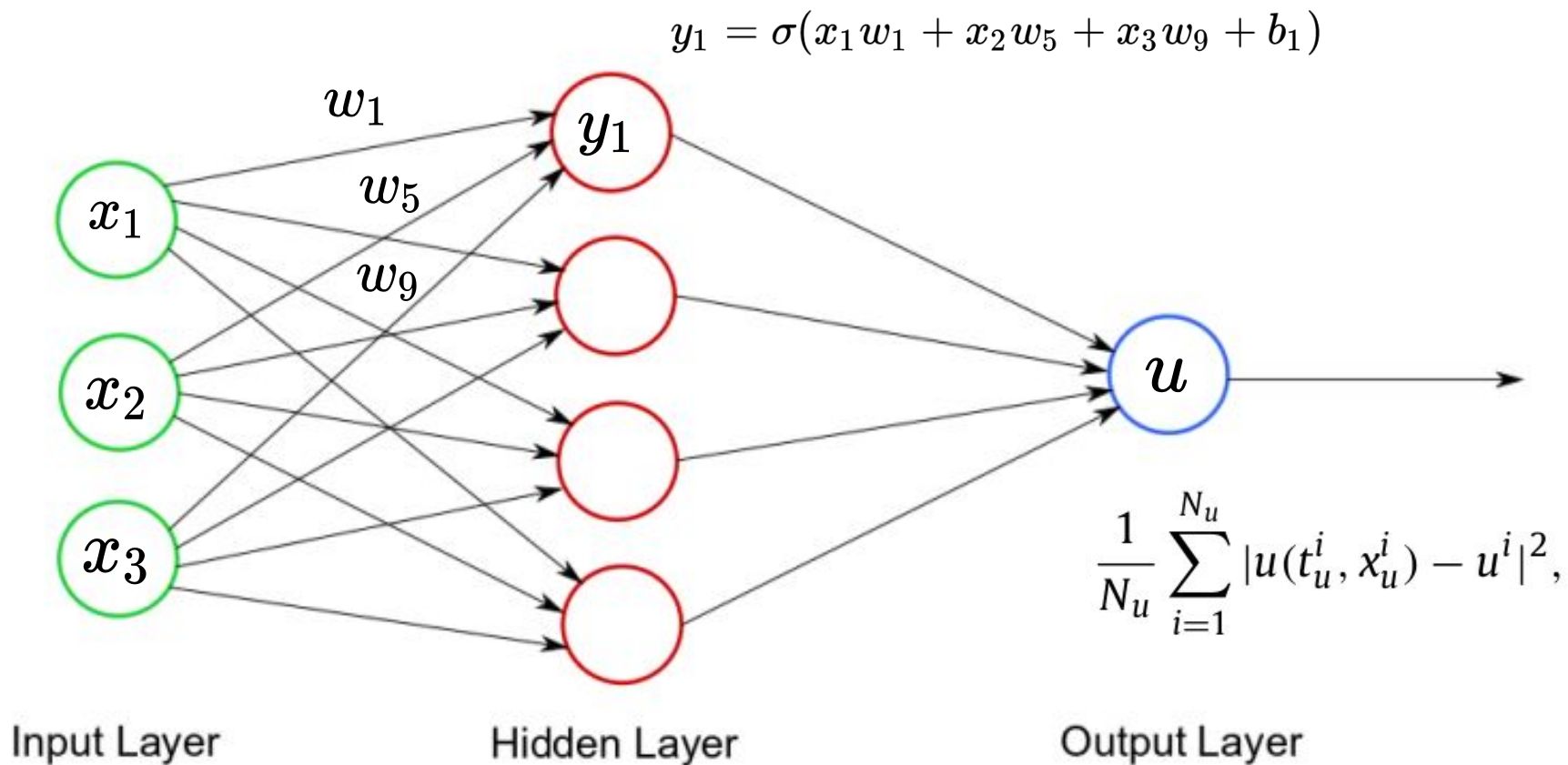
Neural Networks



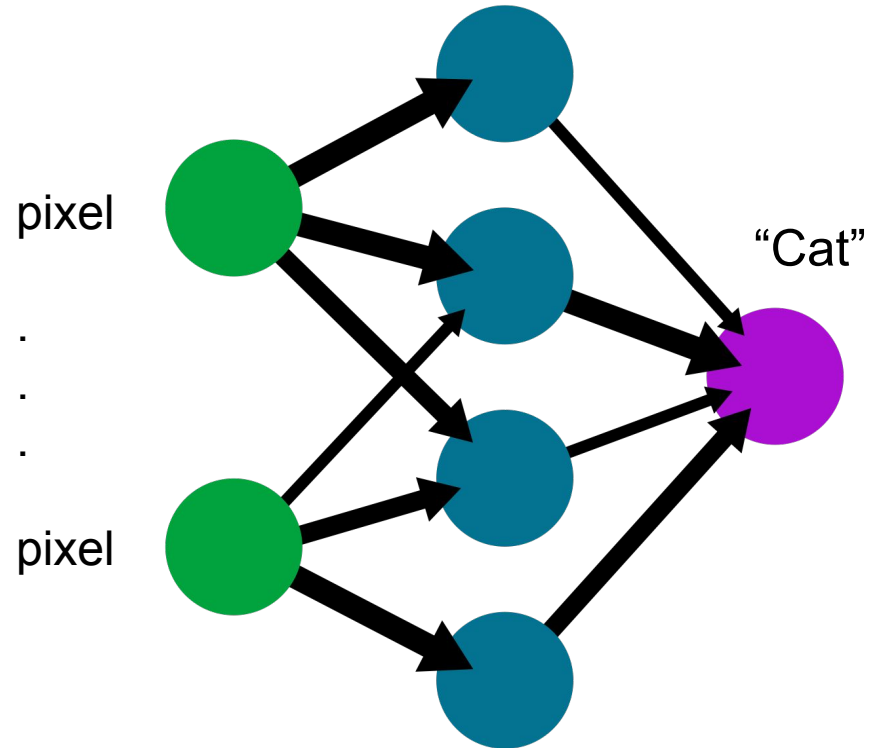
Neural Networks



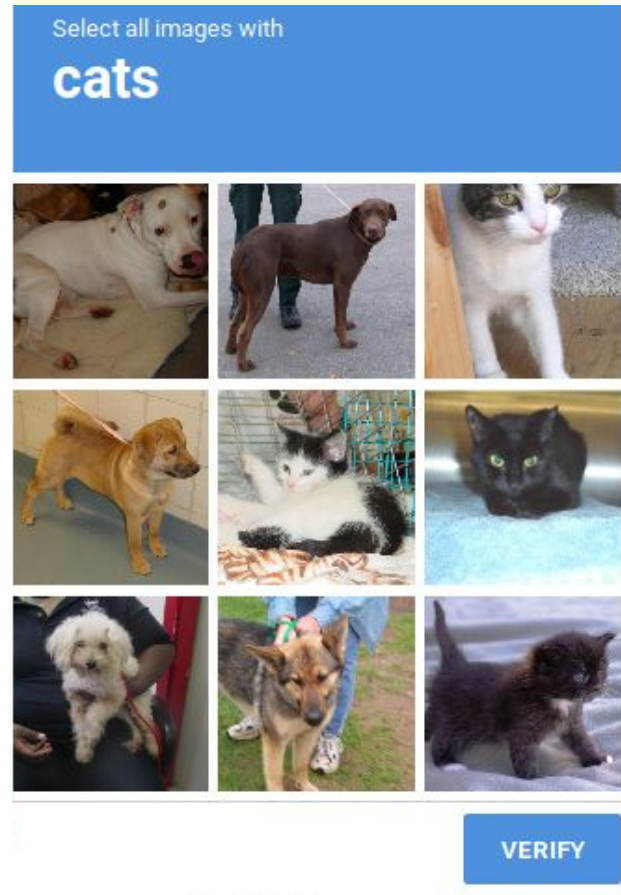
Neural Networks



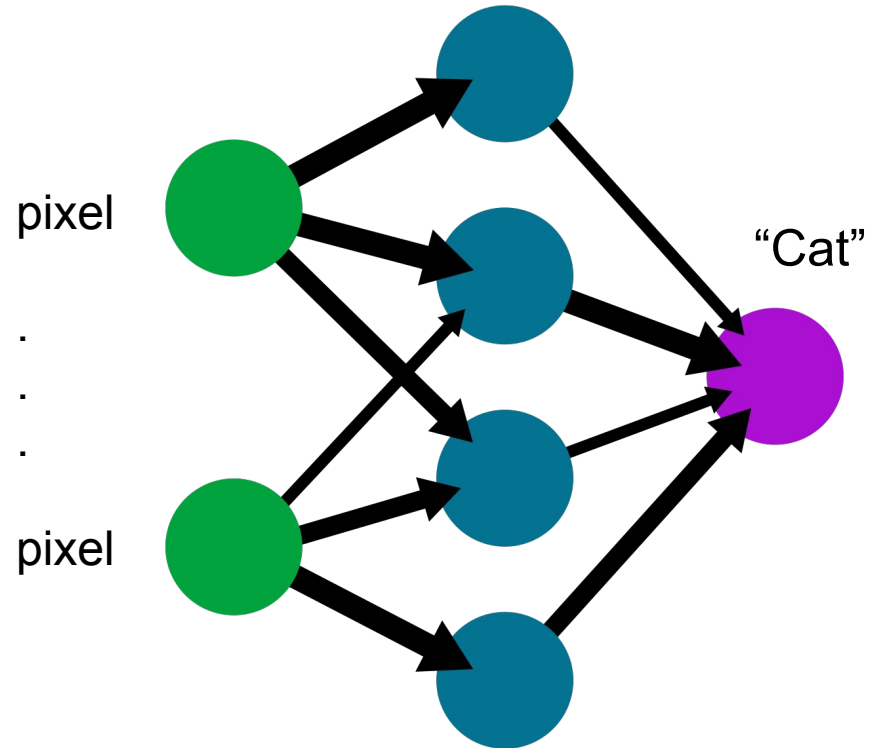
A neural network can learn to interpret images by looking at pixel data



The machine can learn from images already labeled



A neural network can learn to interpret images by looking at pixel data

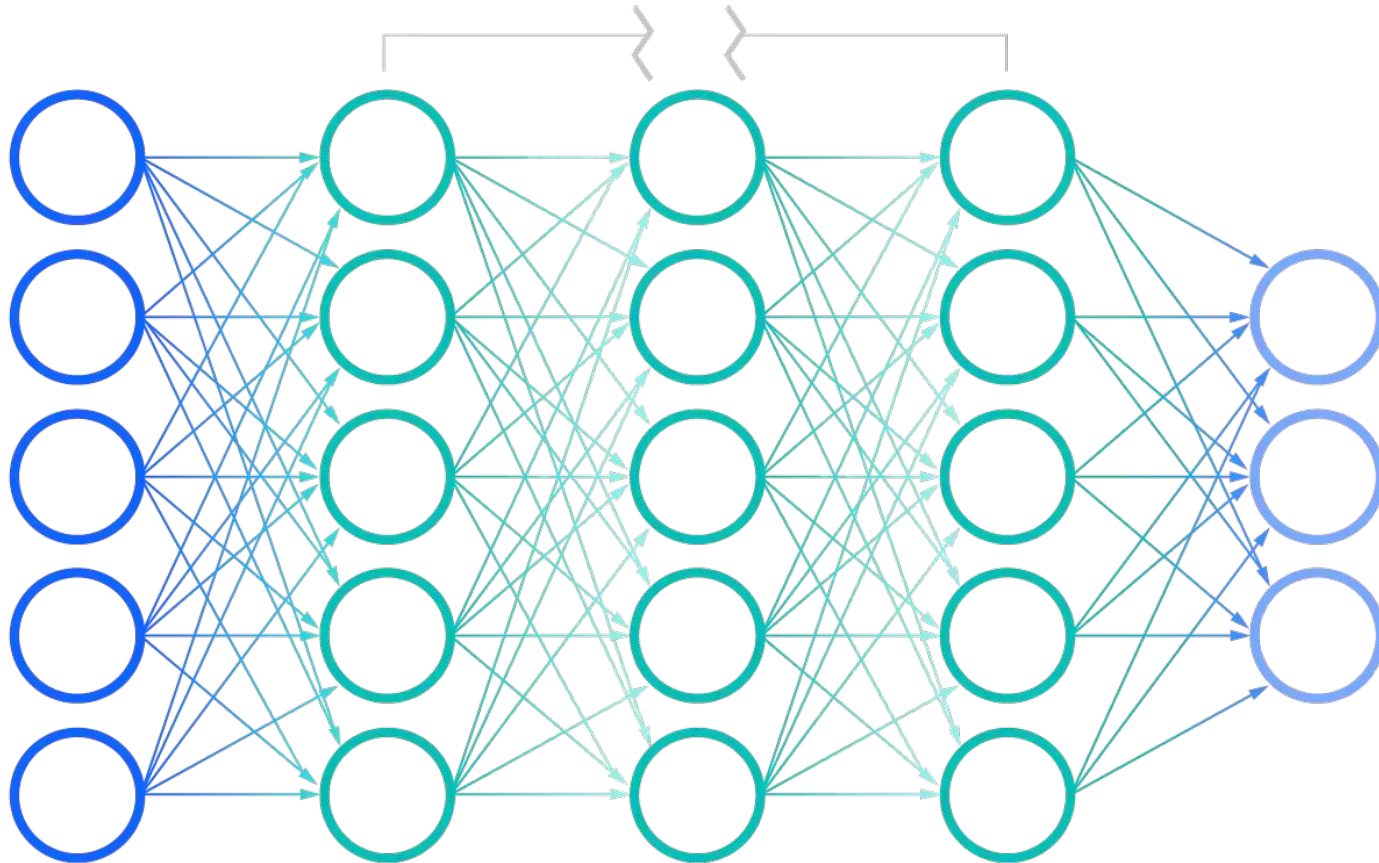


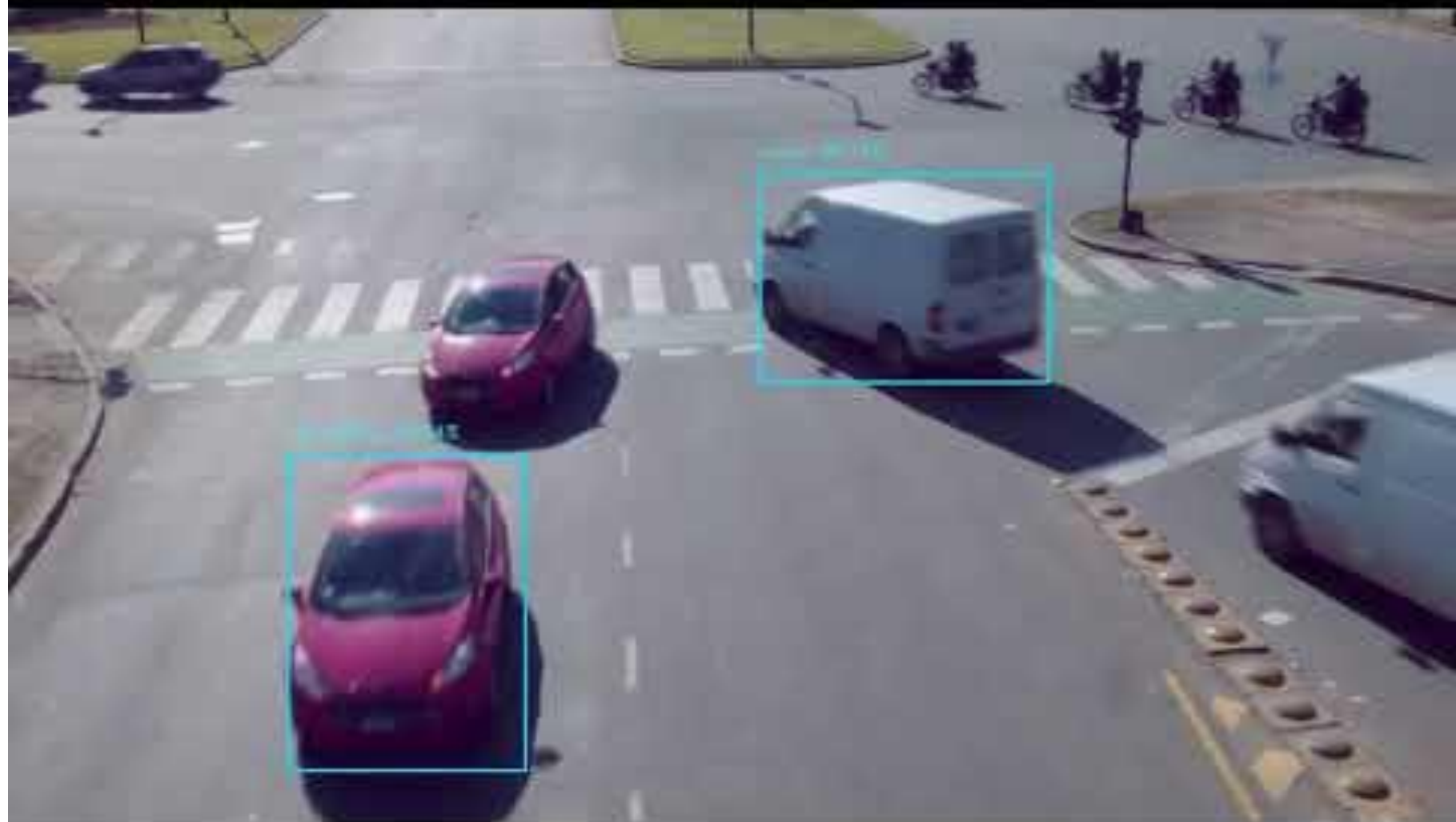
Deep neural network

Input layer

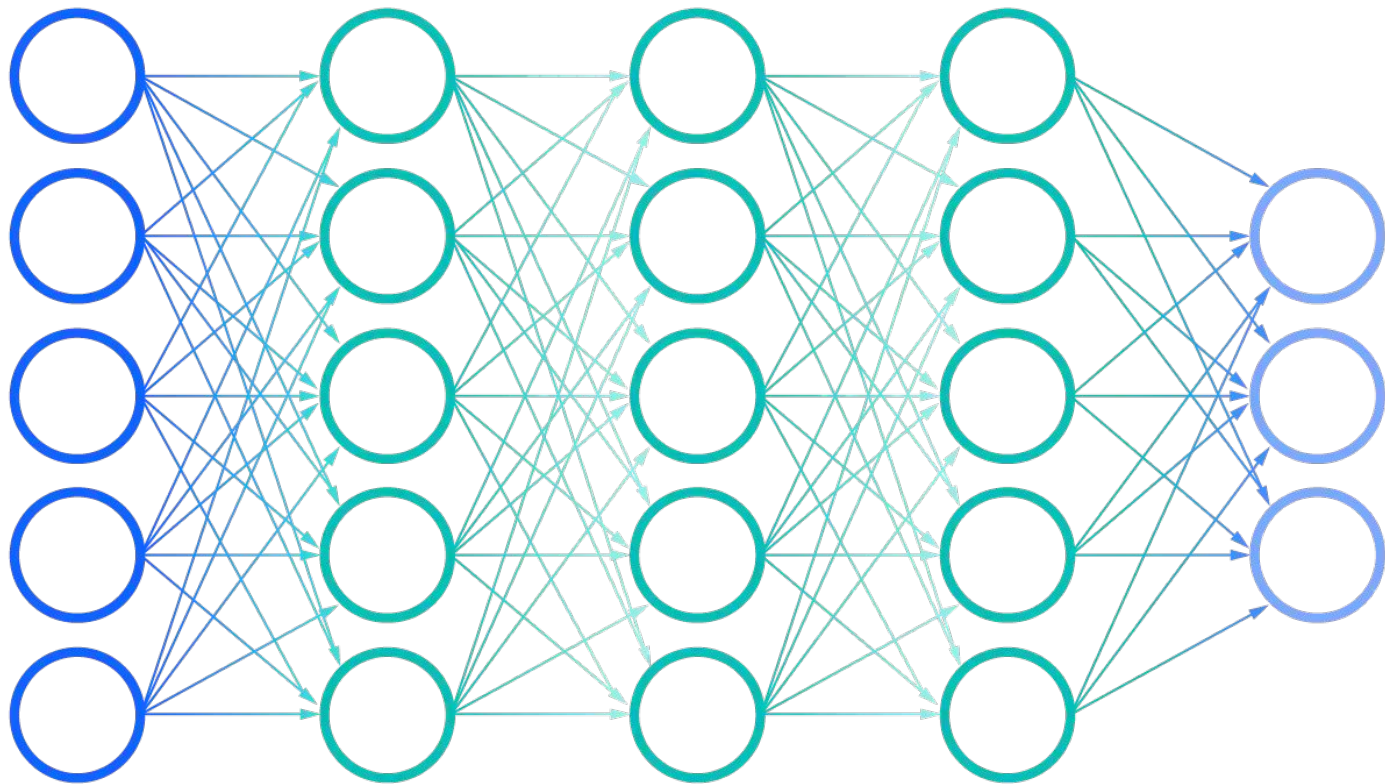
Multiple hidden layers

Output layer





The mathematics is more complex (and less stable)



AI can go terribly wrong



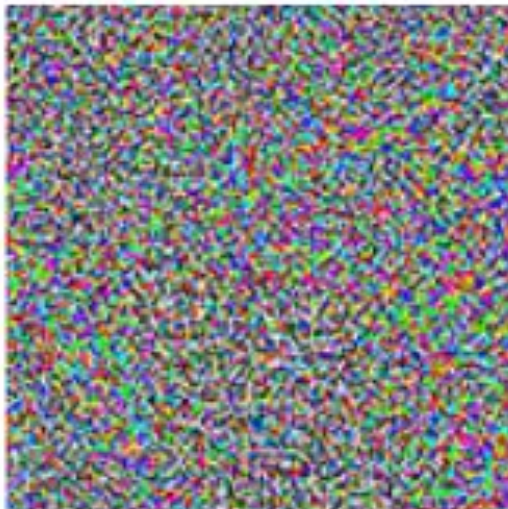
"panda"

57.7% confidence

AI can go terribly wrong



+ ϵ



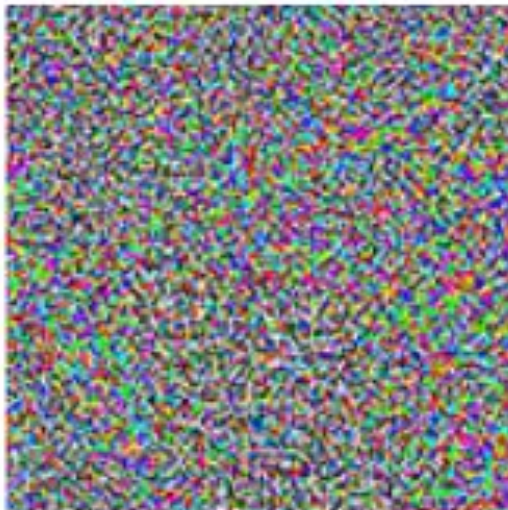
"panda"

57.7% confidence

AI can go terribly wrong



+ ϵ



=



"panda"
57.7% confidence

"gibbon"
99.3% confidence



GPT-3: new AI can write like a human but don't mistake that for thinking – neuroscientist

September 17, 2020 2.20pm BST Updated September 17, 2020 4.02pm BST

AI can go terribly wrong

You poured yourself a glass of cranberry juice, but then you absentmindedly poured about a teaspoon of grape juice into it. It looks okay. You try sniffing it, but you have a bad cold, so you can't smell anything. You are very thirsty. So you drink it.

AI can go terribly wrong

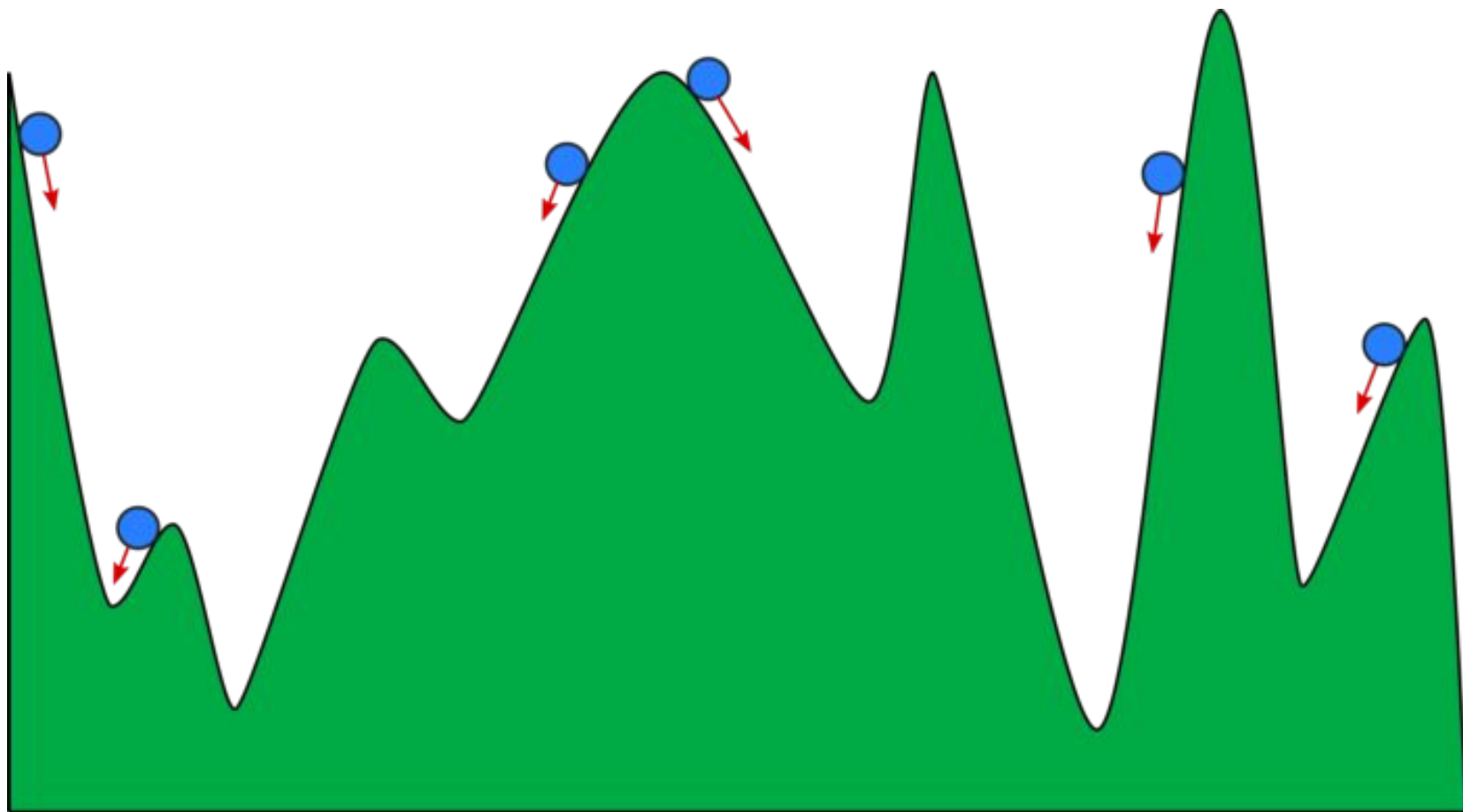
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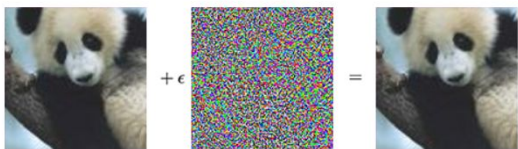
GPT-3: "You are now dead"









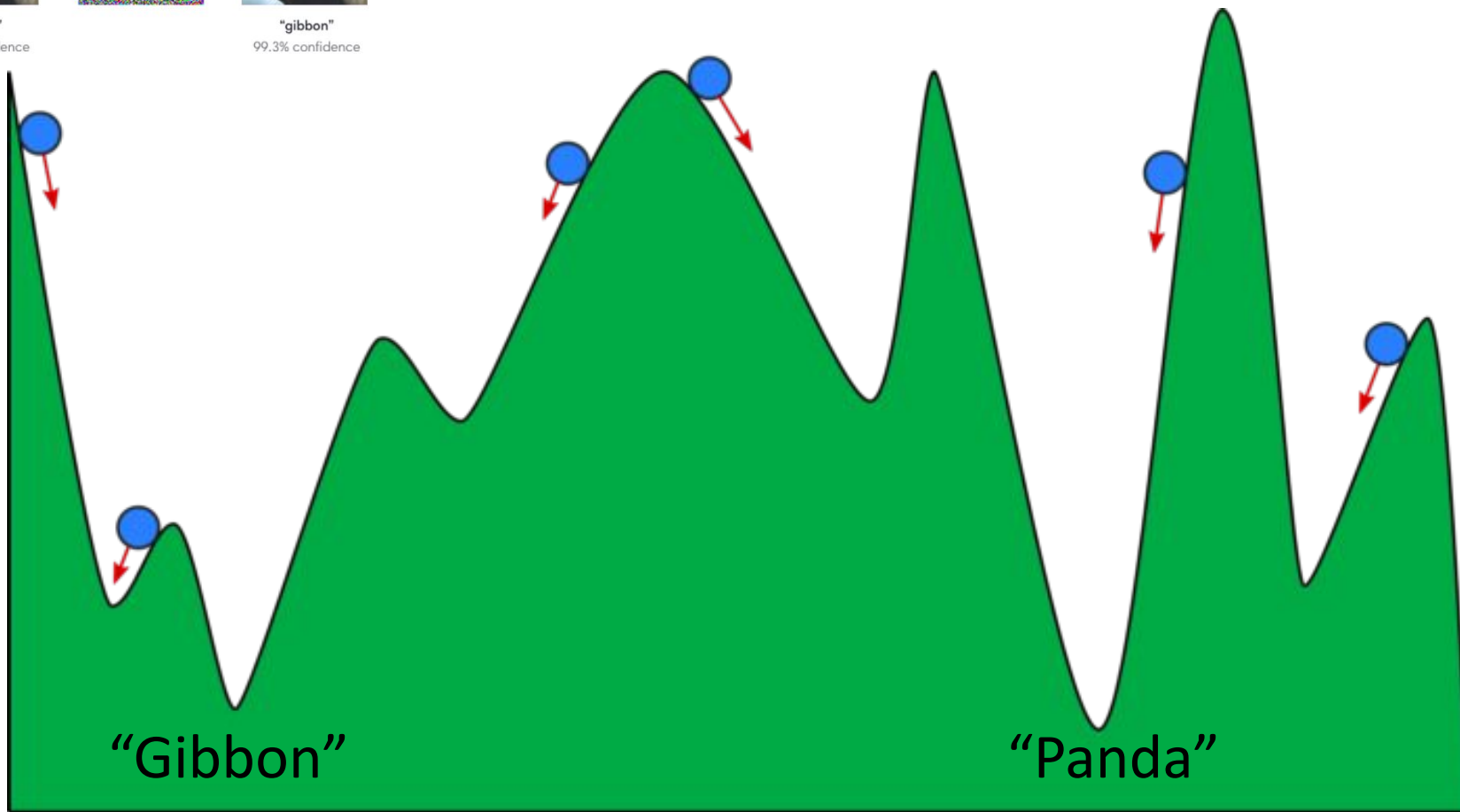


"panda"

57.7% confidence

"gibbon"

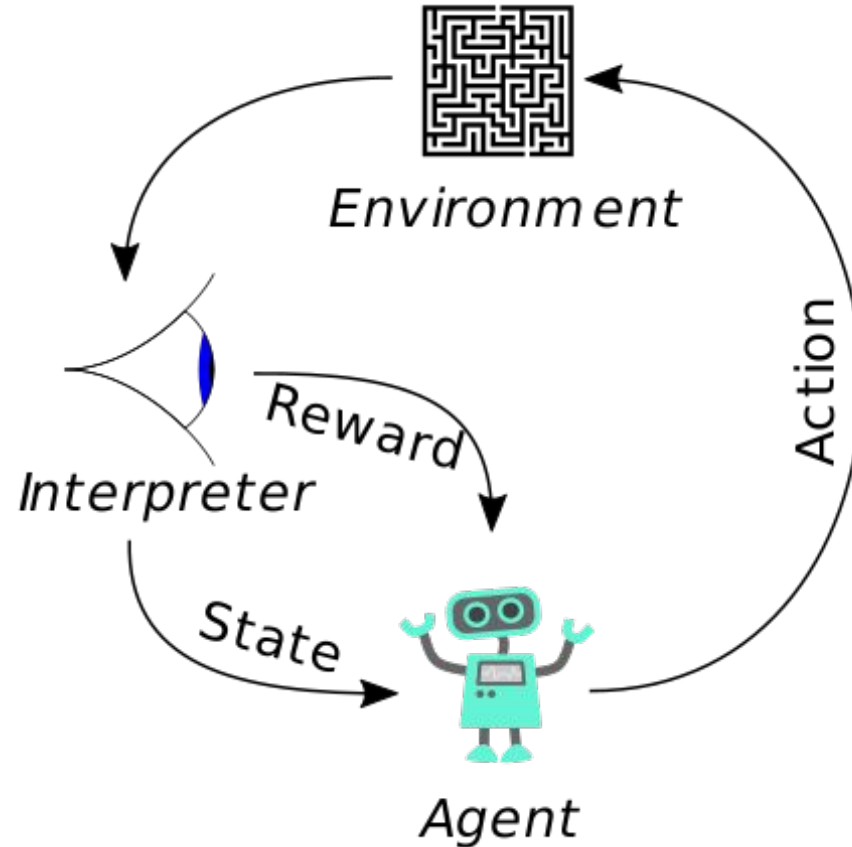
99.3% confidence

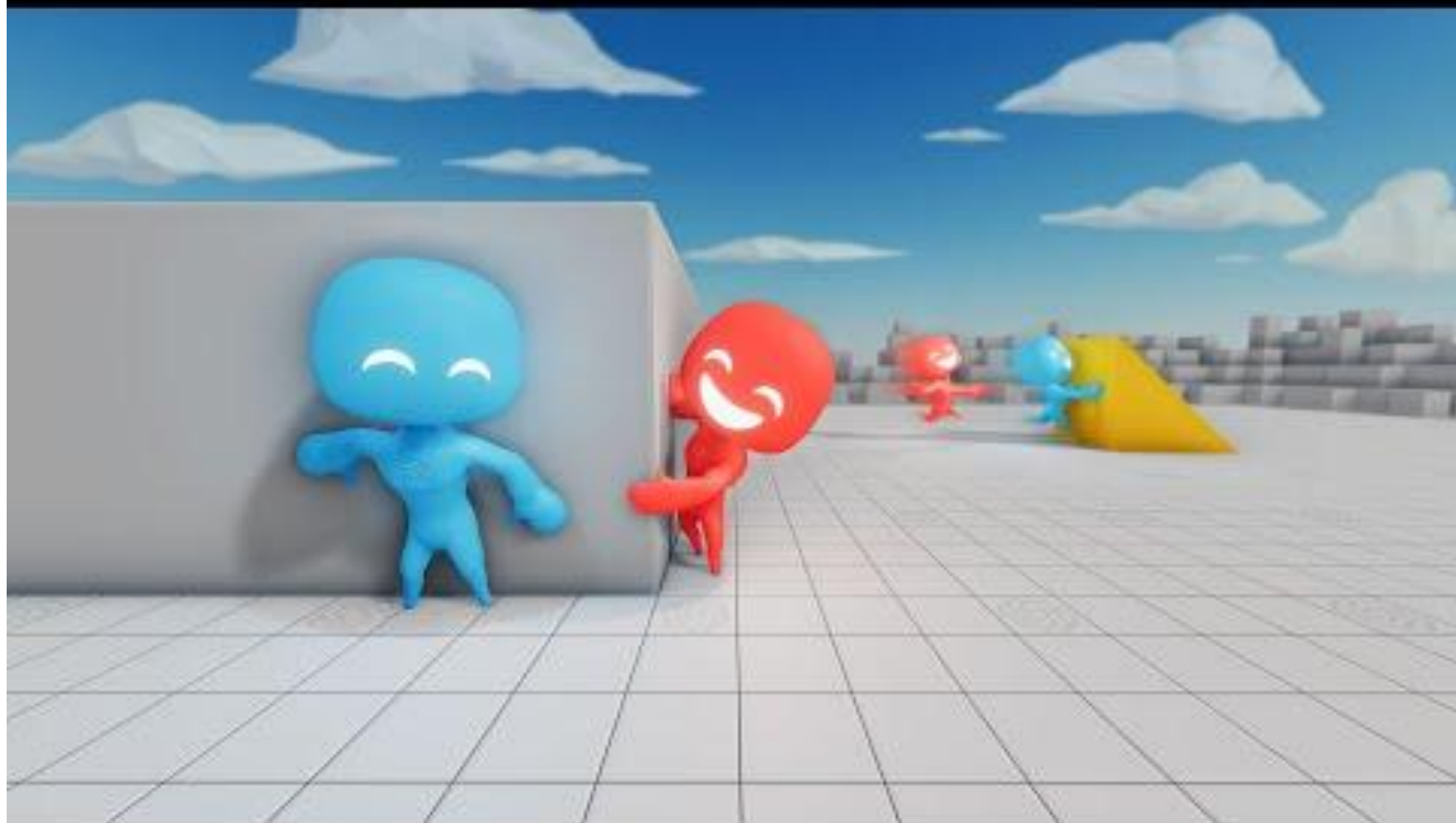


"Gibbon"

"Panda"

Reinforcement learning



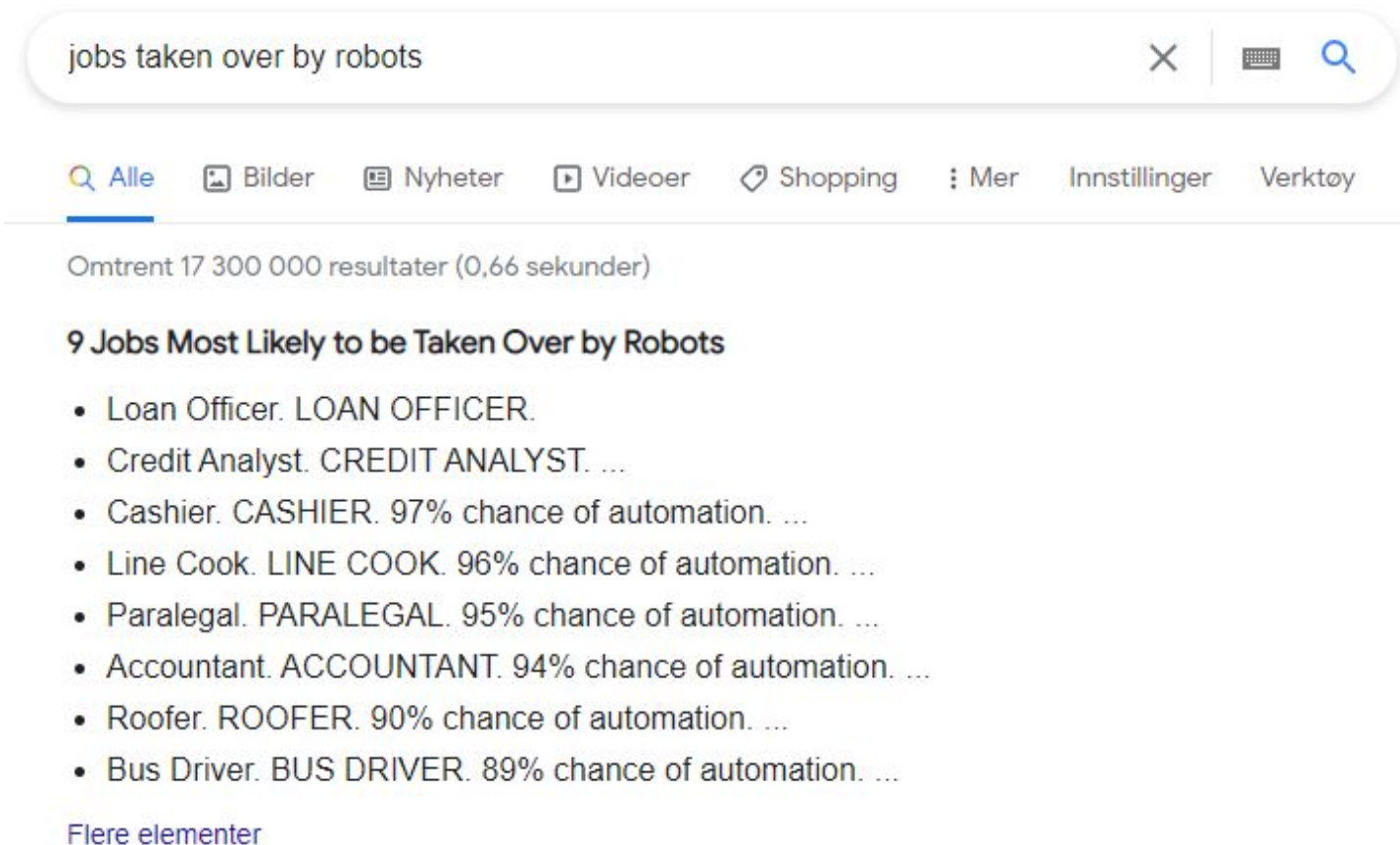


GENERATION 1



GENERATION 100

Will AI take our jobs?



A screenshot of a Google search interface. The search bar at the top contains the text "jobs taken over by robots". Below the search bar, there are navigation links: "Alle" (selected), "Bilder", "Nyheter", "Videoer", "Shopping", "Mer", "Innstillinger", and "Verktøy". Below these links, it says "Omtrent 17 300 000 resultater (0,66 sekunder)". The main content area shows a section titled "9 Jobs Most Likely to be Taken Over by Robots" followed by a bulleted list of jobs and their automation chances. At the bottom, there is a link "Flere elementer".

jobs taken over by robots

Alle Bilder Nyheter Videoer Shopping Mer Innstillinger Verktøy

Omtrent 17 300 000 resultater (0,66 sekunder)

9 Jobs Most Likely to be Taken Over by Robots

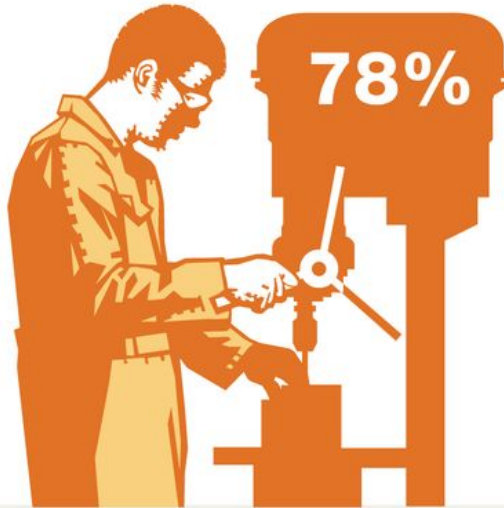
- Loan Officer. LOAN OFFICER.
- Credit Analyst. CREDIT ANALYST. ...
- Cashier. CASHIER. 97% chance of automation. ...
- Line Cook. LINE COOK. 96% chance of automation. ...
- Paralegal. PARALEGAL. 95% chance of automation. ...
- Accountant. ACCOUNTANT. 94% chance of automation. ...
- Roofer. ROOFER. 90% chance of automation. ...
- Bus Driver. BUS DRIVER. 89% chance of automation. ...

[Flere elementer](#)

It's more technically feasible to automate predictable physical activities than unpredictable ones.

Technical feasibility of automation, %¹

Predictable physical work



For example, welding and soldering on an assembly line, food preparation, or packaging objects

Unpredictable physical work



For example, construction, forestry, or raising outdoor animals

¹% of time spent on activities that can be automated by adapting currently demonstrated technology.

For the discussion:

- Will the number of jobs increase or decrease with increasing use of AI?
- Can you think of any occupations that will NOT be taken entirely over by AI? Why?
- Can you think of occupations that can increase its productivity with the use of AI in addition to human labor?