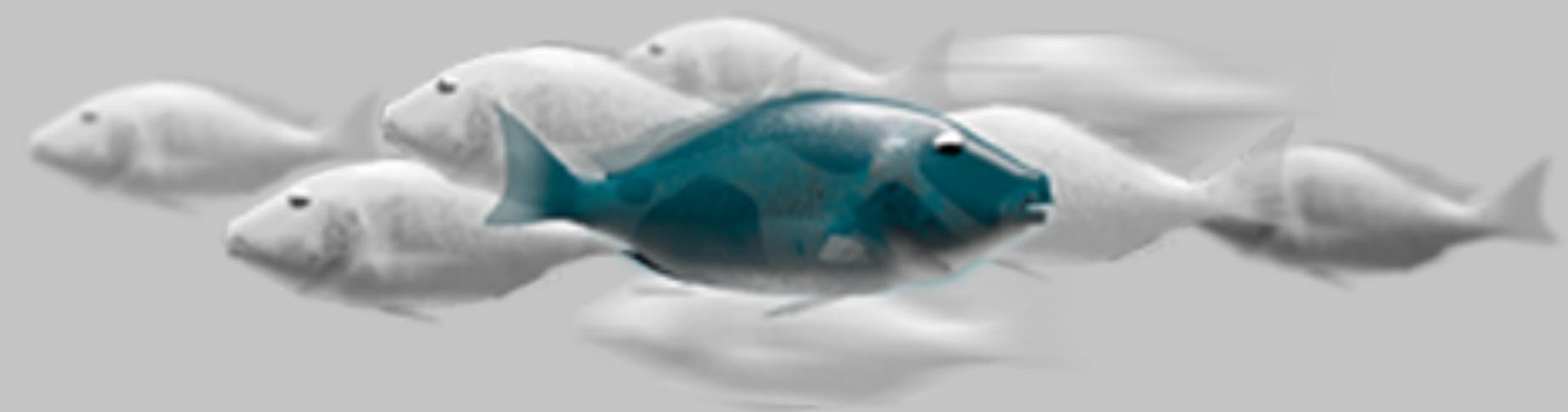


EDEM



Data Analytics | 3a. Edición
Artificial Intelligence Intro
Jose Peris Adsuara

Jose Peris Adsuara

**Head of Ai @Bit2Me
Data analytics @Edem**



2021:

-Winner Star Starups contest "Star days" hackathon

2019:

-Included in PlayBook platform, powered by Plug and Play Ventures

2018:

-Selected for Lanzadera start-up accelerator program
-Selected for Programa Órbita start-up accelerator program
-Selected as speaker in VI Mobile e-commerce Madrid

- **CTO // Digital Product Manager @aiwannapay.com**
aiwanna
Sep 2019 – Present · 2 yrs 4 mos
The most complete SaaS solution for HORECA channel. Scan, order and pay from your smartphone.
Artificial Intelligence for Small and Medium enterprises. Developing AI algorithms and display augmented analytics. Reduce your costs, increase sales and automate your repetitive tasks

- **Senior Consultant**
straiqr.ai GmbH · Part-time
Jun 2021 – Present · 7 mos
Straiqr is a German company that is changing fashion rules through Metaverse, nft's, digital fashion & AI
We create digital fashion for the digital generation. We believe in a world where digital garment and clothing design is authentic and true to you. STRAIQR Intelligent Shopping is ready - now - in an easy to navigate store, where accurate delivery and sustainability is a consideration at every step of the way.

- **Teacher // Machine Learning and AI consulting and for MÁSTER EN DATA ANALYTICS & MASTER FINANZAS**
EDEM Escuela de Empresarios
Apr 2019 – Present · 2 yrs 9 mos
Valencia y alrededores, España
-Coordinating AI and ML contents , team building
-Machine Learning and Deep Learning teacher:
-Master Data Analytics
-Master Finanzas
-EMBA Executive
-Webinar " IA aplicada a pymes"
-Online

- **Data scientist // CEO & co-founder**
tailor
Jul 2017 – Sep 2019 · 2 yrs 3 mos
Valencia, Spain
Our mission is to improve the online shopping experience in fashion industry.
Tailored by Big Data is a Spanish Startup born in Valencia which is researching in AI.
Developing algorithms for fashion and trend industry. Our project has been developed under Garaje de Lanzadera incubator program & Órbita accelerator program
<https://lanzadera.es/>
<http://www.programaorbita.com>
<http://www.tailoredbybigdata.com>
Deep Learning - Machine Learning - Computer vision



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-GLIDE

-VQGAN + CLIP

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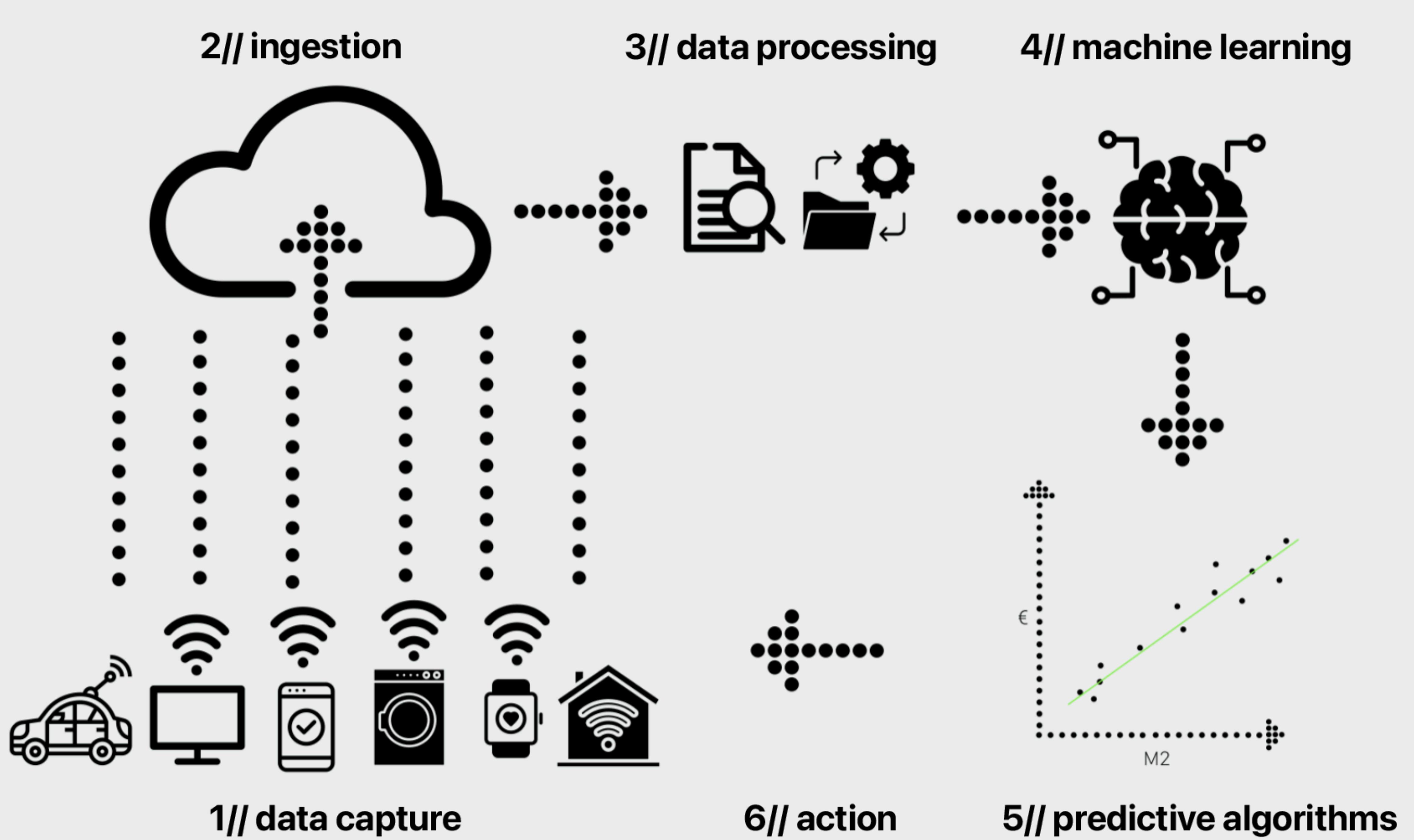
05// Big Data.....51

Workshop#3: Teachable machine

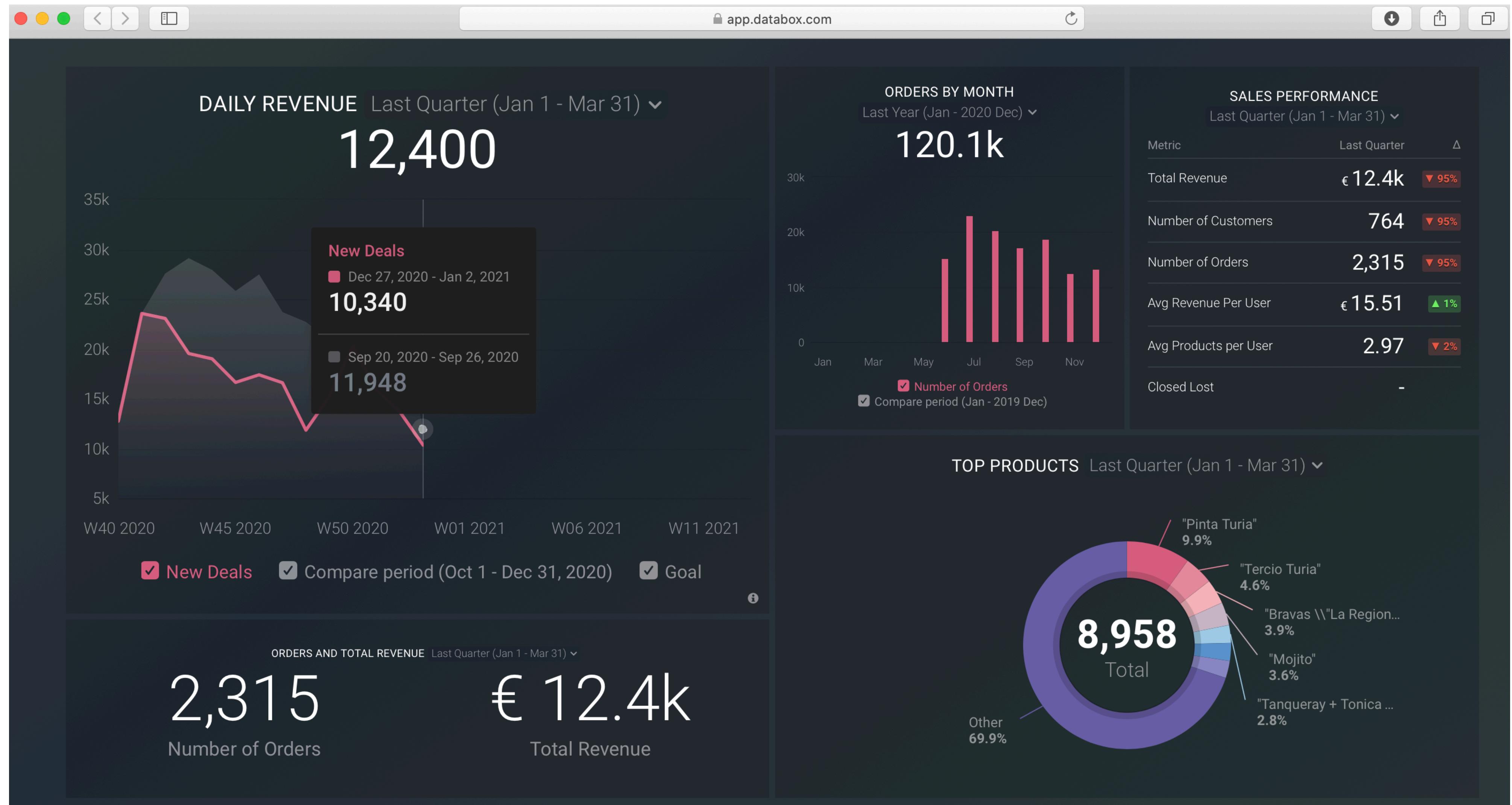
Artificial Intelligence

Inteligencia artificial





01 // DATA DRIVEN



Machine learning. We adjust mathematical functions that are capable of explaining the behavior of big data.

Deep learning. We simulate an artificial neural network where each group of neurons, which are distributed in layers, progressively learns patterns hidden in historical data.



An **algorithm** is nothing more than a sequence of instructions to execute functions sequentially

Ingredients

- 2 cups red lentils
- 6 cups water
- 1 bell pepper, chopped
- 1 red onion, chopped
- 1 teaspoon ginger, minced
- 3 garlic cloves, minced
- juice 1/2 lemon
- 1 tsp turmeric
- 1 tsp curry powder
- 1 tsp cumin
- 1 pinch cayenne pepper

Instructions

1. Place all your ingredients in a large pot and bring to a boil on the stove.
2. Once boiling cover and reduce heat to low.
3. Simmer for 30 minutes or until the dal has thickened.
4. Serve with brown rice and a sprinkle of cilantro on top.

Instant Pot Instructions

1. Place all your ingredients in the instant pot, turn the vent to sealed and cook on manual for 18 minutes.
2. Once it is finished cooking, let it naturally release for 10-15 minutes.
3. Move the steam release handle to venting to release the remaining steam.
4. Serve with brown rice and a sprinkle of cilantro on top.



SIZZLING SEARED SCALLOPS

SERVES 2 | TOTAL 18 MINUTES

400g potatoes

200g frozen peas

½ a bunch of fresh mint (15g)

6–8 raw king scallops, coral attached, trimmed

50g firm black pudding

Wash the potatoes, chop into 3cm chunks and cook in a pan of boiling salted water for 12 minutes, or until tender, adding the peas for the last 3 minutes. Meanwhile, pick and finely chop most of the mint leaves and put aside. Place a non-stick frying pan on a medium-high heat. Once hot, put 1 tablespoon of olive oil and the remaining mint leaves in to crisp up for 1 minute, then scoop the leaves on to a plate, leaving the oil behind. Season the scallops with sea salt and black pepper and fry for 2 minutes on each side, or until golden. Crumble in the black pudding (discarding the skin) so it crisps up alongside.

Drain the peas and potatoes, return to the pan, mash well with the chopped mint and 1 tablespoon of extra virgin olive oil, taste and season to perfection. Plate up with the scallops and black pudding, drizzle lightly with extra virgin olive oil, and sprinkle over the crispy mint.

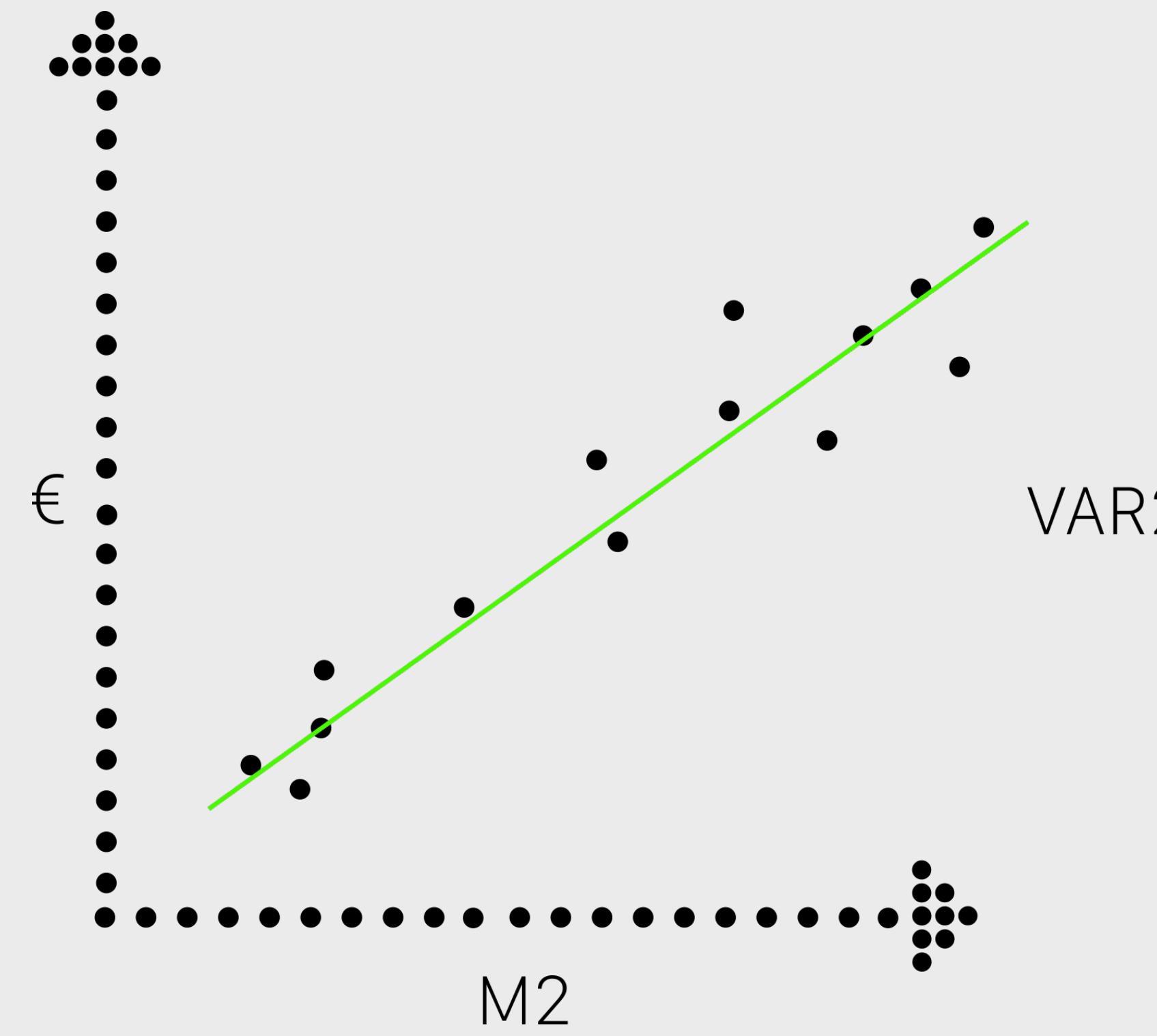
CALORIES	FAT	SAT. FAT	PROTEIN	CARBS	SUGAR	SALT	FIBRE
507kcal	23.6g	5g	27.4g	52g	3.6g	1.3g	7.9g



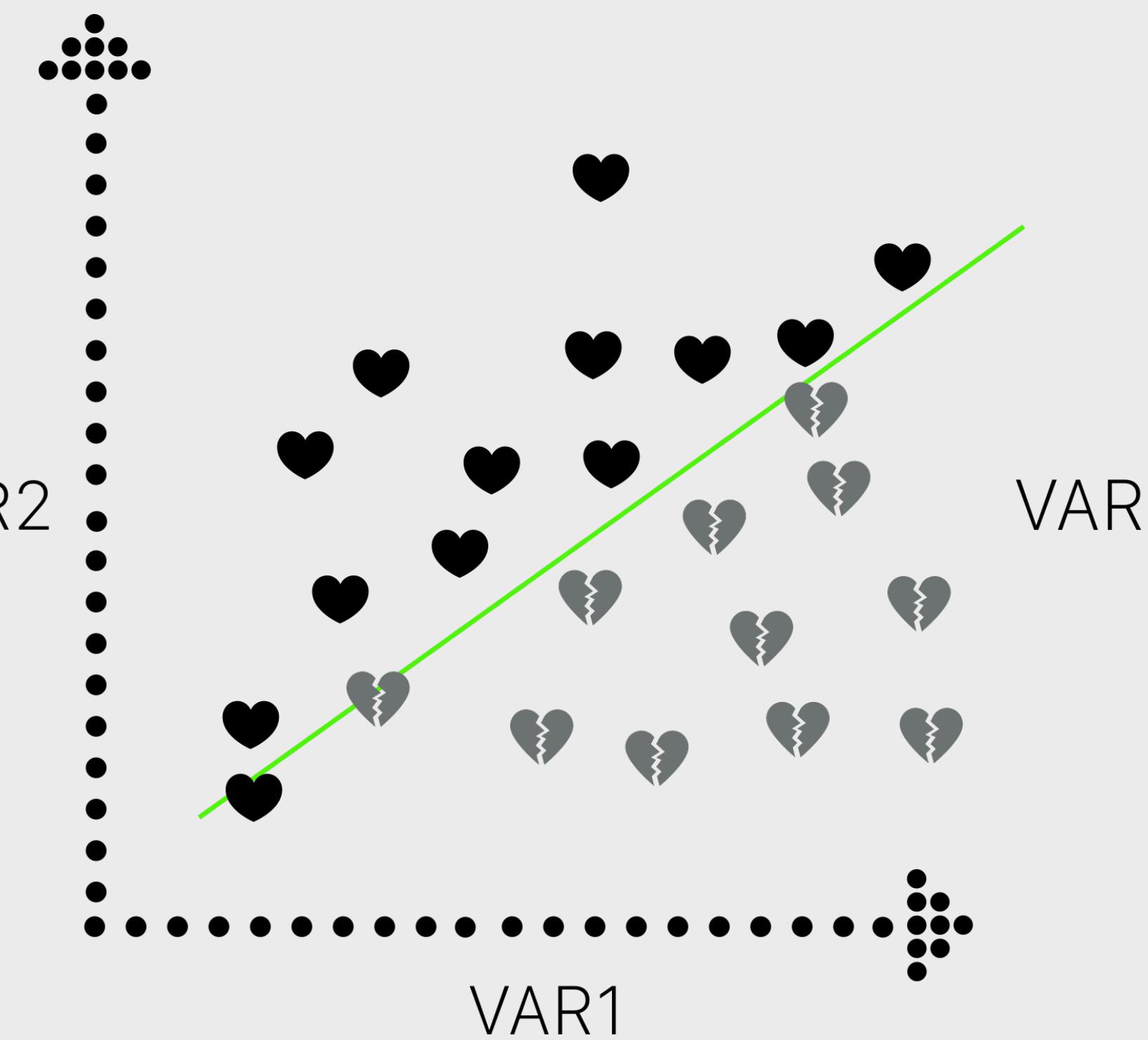
Machine learning and Deep learning algorithms "only" learn to do 3 things:



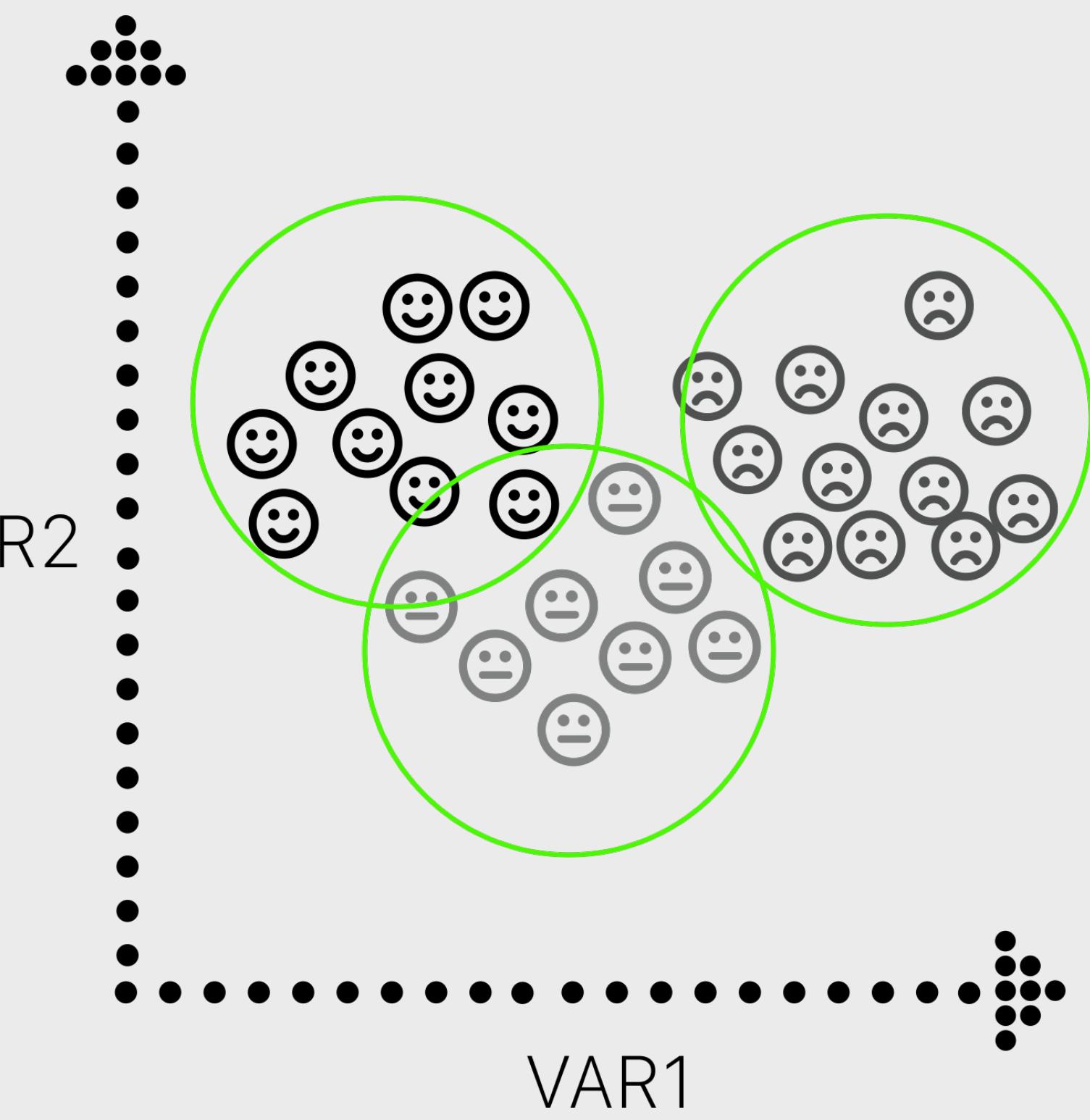
1 // Predict



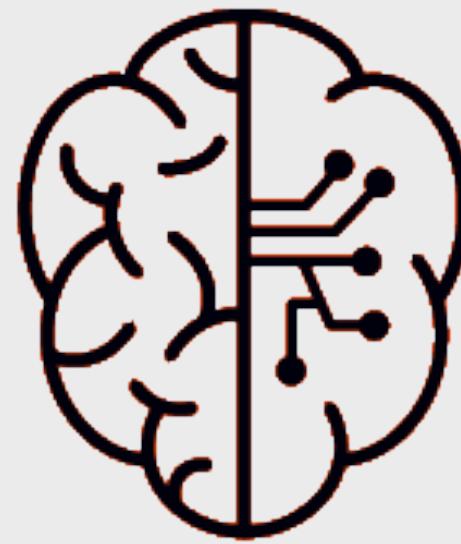
2 // Classify



3 // Group



2021, The big jump for artificial intelligence

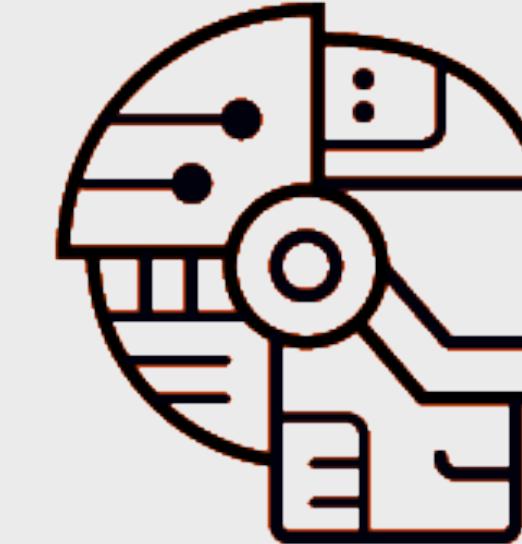


You are here



**ARTIFICIAL
NARROW INTELLIGENCE**

- Smartphone text prediction
- Audio classifiers
- automated translations
- chatbots
- face detector
- Time prediction
- and much more...



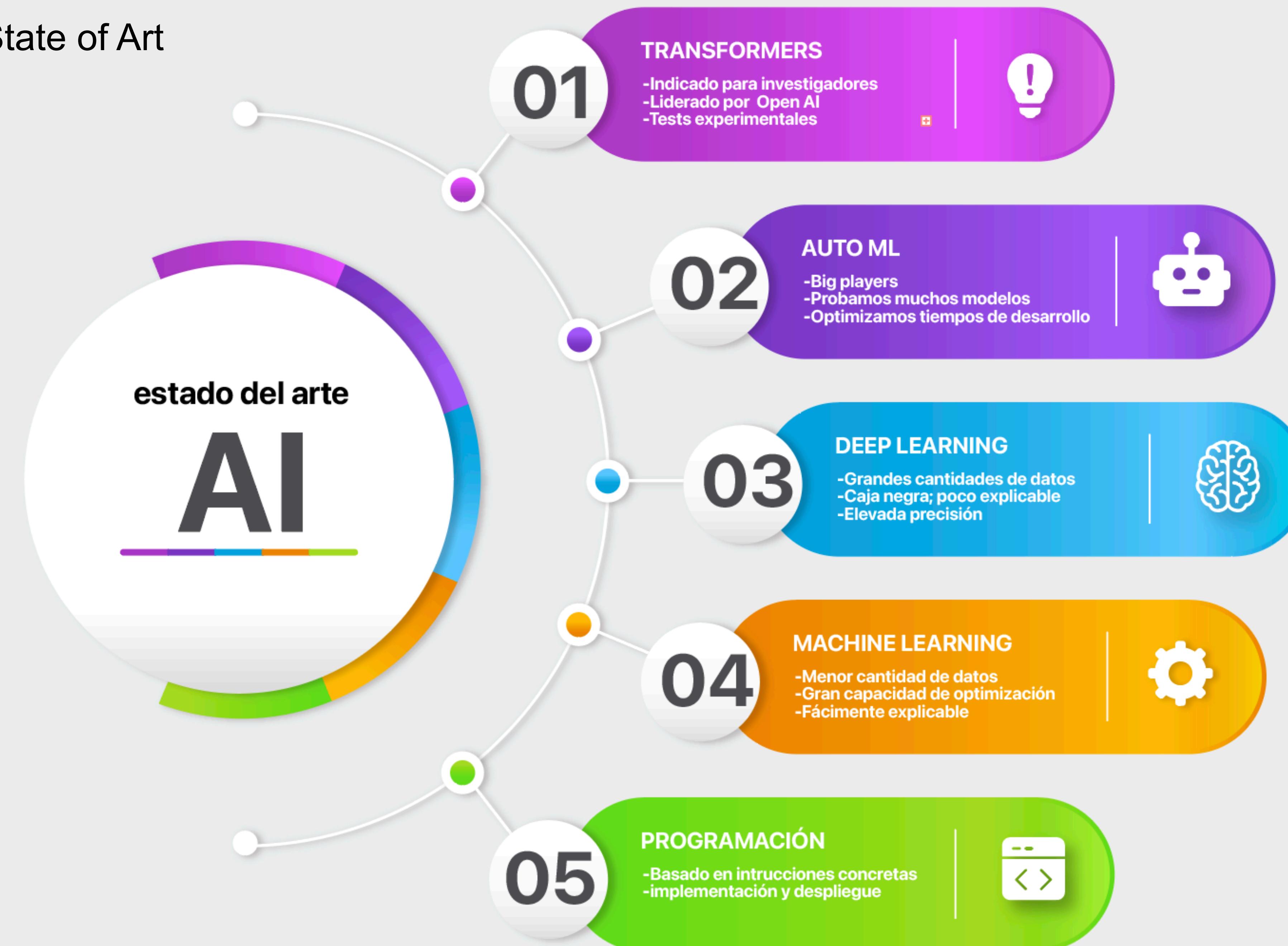
**ARTIFICIAL
GENERAL INTELLIGENCE**

Systems capable of awareness
Its own existence, therefore
comparable to human intelligence



**ARTIFICIAL
SUPER INTELLIGENCE**

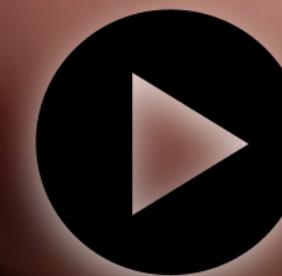
Systems that will improve human
intelligence due to potential
interconnectivity





AGI

ARTIFICIAL
GENERAL INTELLIGENCE



[Metahuman](#)



[Digital Deepak](#)

01 // TRANSFORMERS

AI 2018



Hair Salon



[Hair Salon Booking](#)

01 // TRANSFORMERS

AI 2021 GPT3

Input Prompt:

Recite the first law of robotics



GPT-3



Output:

01 // TRANSFORMERS

Text: Second Law of Robotics: A robot must obey the orders given it by human beings



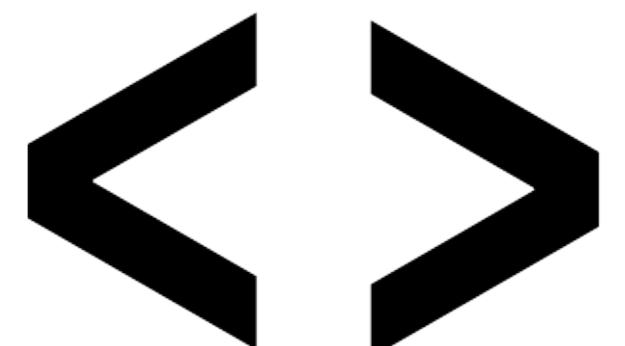
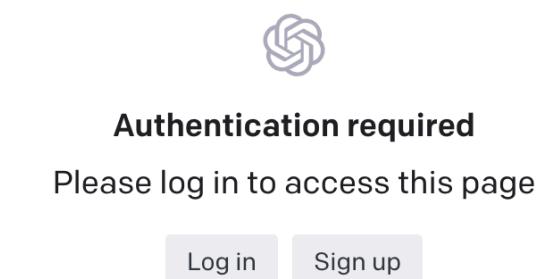
Generated training examples

Example #	Input (features)	Correct output (labels)
1	Second law of robotics : a	a
2	Second law of robotics : a robot	robot
3	Second law of robotics : a robot must	must
...		

GPT3 // playground

The most advanced chatbot in the world

On November 18, 2021, OpenAI announced the broadened availability of its OpenAI API service, which enables developers to build applications based on GPT-3. Previously, developers had to sign up for a waitlist, and the availability was limited.



[Sign up GPT3 Playground](#)

GPT3 // playground



Create your account

Email address

Password



Continue

Already have an account? [Log in](#)

OR



Continue with Google



Continue with Microsoft Account

GPT3 // playground

[Overview](#)[Documentation](#)[Examples](#)[Playground](#) [Upgrade](#) [Help](#)[Personal](#)**ORGANIZATION** [Personal](#) [Settings](#)[Usage](#)[Members](#)[Billing](#)**USER**[API Keys](#)

API keys

Your secret API keys are shown below. Do not share your API key with others, or expose it in the browser or other client-side code. In order to protect the security of your account, OpenAI may also automatically rotate any API key that we've found has leaked publicly.

SECRET KEY	CREATED	LAST USED
sk-...R12e Reveal Copy	6 ene 2022	Never

[+ Create new secret key](#)

Default organization

If you belong to multiple organizations, this setting controls which organization is used by default when making requests with the API keys above.

Personal

Note: You can also specify which organization to use for each API request. See [Authentication](#) to learn more.

GPT3 // playground

Workshop #1 Let's try GPT3

The screenshot shows the GPT3 playground interface. At the top, there is a navigation bar with links for Overview, Documentation, Examples, and Playground. On the far right of the navigation bar are Upgrade, Help, and Personal buttons. Below the navigation bar, there is a "Get started" sidebar on the left containing instructions and a "KEEP IN MIND" section with three items. The main area is titled "Playground" and contains a text input field with placeholder text "Enter text and submit (⌘ Enter) to get a completion." To the right of the text input are several configuration sliders and dropdowns: Engine (set to davinci), Temperature (0.7), Response length (64), Stop sequences (input field), Top P (1), Frequency penalty (0), Presence penalty (0), Best of (1), and Inject start text (input field). At the bottom of the playground area are three buttons: "Generate", "↻", and "⟳".

Get started ×

Playground

Load a preset... Save View code Share ...

Engine

davinci

Temperature 0.7

Response length 64

Stop sequences
Enter sequence and press Tab

Top P 1

Frequency penalty 0

Presence penalty 0

Best of 1

Inject start text

Generate ↻ ⟳

01 // TRANSFORMERS



[Teacher: Elon Musk](#)



[Code writer](#)



[Keras no code](#)



[Sql querys](#)

01 // TRANSFORMERS

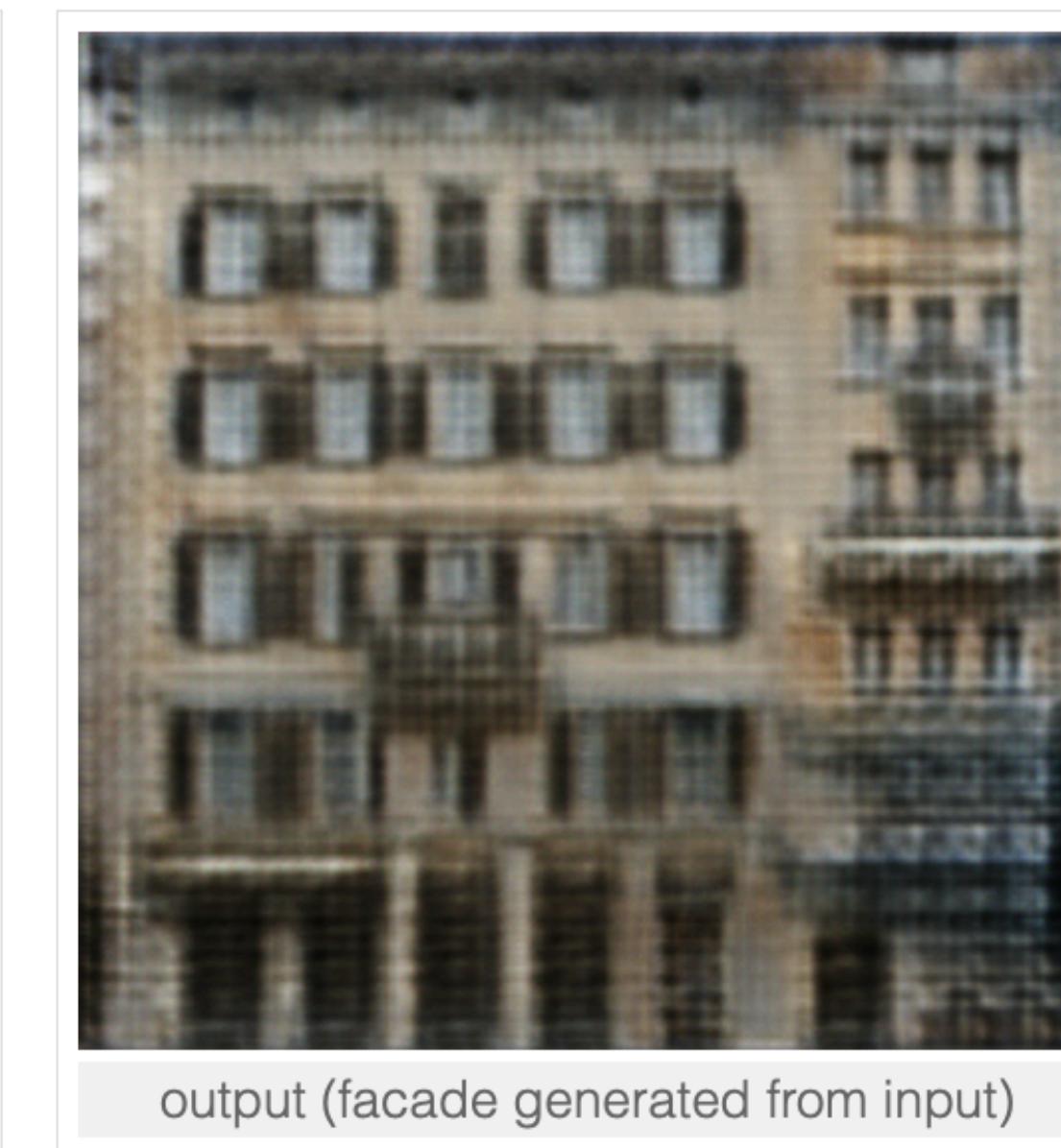
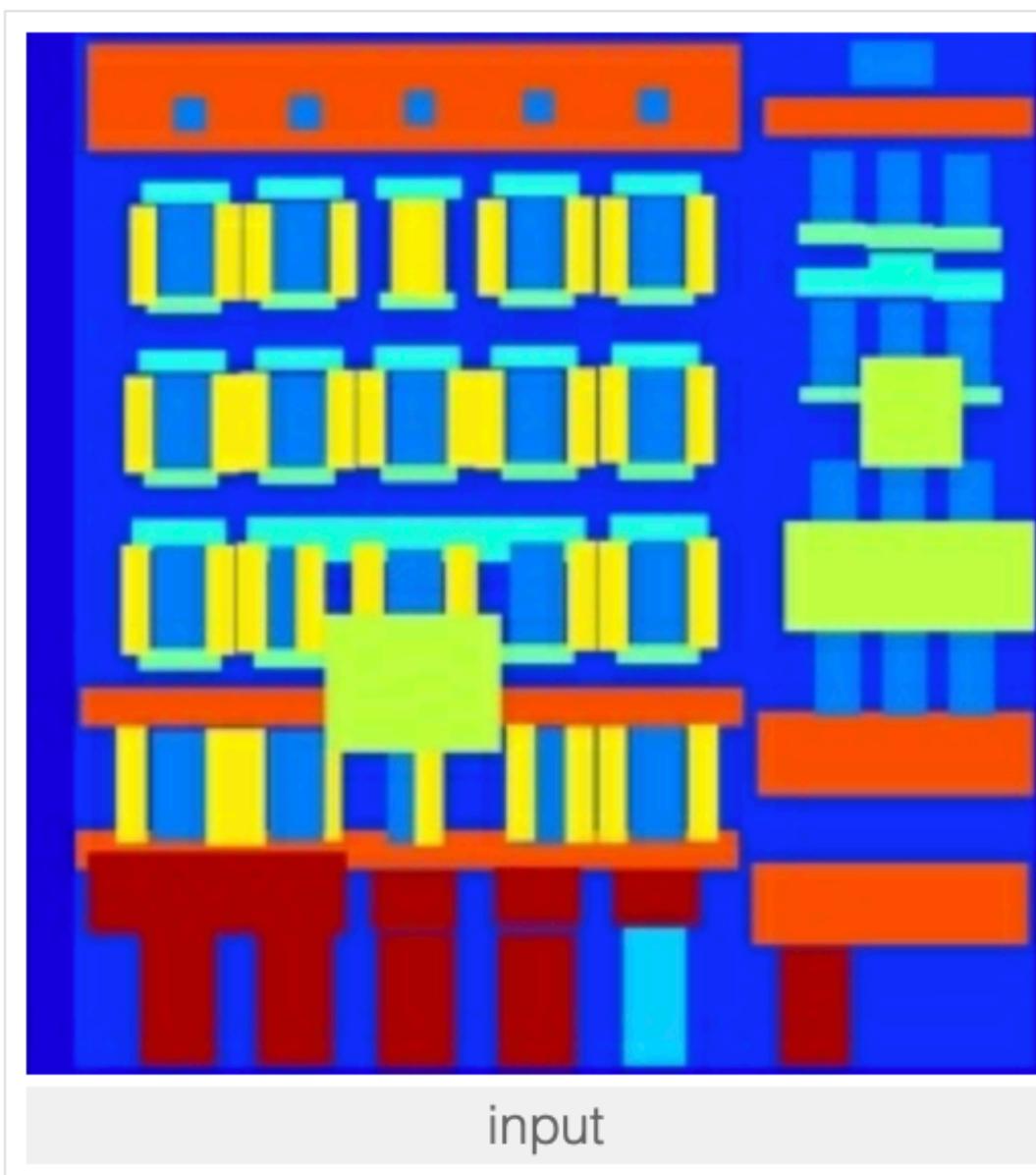


A neural network called DALL · E that creates images from text for a wide range of concepts that can be expressed in natural language.

01 // TRANSFORMERS

What pix2pix algorithm does?

pix2pix is short for an implementation of a generic image-to-image translation using conditional adverse networks, originally introduced by Phillip Isola et al. Given a training set containing pairs of related images ("A" and "B"), a pix2pix model learns how to convert an image of type "A" to an image of type "B", or vice versa.



01 // TRANSFORMERS

Multimodal AI

1 //Seeks to make a better association between visual concepts and textual concepts.

2//It uses a version of GPT-3 with **12 billion parameters**. This allows you to create different versions of what is asked of you with astonishing precision on many occasions.

3 //What is really interesting and novel here is that it is capable of generating images of concepts that exist and others that do not exist either.

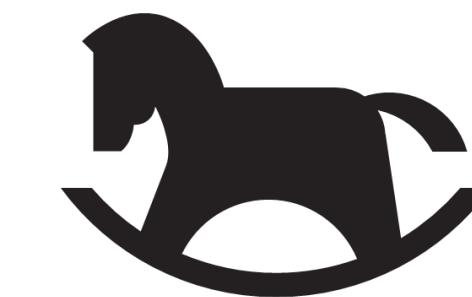
01 // TRANSFORMERS

This gigantic neural network of 12 billion parameters takes a text capture (ie "an armchair in the shape of an avocado") and generates images to match it:



01 // TRANSFORMERS

“a snail made of a harp.”:



[Let's play with Dall-E](#)

GLIDE // Intro

AI 2022

OpenAI researchers this week presented GLIDE (Guided Language-to-Image Diffusion for Generation and Editing), a diffusion model that achieves performance competitive with DALL-E while using less than one-third of the parameters.

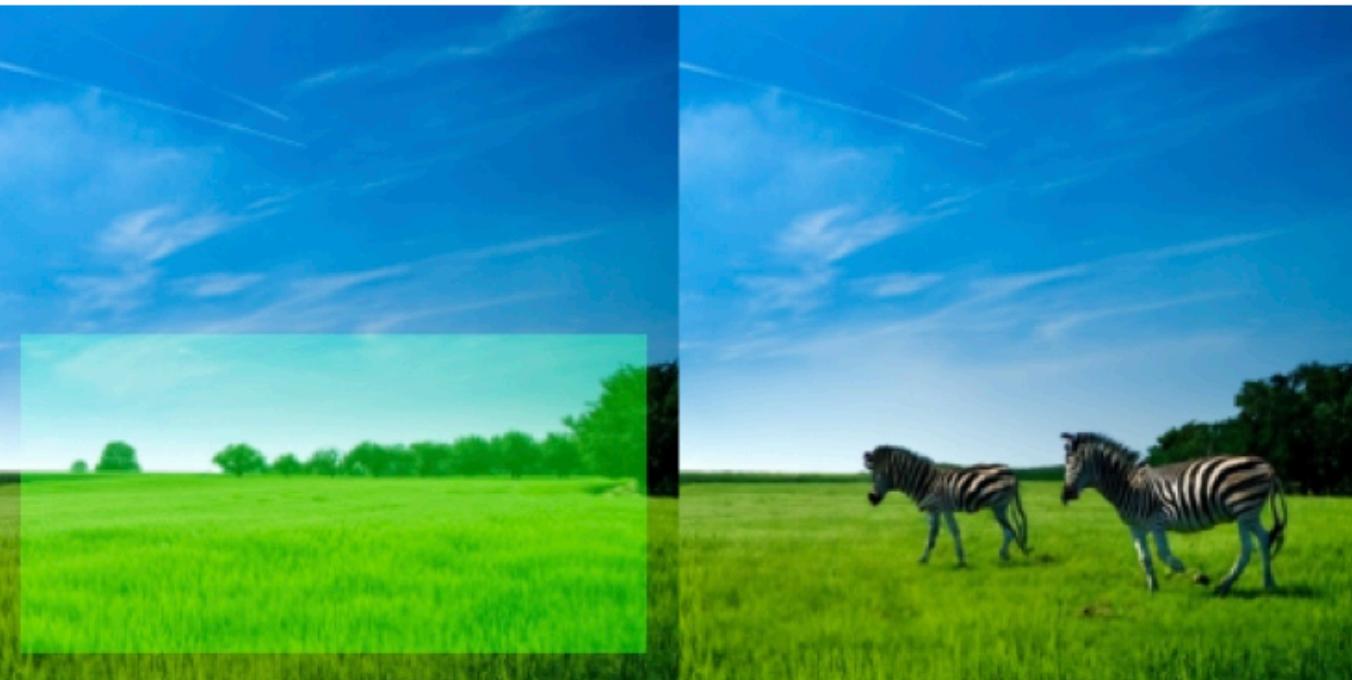


GLIDE // Intro

GLIDE produced high-quality images with realistic shadows, reflections, and textures. The model can also combine multiple concepts (for example, corgis, bow ties, and birthday hats) while binding attributes such as colours to these objects.

Tech innovator [OpenAI](#) has decided to say goodbye to 2021 with a bang with the release of GLIDE (Guided Language to Image Diffusion for Generation and Editing), a new 3.5 billion parameter text-to-image generation model that is even better than [DALL-E](#). At the beginning of 2021, it released DALL-E, a 12-billion parameter version of [GPT-3](#) trained to generate images from text descriptions using a dataset of text-image pairs.

For GLIDE, it has trained a smaller model on a filtered dataset and released the code and [weights](#).



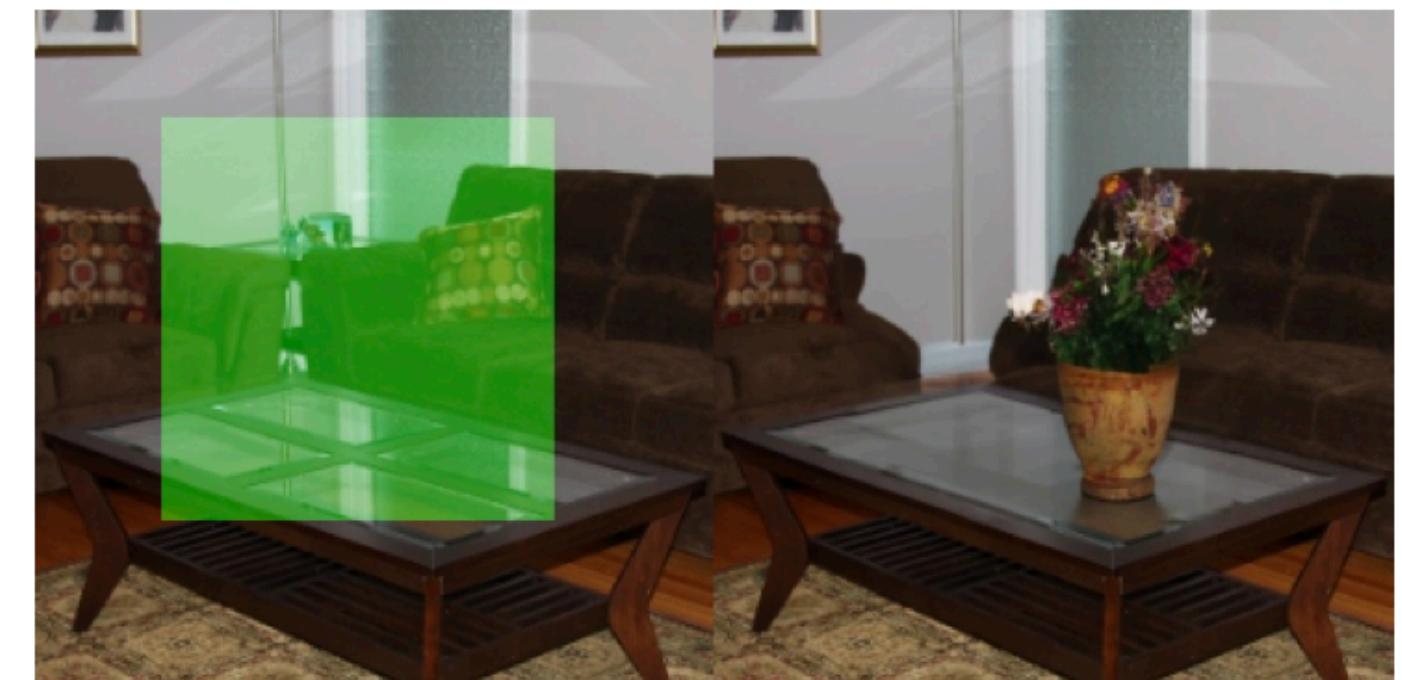
"zebras roaming in the field"



"a girl hugging a corgi on a pedestal"



"a man with red hair"



"a vase of flowers"

GLIDE // text to image



“a hedgehog using a calculator”



“a corgi wearing a red bowtie and a purple party hat”



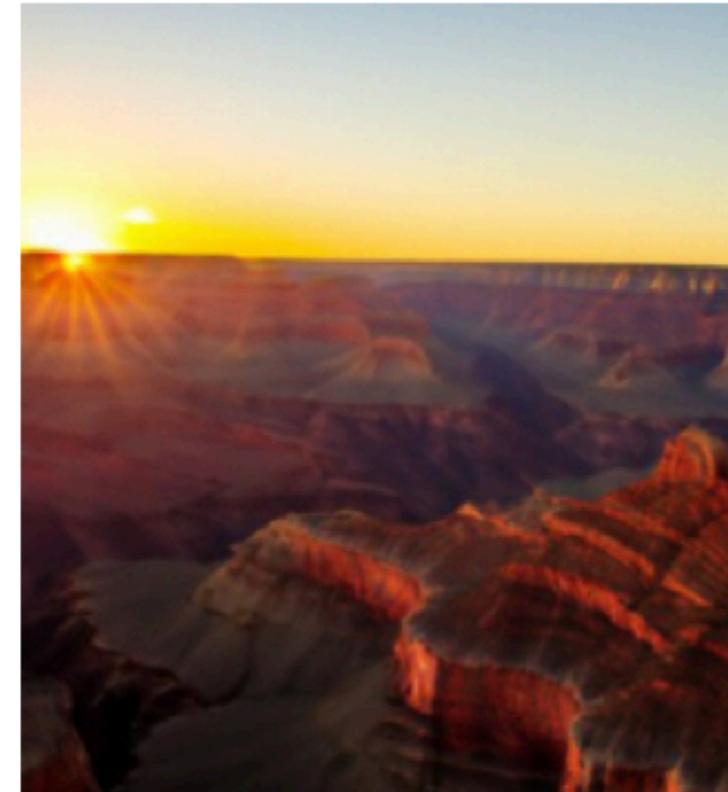
“robots meditating in a vipassana retreat”



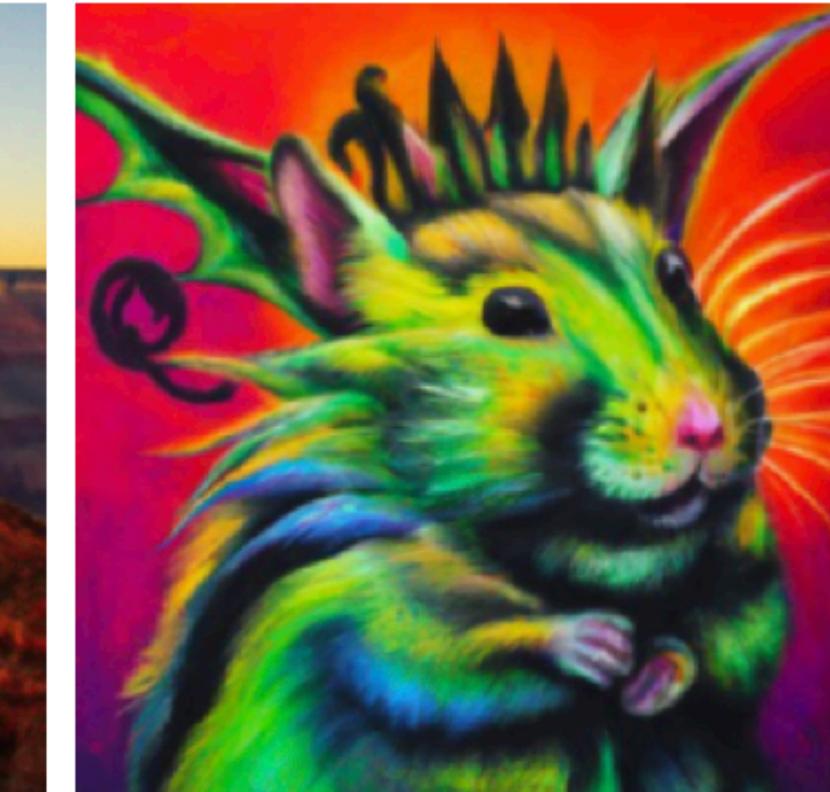
“a fall landscape with a small cottage next to a lake”



“a surrealist dream-like oil painting by salvador dali of a cat playing checkers”



“a professional photo of a sunset behind the grand canyon”

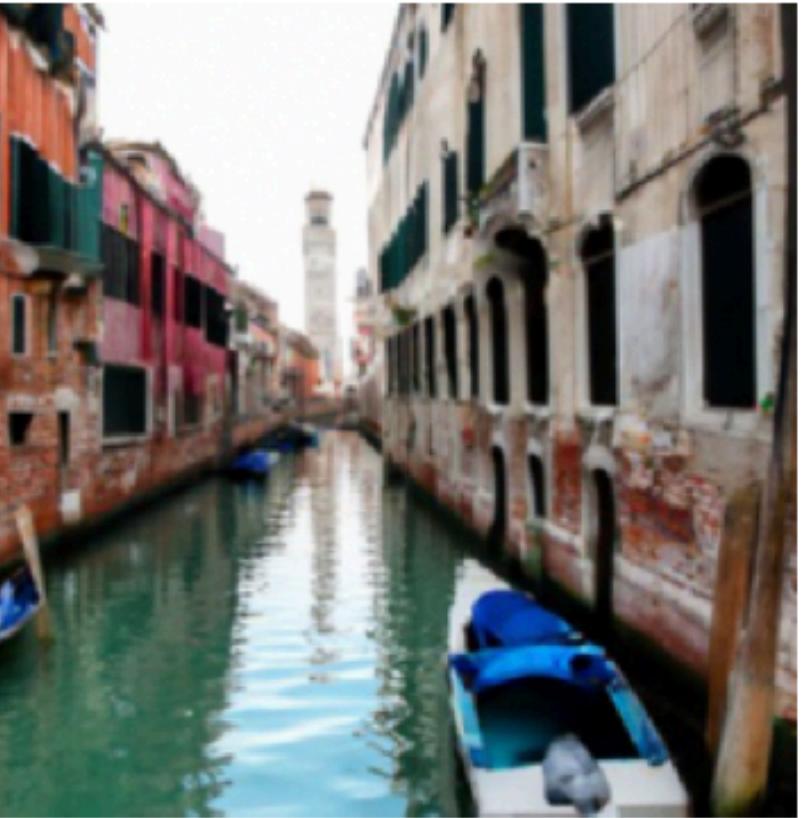


“a high-quality oil painting of a psychedelic hamster dragon”



“an illustration of albert einstein wearing a superhero costume”

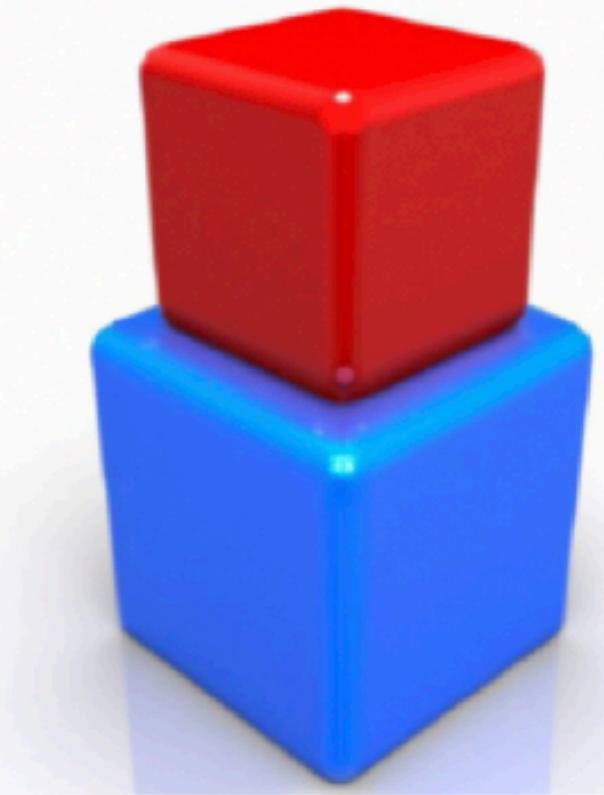
GLIDE // playground



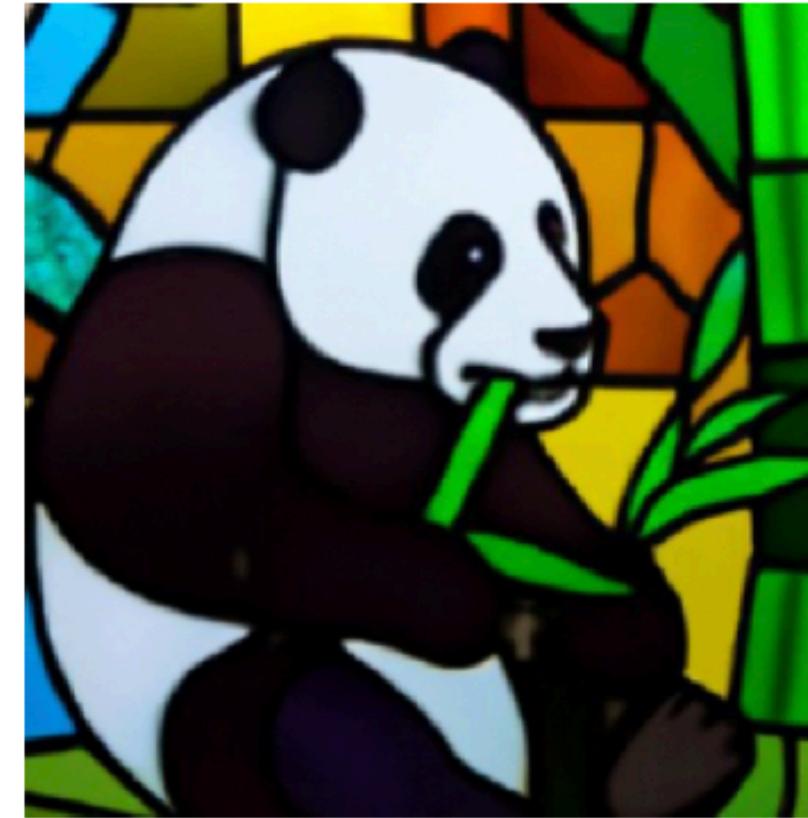
“a boat in the canals of venice”



“a painting of a fox in the style of starry night”



“a red cube on top of a blue cube”



“a stained glass window of a panda eating bamboo”



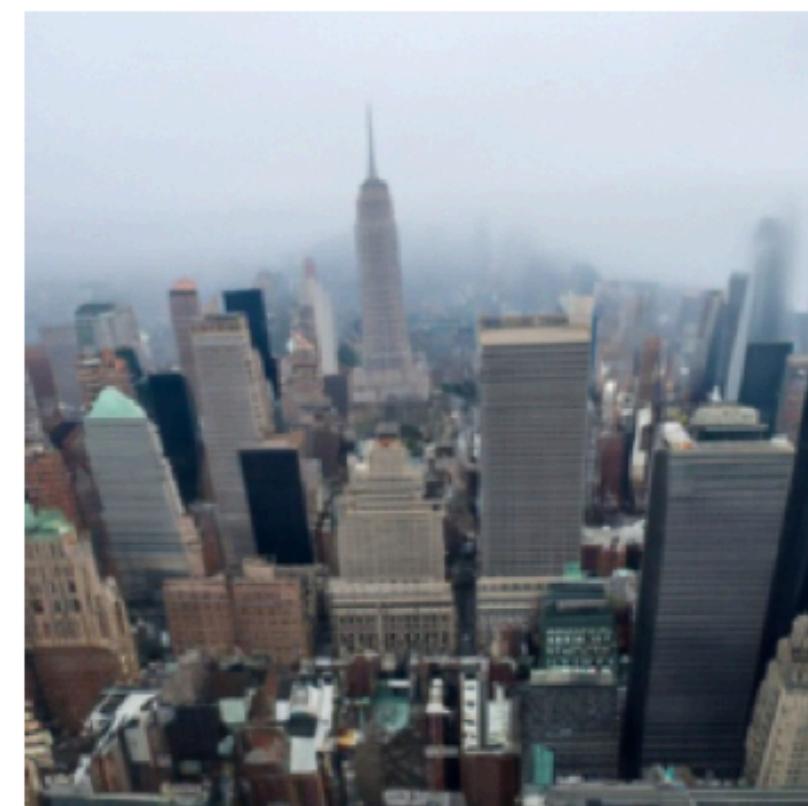
“a crayon drawing of a space elevator”



“a futuristic city in synthwave style”



“a pixel art corgi pizza”

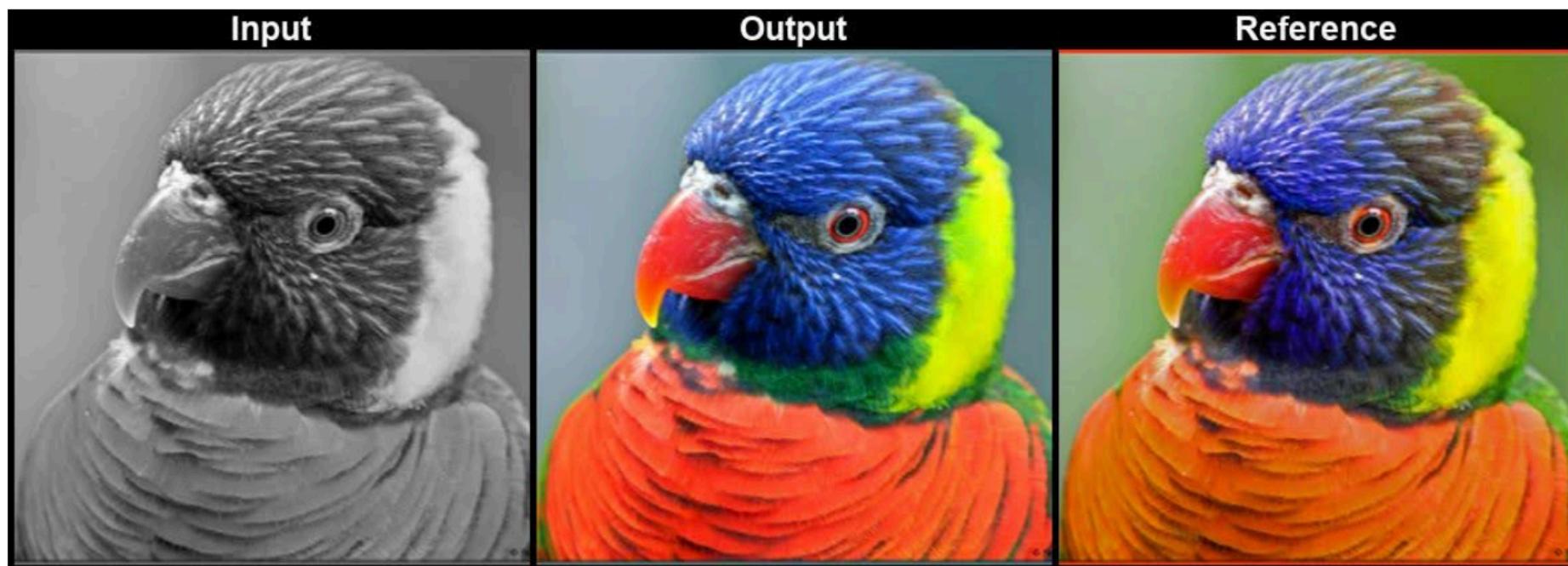


“a fog rolling into new york”

GLIDE // playground

What can GLIDE do for us?

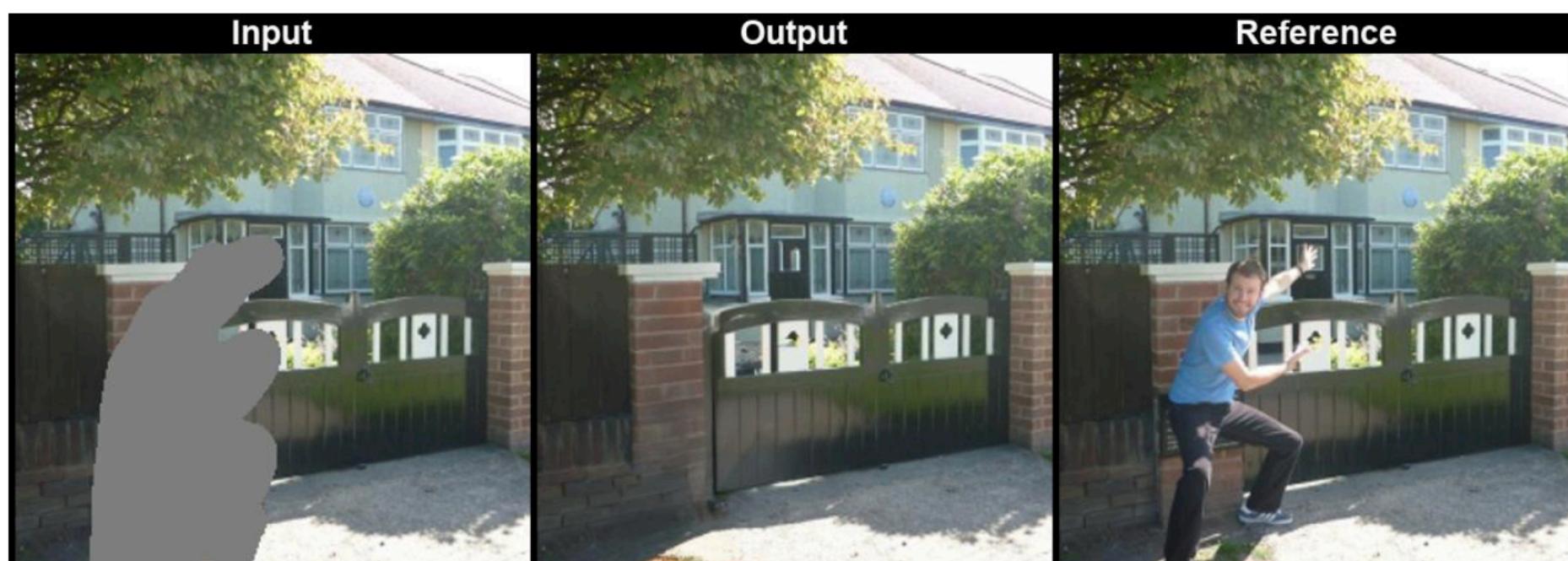
Colorization



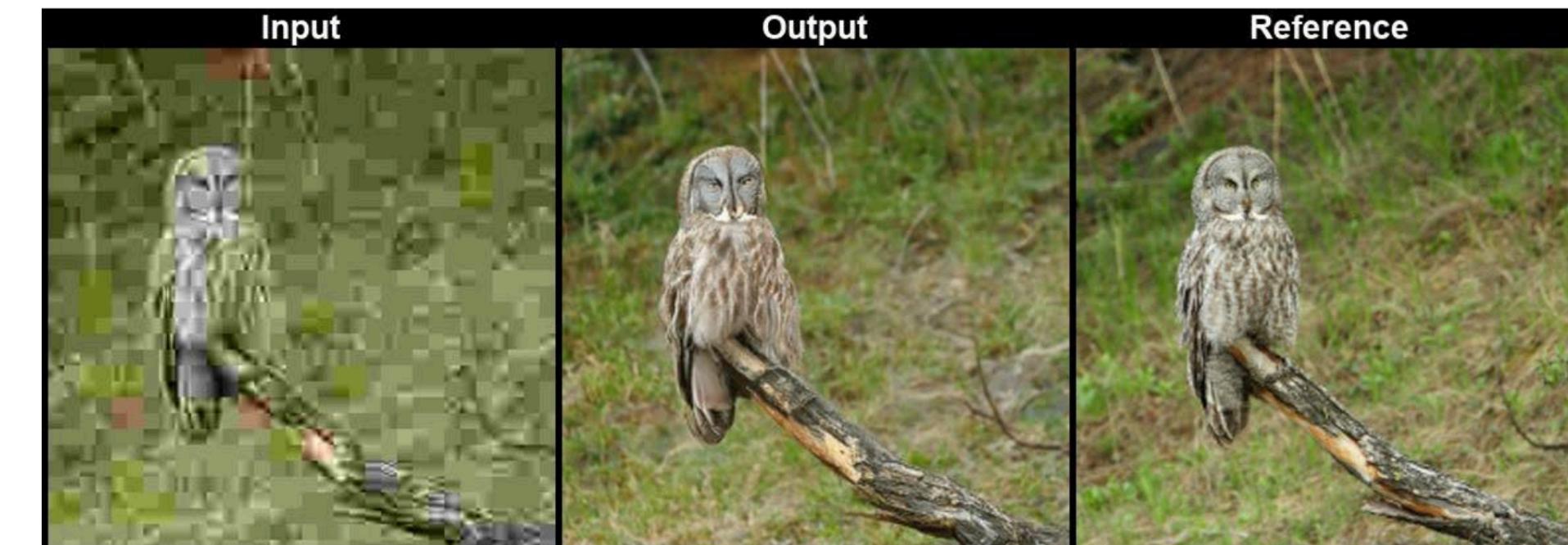
Uncropping



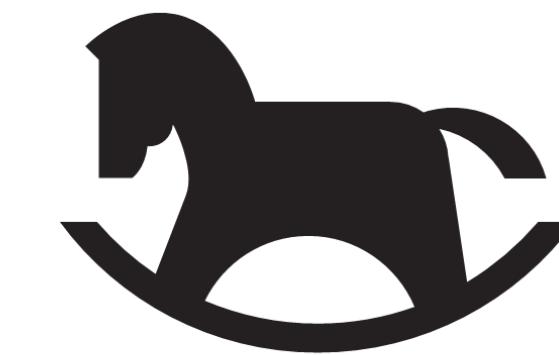
Inpainting



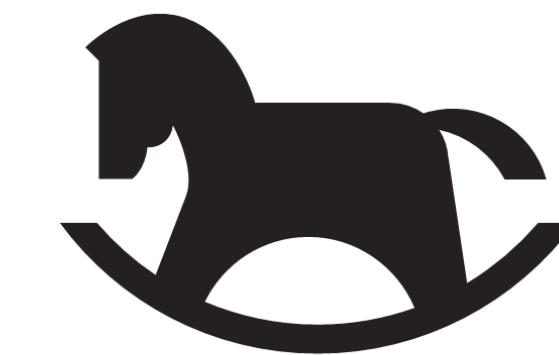
JPEG Restoration



GLIDE // playground



[Inpainting Clean up pictures](#)



[Inpainting Nvidia](#)

VQGAN + CLIP //

AI that creates NFT's



VQGAN + CLIP //

The synthetic imagery (“GAN Art”) scene has recently seen a kind of productivity explosion: A new kind of neural network architecture capable of generating images from text was quickly popularized through a freely available Google Colab notebook. It enabled thousands of people to create stunning/fantastic/magical images, just by inputting a text prompt. Twitter, Reddit and other forums were flooded by these images, often accompanied with the hashtags [#vqgan](#) or [#clip](#)

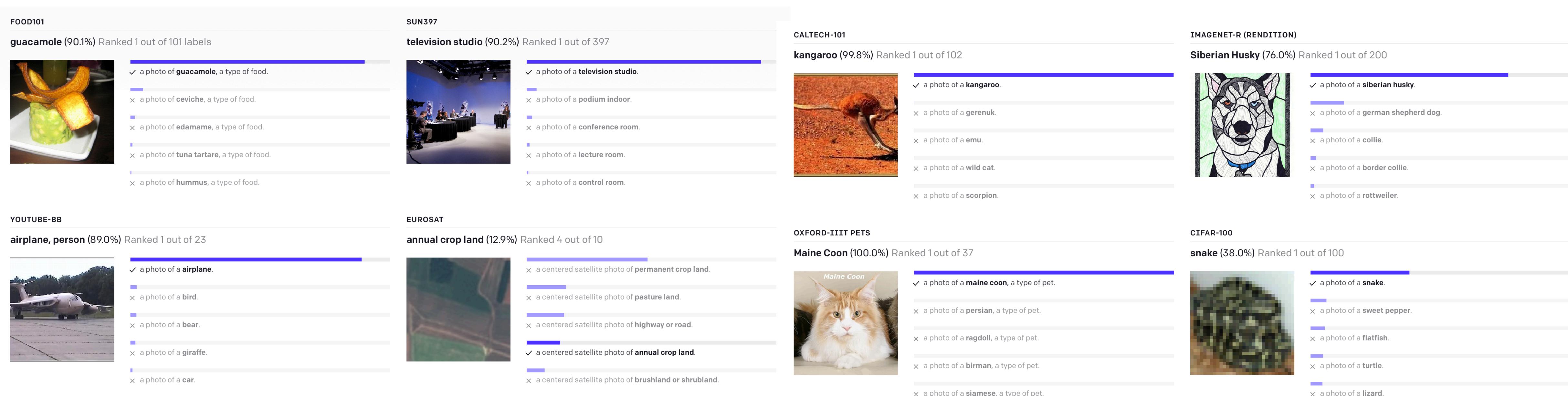
The text-to-image paradigm that VQGAN+CLIP popularized certainly opens up new ways to create synthetic media and maybe even democratizes “creativity”, by shifting the skillset from (graphical) execution or algorithmic instruction (programming) to nifty “prompt engineering”.



VQGAN + CLIP //

CLIP: Connecting Text and Images

We're introducing a neural network called CLIP which efficiently learns visual concepts from natural language supervision. CLIP can be applied to any visual classification benchmark by simply providing the names of the visual categories to be recognized, similar to the "zero-shot" capabilities of GPT-2 and GPT-3.



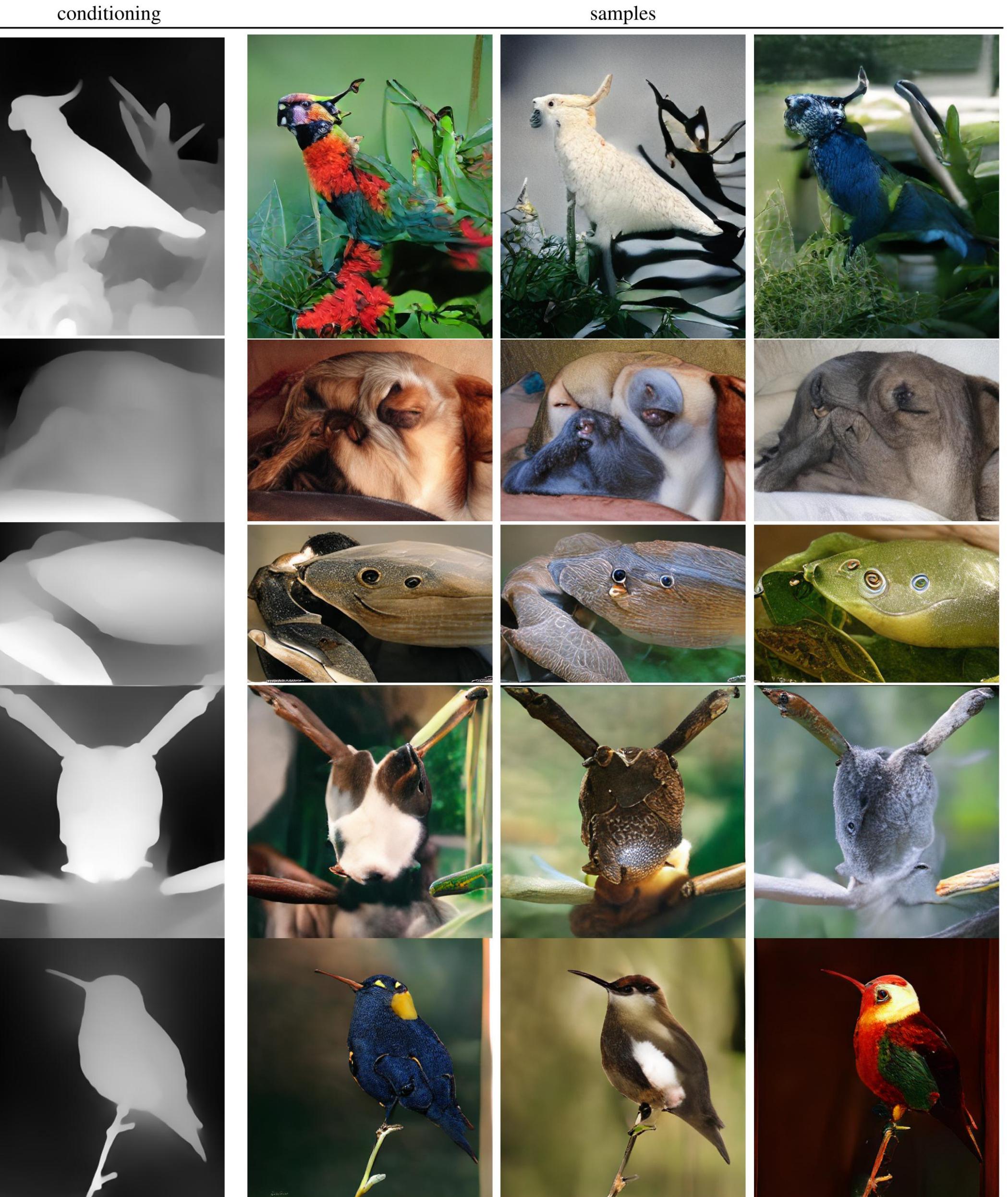
VQGAN + CLIP //

VQGAN, Vector Quantized Generative Adversarial Network

It combines convolutional neural networks (traditionally used for images) with Transformers (traditionally used for language)

VQGAN can learn not only the visual parts of an image, but also their relationships.

a type of neural network architecture



VQGAN + CLIP //

-First things first: VQGAN stands for Vector Quantized Generative Adversarial Network, while CLIP stands for Contrastive Image-Language Pretraining.

Whenever we say VQGAN-CLIP¹, we refer to the interaction between these two networks. **They're separate models that work in tandem.**

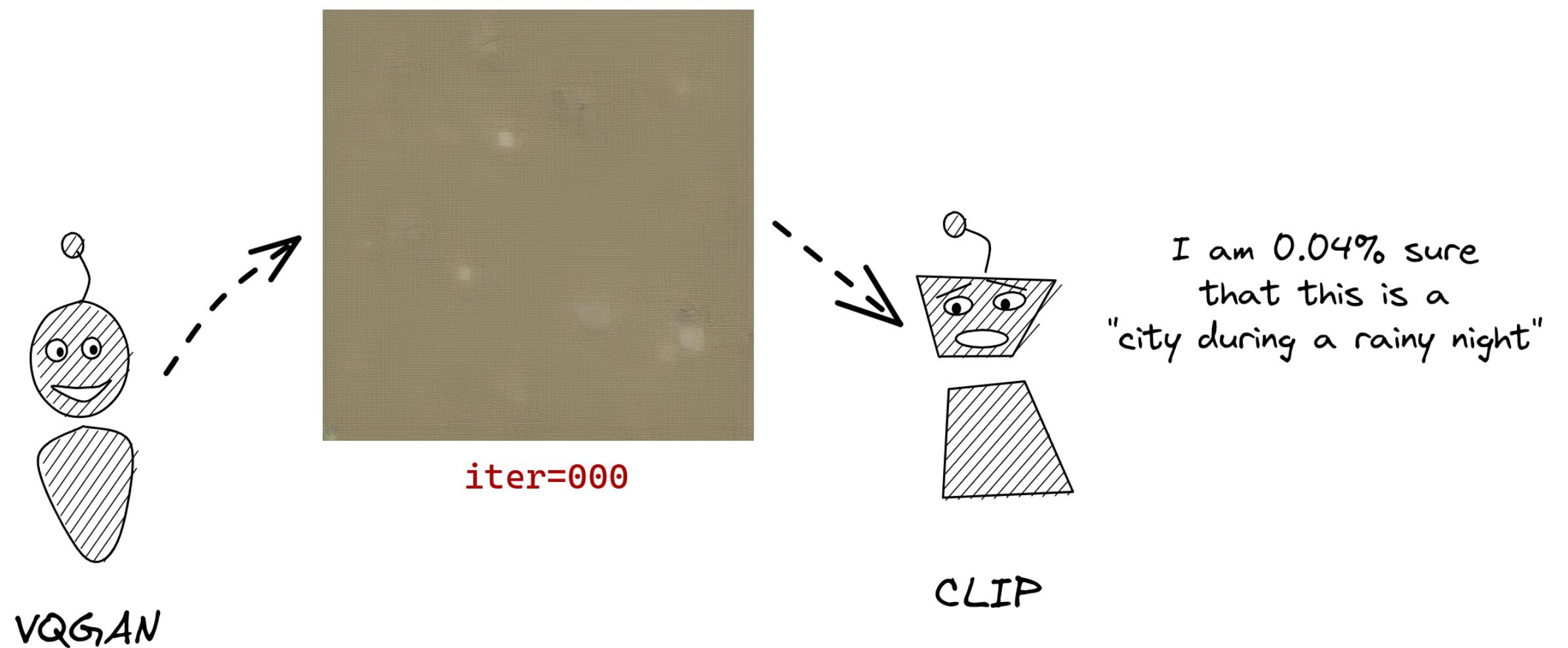
-In essence, the way they work is that VQGAN generates the images, while CLIP judges how well an image matches our text prompt.

This interaction guides our generator to produce **more accurate images**

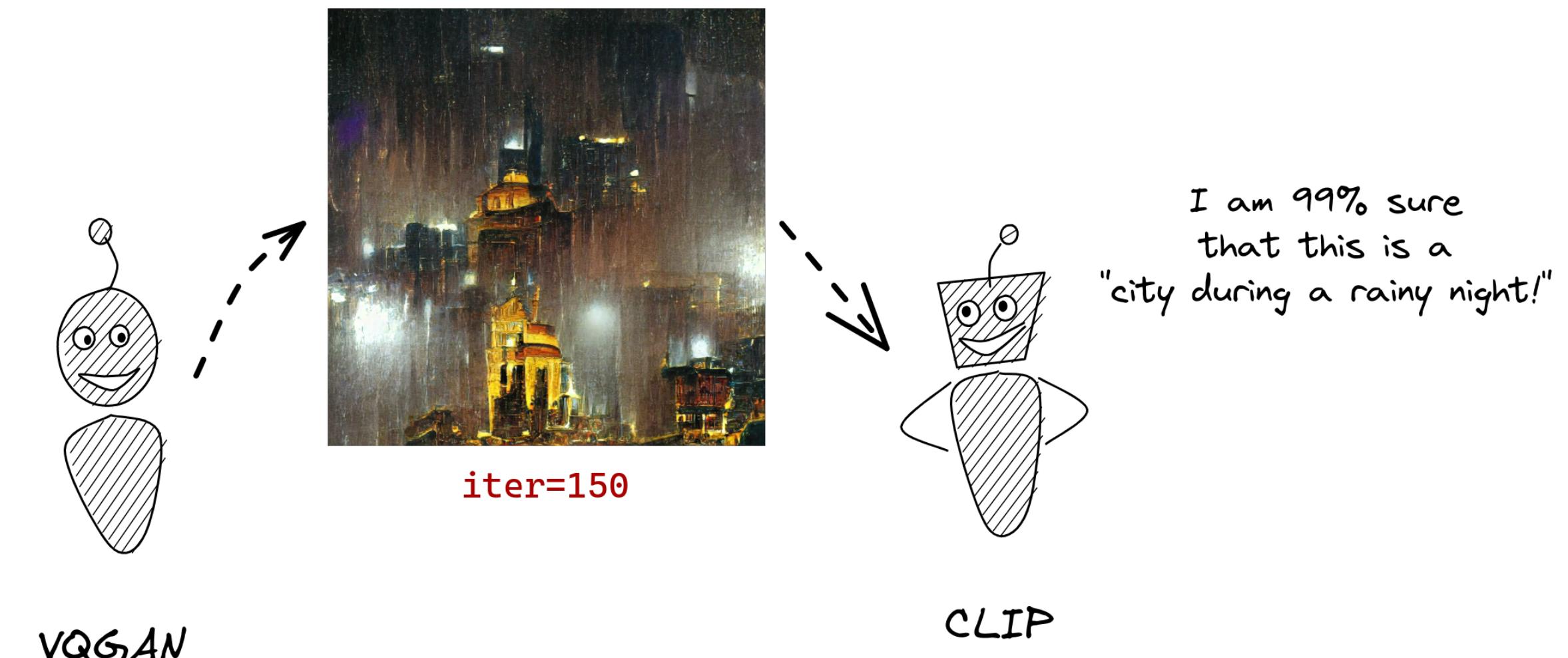
-The VQGAN model generates images while CLIP guides the process.

-This is done ~~throughout many iterations~~ until the generator learns to

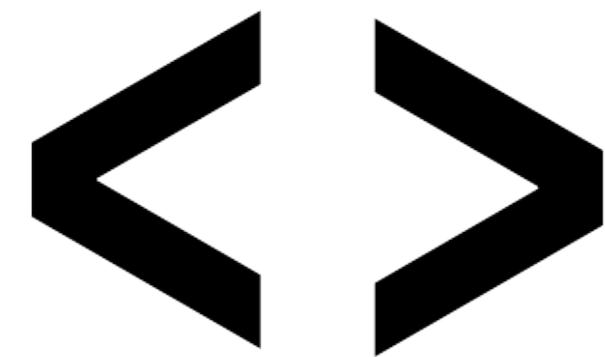
Prompt: "city during a rainy night"



After a few iterations...



VQGAN + CLIP //



Let's make some
magic



Wombo Art

02// AUTO ML



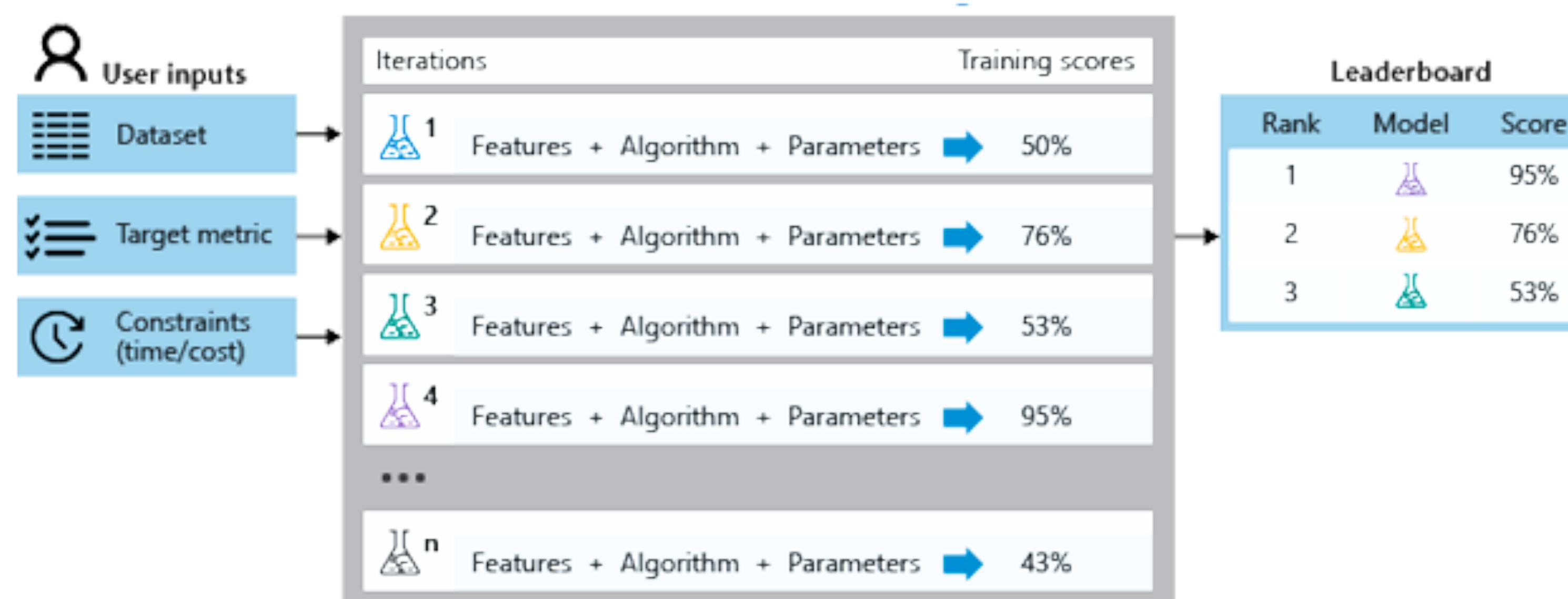
02// AUTO ML

*“One of the holy grails of machine learning is **to automate more and more of the feature engineering process.**” — Pedro Domingos*

*“AutoML frameworks and services **eliminate the need for skilled data scientists** to build machine learning and deep learning models”*

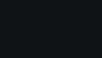
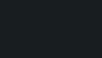
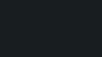
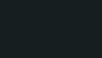
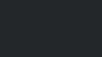
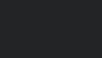
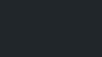
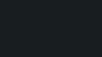
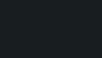
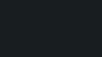
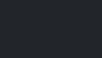
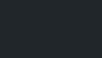
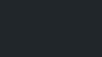
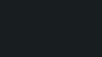
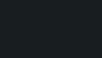
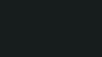
02// AUTO ML

- It improves the efficiency **by automating the most repetitive tasks**. This allows the data scientists to devote more time on the problems rather than on the models.



[Leaderboard](#) [Learning Curves](#) [Speed vs Accuracy](#) [Model Comparison](#)
☰ [Menu](#) [Search](#) [+ Add New Model](#) [Filter Models](#) [Export](#)

 Metric [LogLoss](#) ▾

<input type="checkbox"/> Model Name & Description	Feature List & Sample Size 	Validation	Holdout
XG Boost eXtreme Gradient Boosted Trees Classifier with Early Stopping Single Column Converter SqueezeNet Image Pretrained Featurizer eXtreme Gradient Boosted Trees Classifier with Early Stopping M15 BP2 * 40.68% 	Informative Features  85.0 % 	0.1334	
XG Boost eXtreme Gradient Boosted Trees Classifier with Early Stopping Single Column Converter SqueezeNet Image Pretrained Featurizer eXtreme Gradient Boosted Trees Classifier with Early Stopping M9 BP2 	Informative Features  40.68 % 	0.1322	
AVG Blender M19 M11+9+10	Informative Features  40.68 % 	0.1476	
TensorFlow Deep Learning Classifier Single Column Converter SqueezeNet Image Pretrained Featurizer Standardize TensorFlow Deep Learning Classifier Calibrate predictions: Platt M10 BP3	Informative Features  40.68 % 	0.2044	
Elastic-Net Classifier (L2 / Binomial Deviance) SqueezeNet Image Pretrained Featurizer Elastic-Net Classifier (L2 / Binomial Deviance) M11 BP1	Informative Features  40.68 % 	0.2084	

WORKERS

 Using 0 of 10 total workers
across all projects

STATUS

 Autopilot has finished

ACTIONS

 Rerun Autopilot

 Unlock project Holdout for
all models

Why AutoML is raising ?

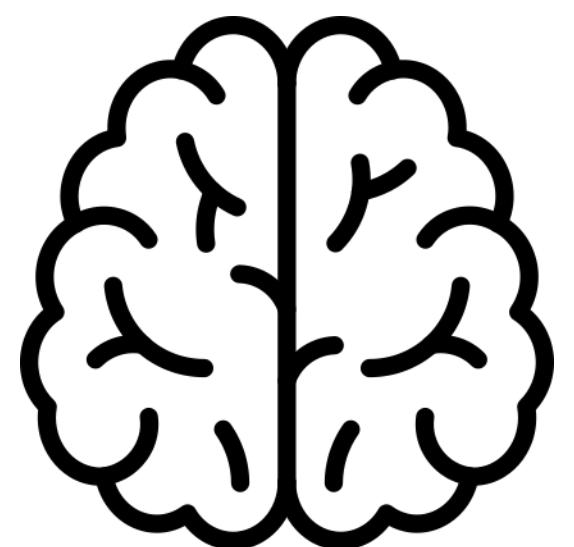
AutoML tends to automate as many steps as possible in ML pipelines and retain good model performance with **minimum manpower**.

It also provides methods and processes to:

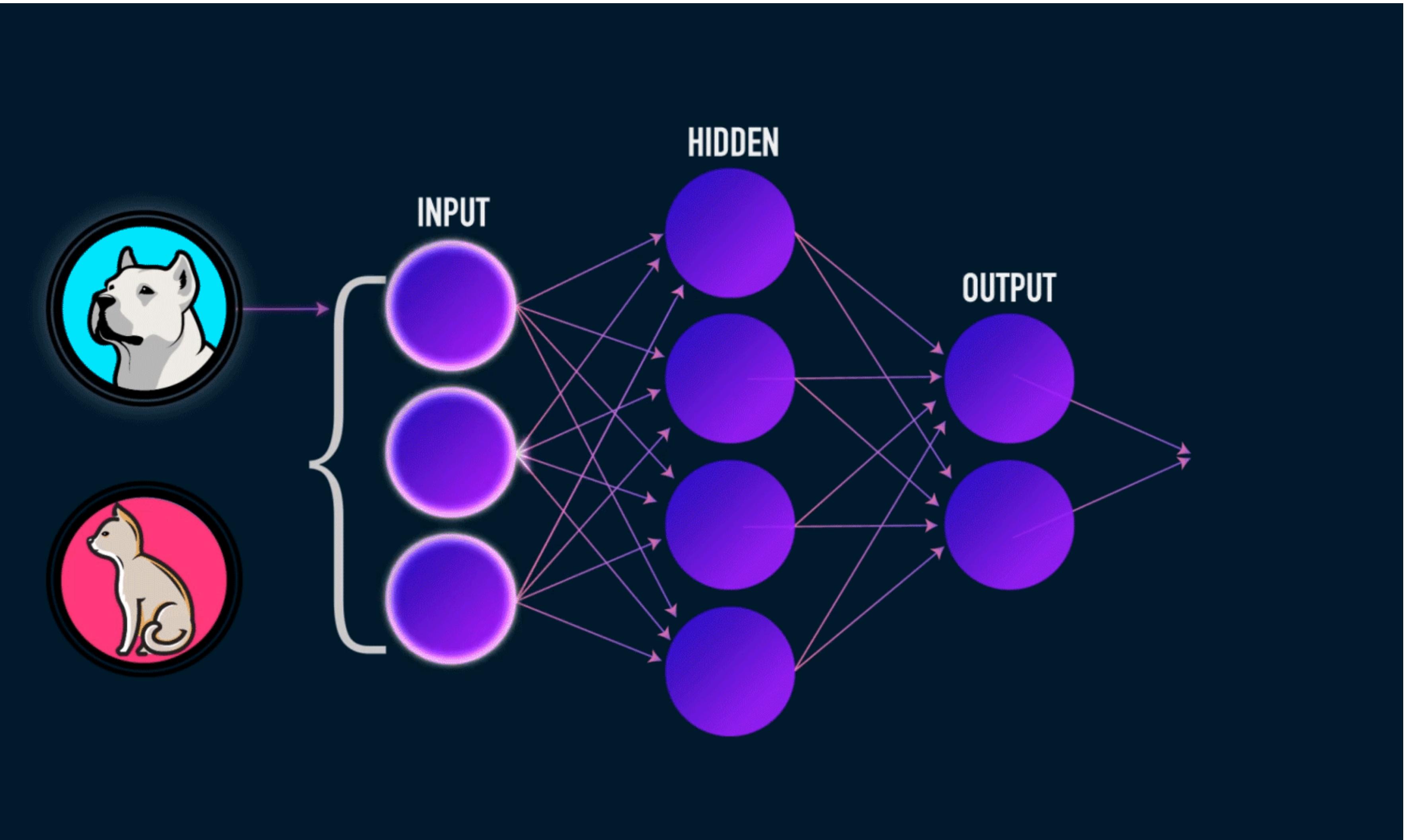
- make machine learning **more accessible**
- **improve efficiency** of machine learning systems
- **accelerate** research and AI application development
- It improves the efficiency by automating the most **repetitive tasks**. This allows the data scientists to devote more time on the problems rather than on the models.
- Automated ML pipelines also help **avoid potential errors caused by manual work**.
- AutoML is a big step toward the **democratization** of machine learning and allows everyone to use ML features.

03 // DEEP LEARNING

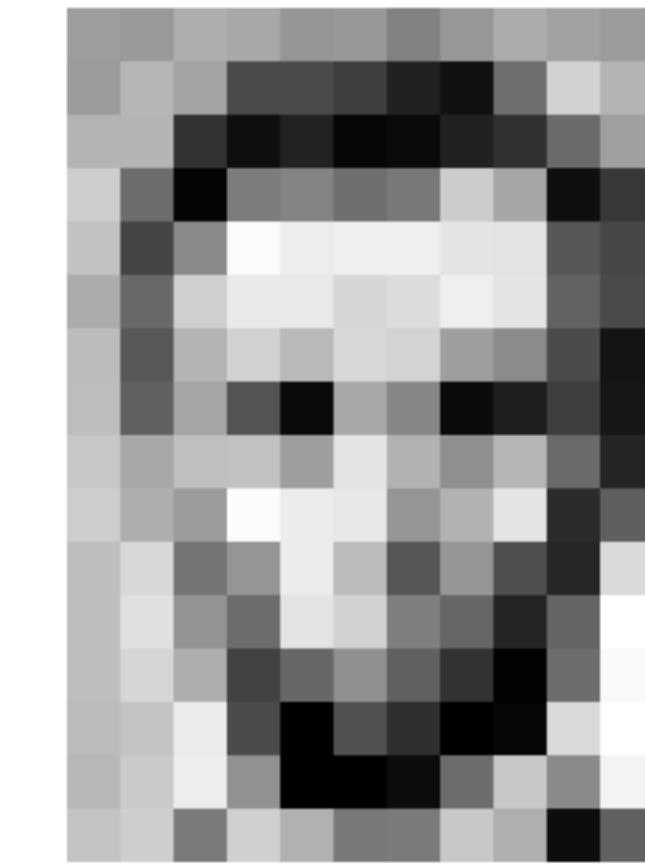
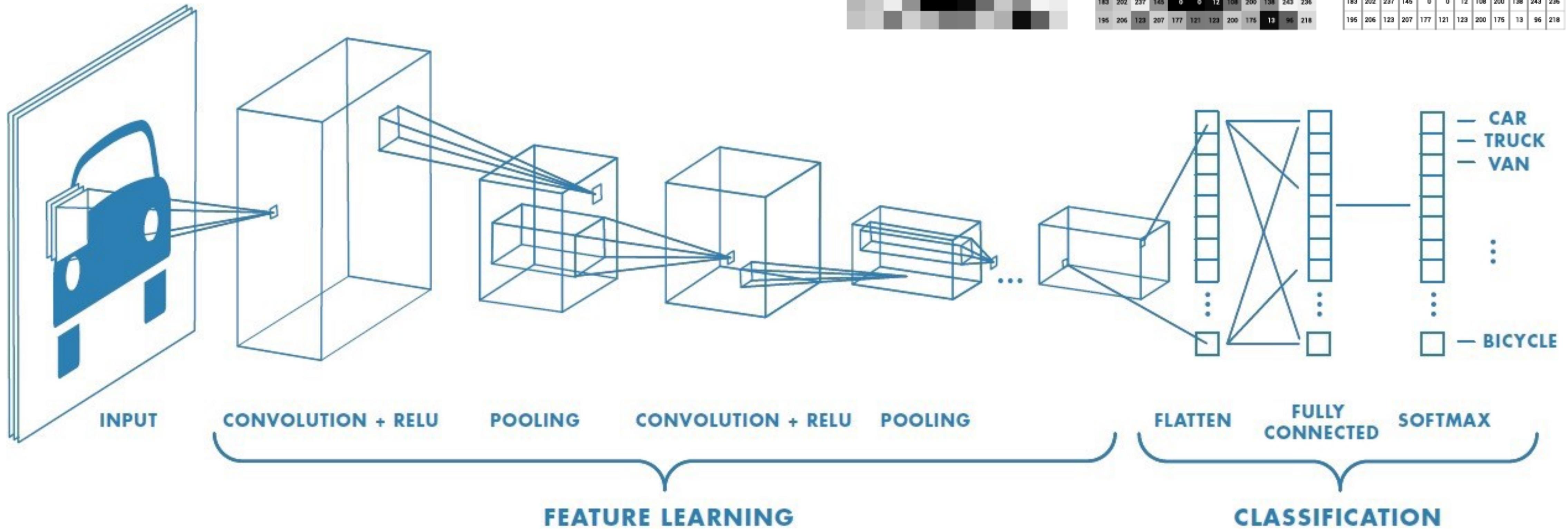
A simulation of the human brain



*“Performance keeps improving as you give them **more data**”*



03 // DEEP LEARNING

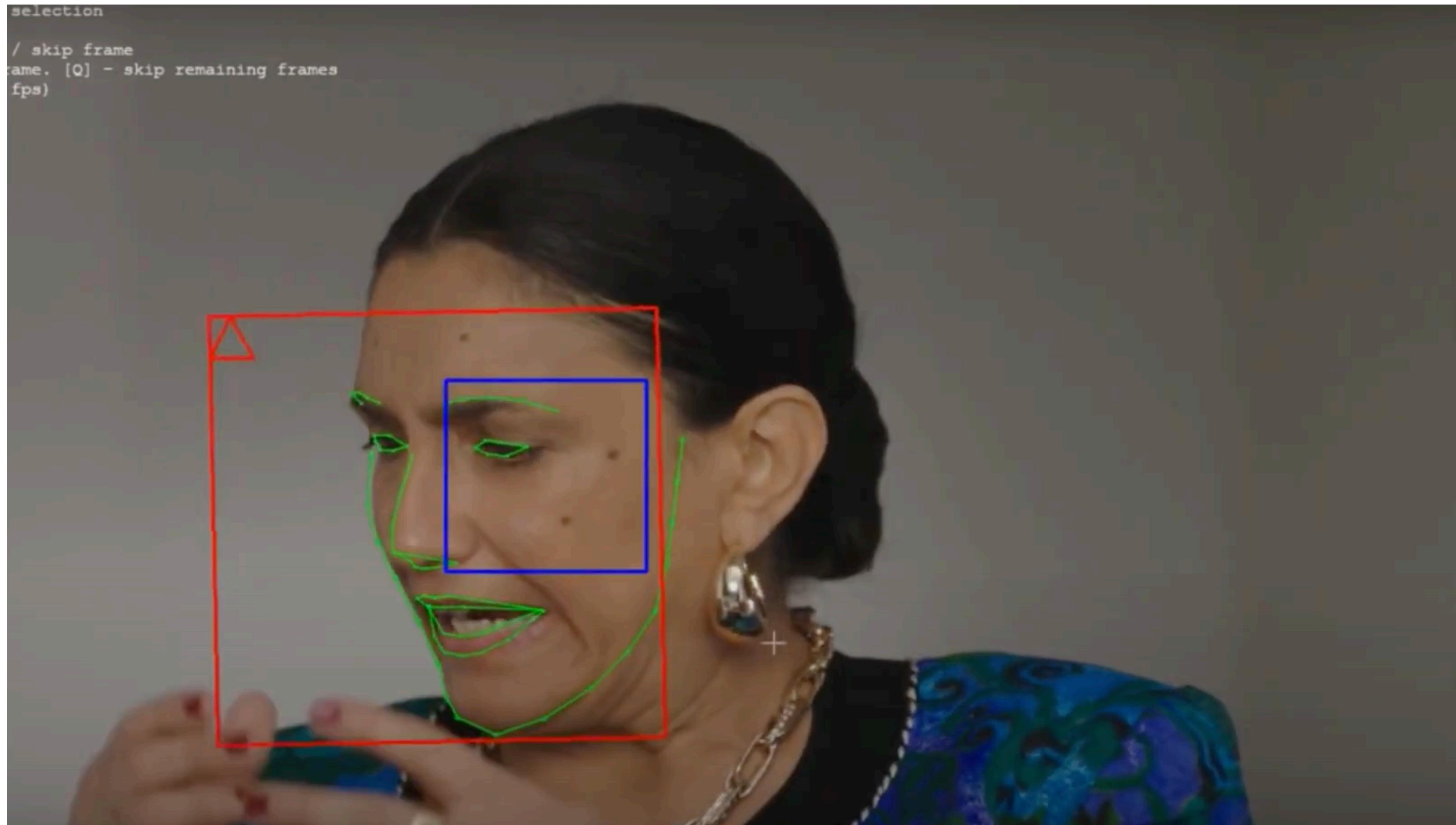


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155	182	163	74	75	62	33	17	110	210	180	154
180	180	50	14	84	6	10	33	48	106	159	181
256	109	5	124	131	111	120	204	166	15	56	180
194	68	137	251	257	239	239	228	227	87	71	201
172	106	207	233	233	214	220	239	228	98	74	206
188	88	179	209	185	215	211	158	199	75	20	169
189	97	165	84	10	168	134	11	31	62	22	148
199	168	191	193	158	227	178	143	182	105	96	190
205	174	155	252	236	231	149	178	228	43	95	234
190	216	116	149	236	187	85	150	79	38	218	241
190	224	147	108	227	210	127	102	36	101	255	224
190	214	173	66	103	143	95	50	2	109	249	215
187	196	235	75	1	81	47	0	6	217	255	211
183	202	237	145	0	0	12	108	200	138	243	236
195	206	123	207	177	121	123	200	175	13	96	218

157	153	174	168	150	152	129	151	172	161	155	156
155	182	163	74	75	62	33	17	110	210	180	154
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190	216	116	149	236	187	85	150	79	38	218	241
190	224	147	108	227	210	127	102	36	101	255	224
190	214	173	66	103	143	95	50	2	109	249	215
187	196	235	75	1	81	47	0	6	217	255	211
183	202	237	145	0	0	12	108	200	138	243	236
195	206	123	207	177	121	123	200	175	13	96	218

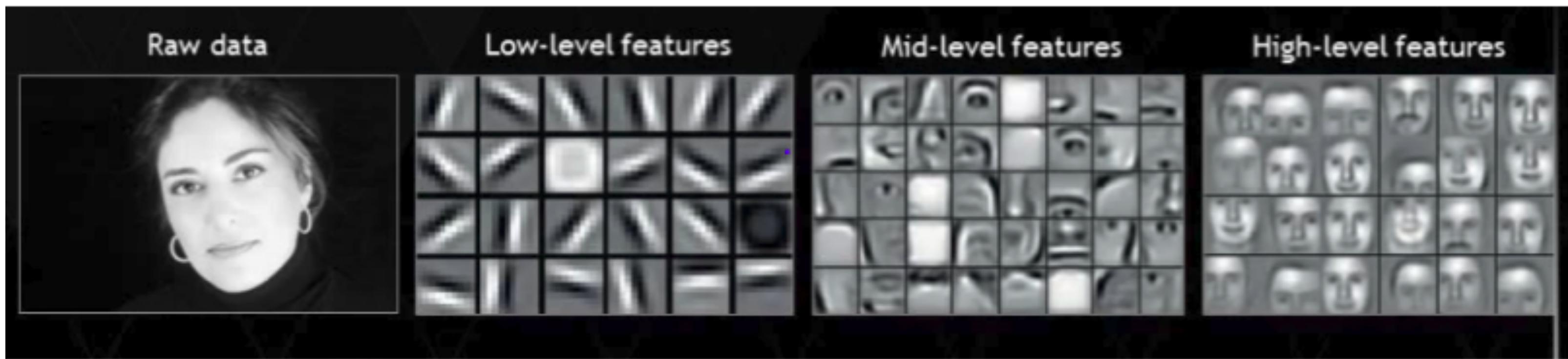
03 // DEEP LEARNING

Use case: Deep Fake



[Lola Flores deep fake](#)

03 // DEEP LEARNING



content image



louvre museum

style image



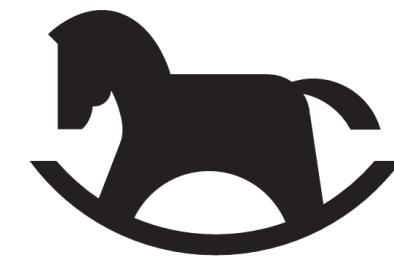
impressionist style painting

generated image

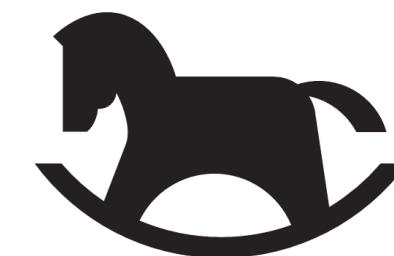


louvre painting
with impressionist style

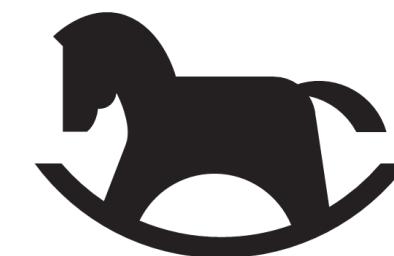
03 // DEEP LEARNING



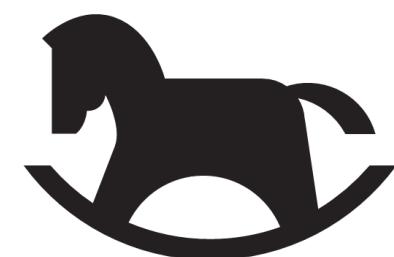
[Freddie Meter- Groundtruth](#)



[Face GAN's](#)

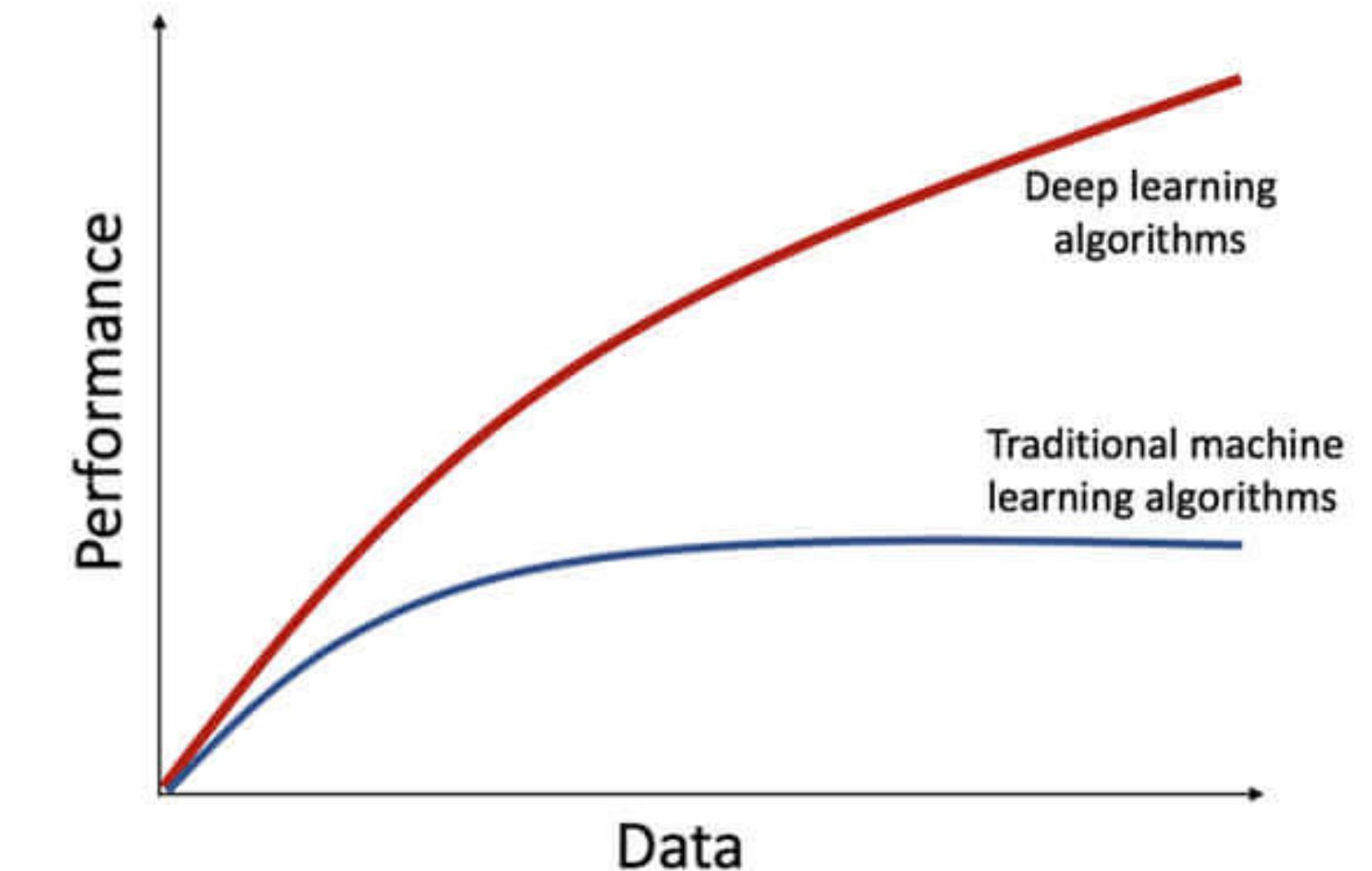


[Draw RNN](#)



[Duet RNN](#)

03 // MACHINE LEARNING

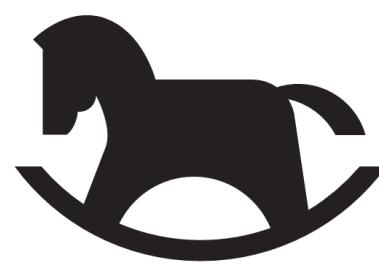
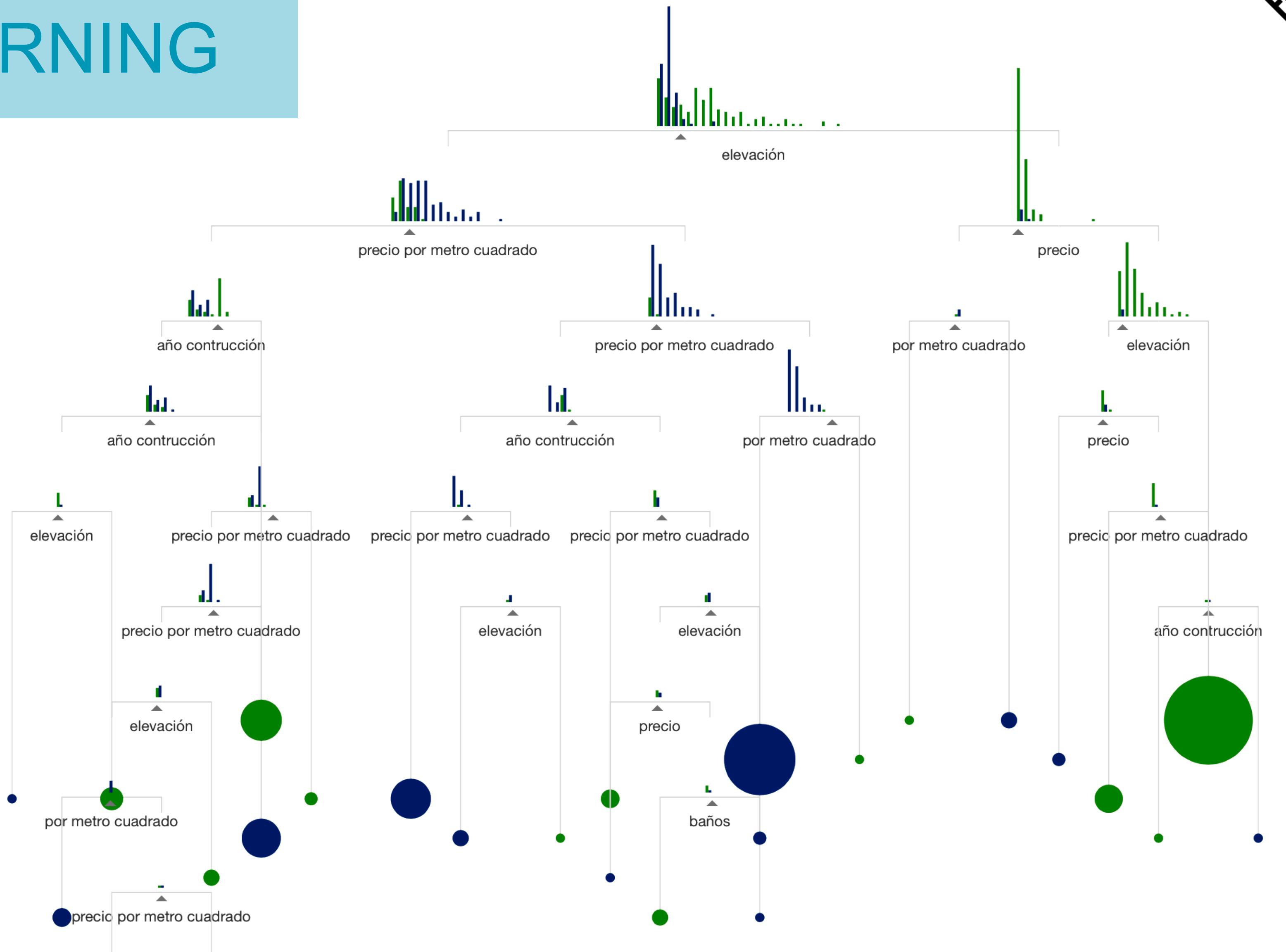


The learning process begins with observations or data, such as examples, direct experience, or instruction, **in order to look for patterns in the data and make better decisions in the future based on the examples we provide**. The main goal is to allow computers to learn automatically without human intervention or assistance and to adjust actions accordingly.

Machine learning also enables the analysis of massive amounts of data, but **you can work with less quantity of data**. While it generally offers faster and more accurate results for identifying profitable opportunities or dangerous risks, it may also require additional time and resources to properly train you.

Unlike deep learning, it is capable of working efficiently with less data and **allows greater interpretability of the importance of variables and results**, which affect the improvement of the algorithm's precision.

03 // MACHINE LEARNING



SF vs. New York

4V //

Big Data

**Volume
Veracity
Variety
Velocity**

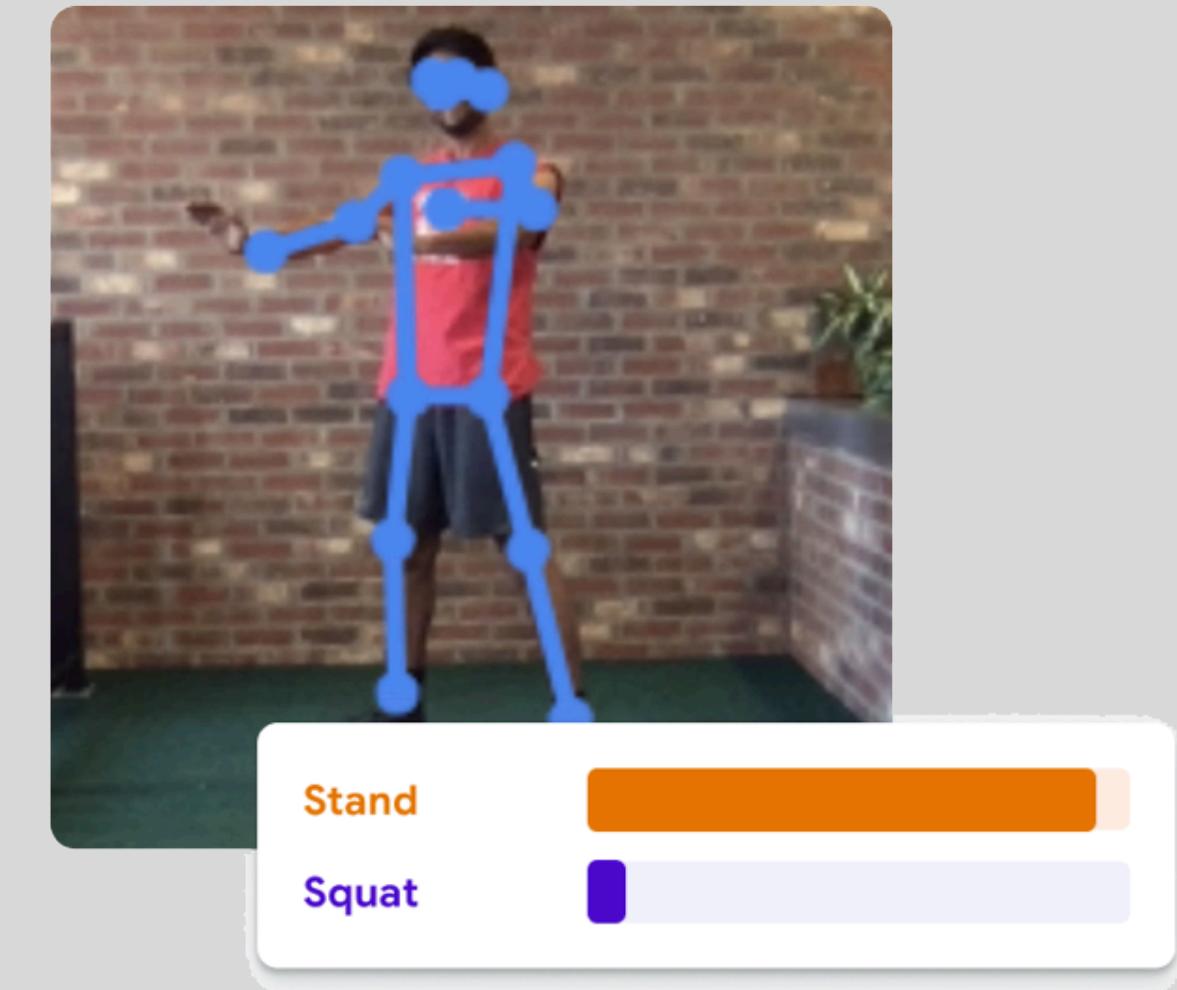
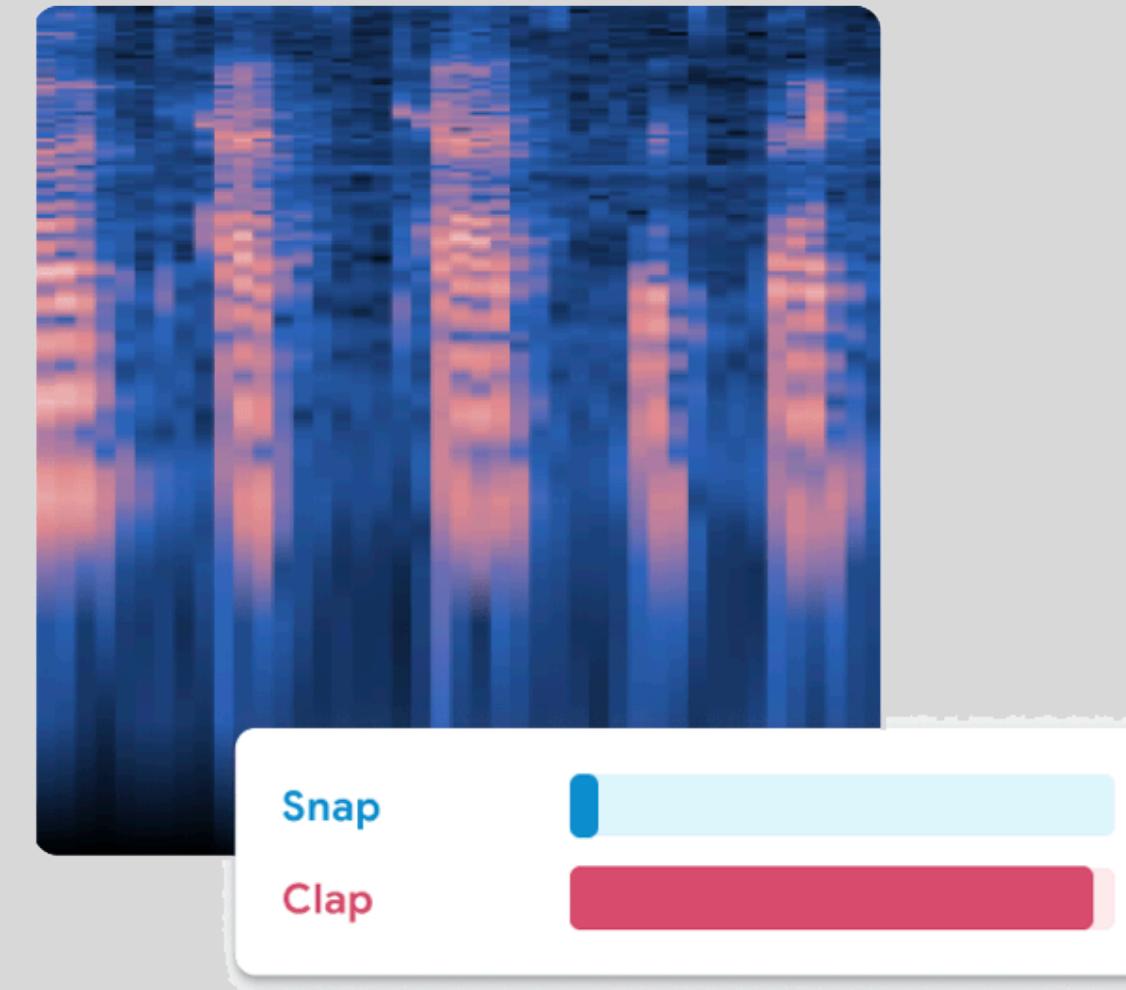
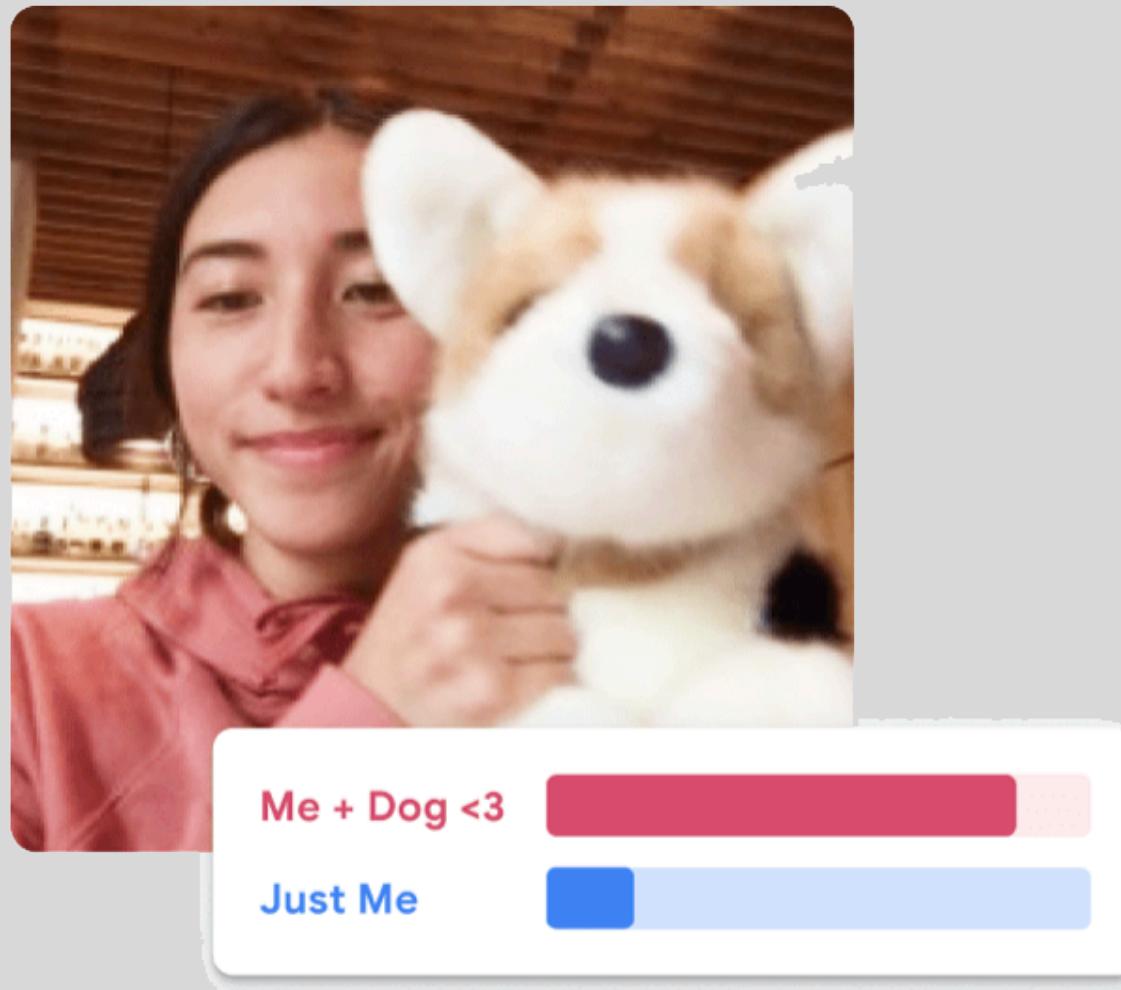
Workshop#1: Training & test computer vision algorithms

Teachable Machine

Train and test your first AI algorithms using “teachable machine”.

-object detector

-human body pose





Gracias ;)
Artificial Intelligence
Jose Peris Adsuara