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Smart Processes

Industrialising Artificial Intelligence

A woman with long brown hair, wearing a light-colored blazer over a white t-shirt, is smiling and looking down at her smartphone. She is standing outdoors, with a blurred background of greenery and a building.

What are we talking about?

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Example

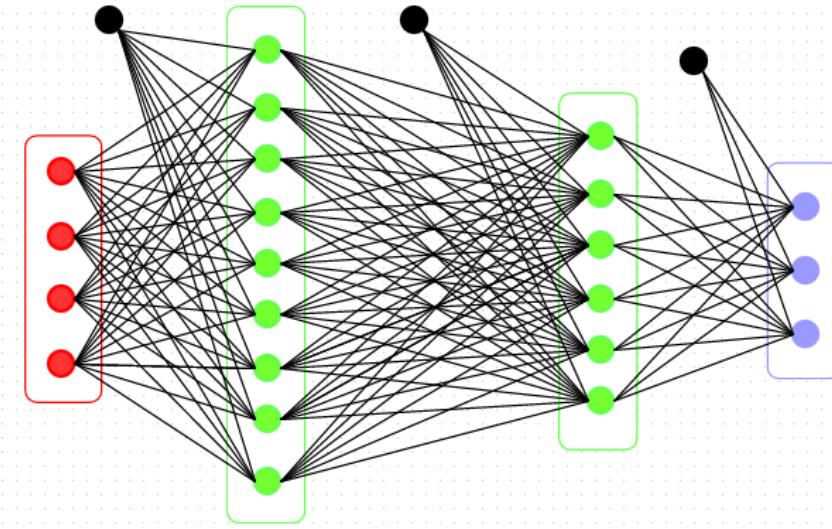


Making Of

Animal database.
200 labelled species



Xception
Evolution of
Convolutional Neural Network



Technology already exists



Smas. Joint Management



Data Governance



Virtual Assistants



Big Data Appliance



Extended DWHs

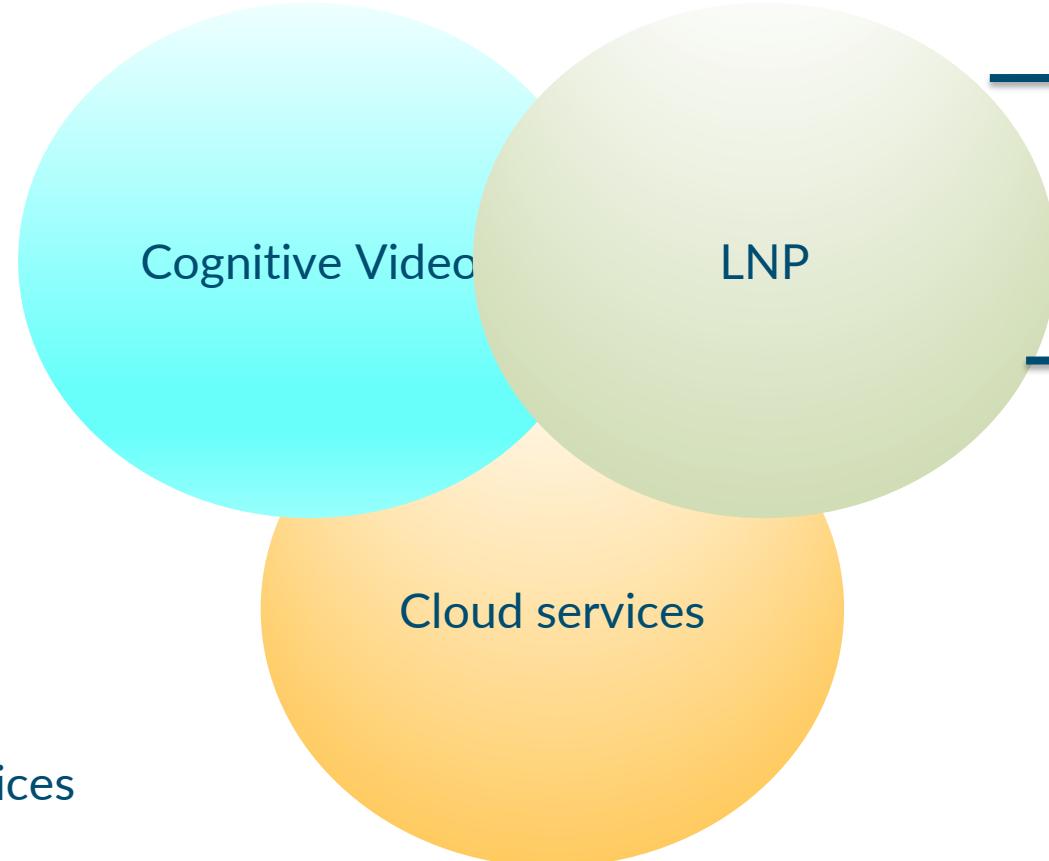


Smart Processes

Hybrid systems

Industrialisation Strategy

On-promise



STT

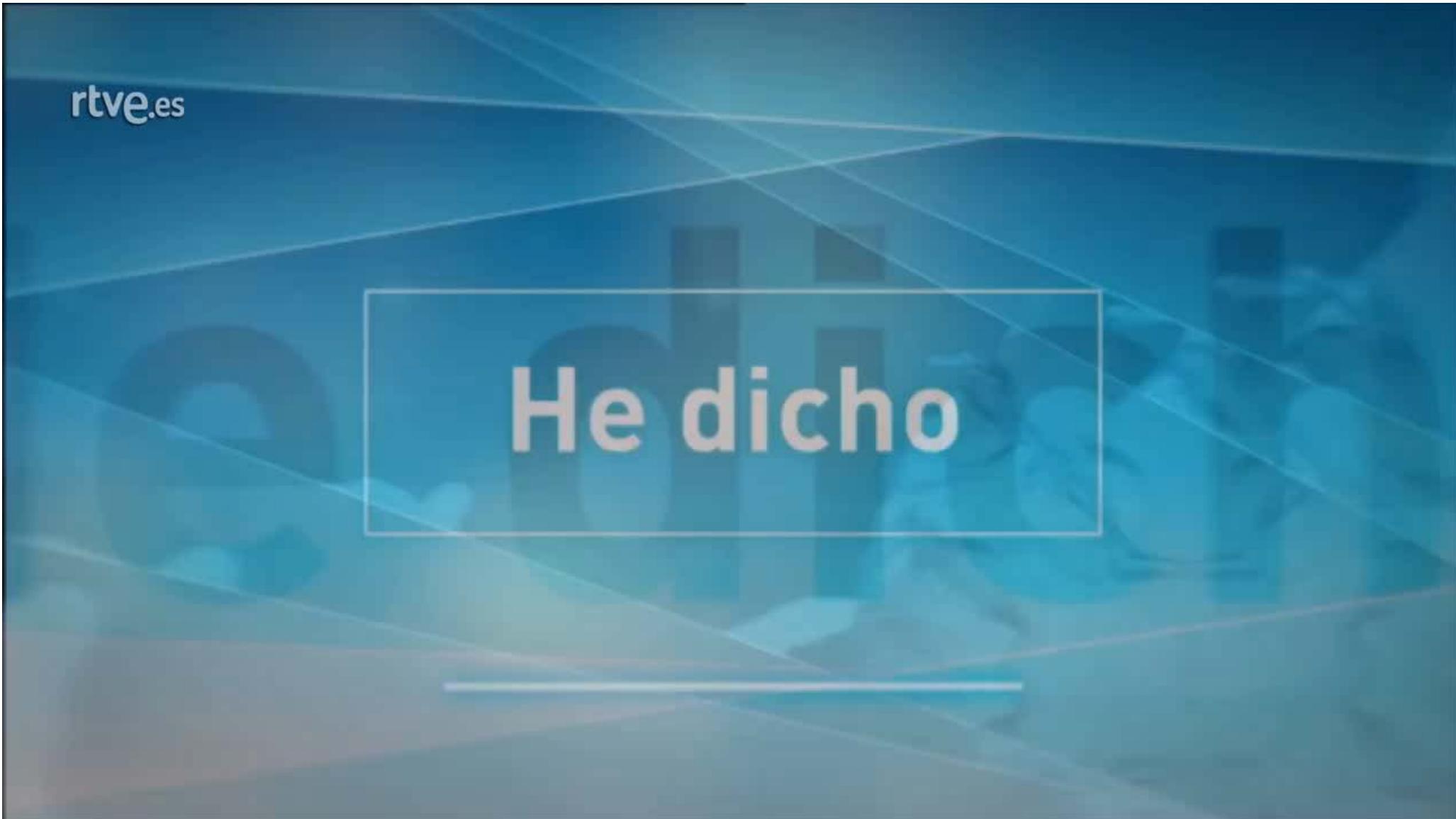


EER

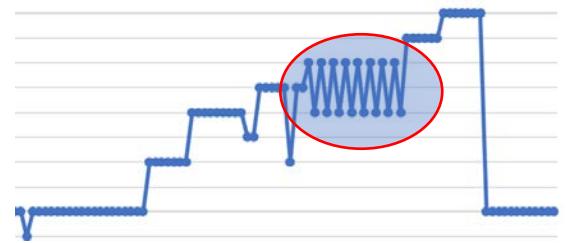
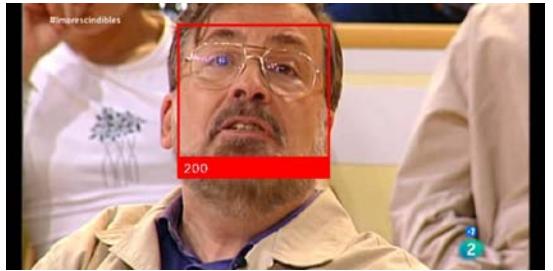


Cloud services

Phase 1. Encoding Faces



Phase 1. Clustering Faces



Automatic process generating a cluster of images of the same person

We can infer rules:
Interview

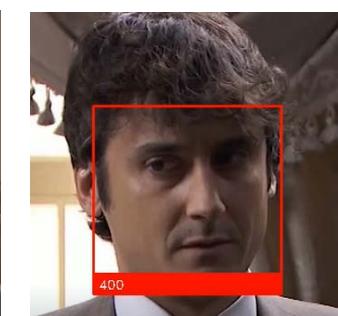
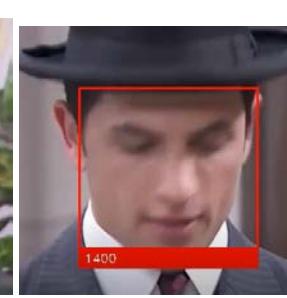
Irrespective of age and other factors

We can enrich by using cloud services:
Google_search_img

Phase 1. Encoding Faces

- Approx. Useful Time (1 sec = 1 frame = 1 CPU).
- 3:45 duration video
- Cluster of 19 classes
- With 5 classes we have 80%, and 90% with 7

1000	104	24,76%	24,76%
900	96	22,86%	47,62%
1400	60	14,29%	61,90%
500	55	13,10%	75,00%
400	30	7,14%	82,14%
1600	25	5,95%	88,10%
300	18	4,29%	92,38%
600	12	2,86%	95,24%
700	4	0,95%	96,19%
1900	4	0,95%	97,14%
800	2	0,48%	97,62%
1700	2	0,48%	98,10%
1800	2	0,48%	98,57%
1500	1	0,24%	98,81%
1200	1	0,24%	99,05%
1300	1	0,24%	99,29%
2000	1	0,24%	99,52%
200	1	0,24%	99,76%
1100	1	0,24%	100,00%



Phase 2. Incorporating Context

_telediario.mp4



Automatically find names
of people, places, products,
and organizations in text
across many languages.

A real example



A woman with long blonde hair, wearing a light blue blazer over a white t-shirt, is smiling and looking down at her smartphone. She is also holding a white folder or document in her left hand. The background is blurred, showing what appears to be an office building.

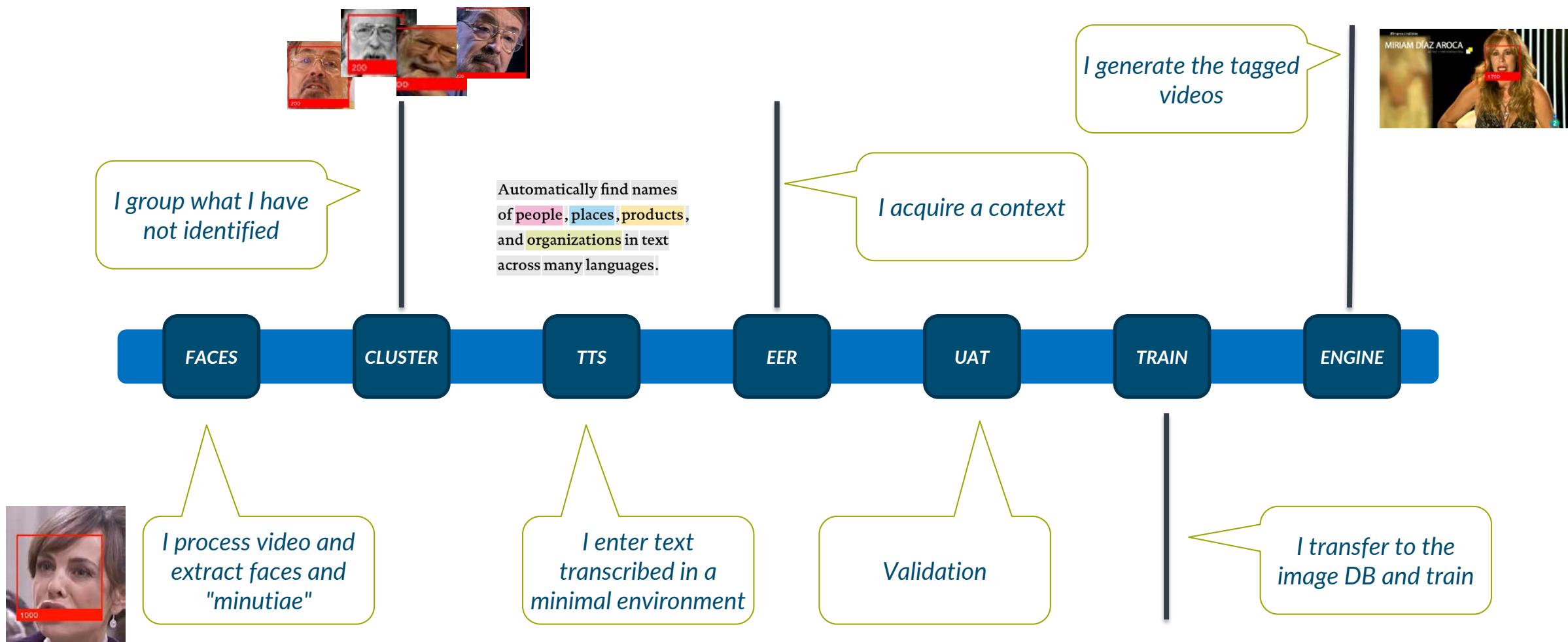
Smart processes

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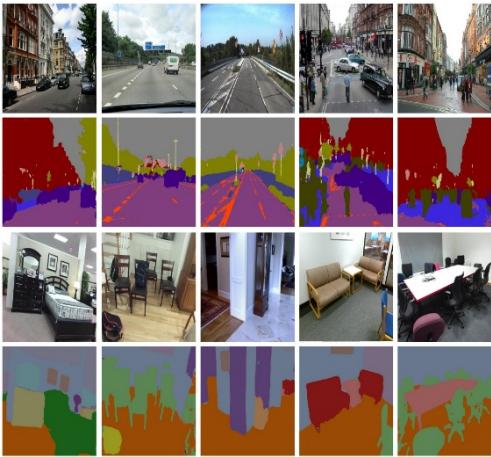
Complete process



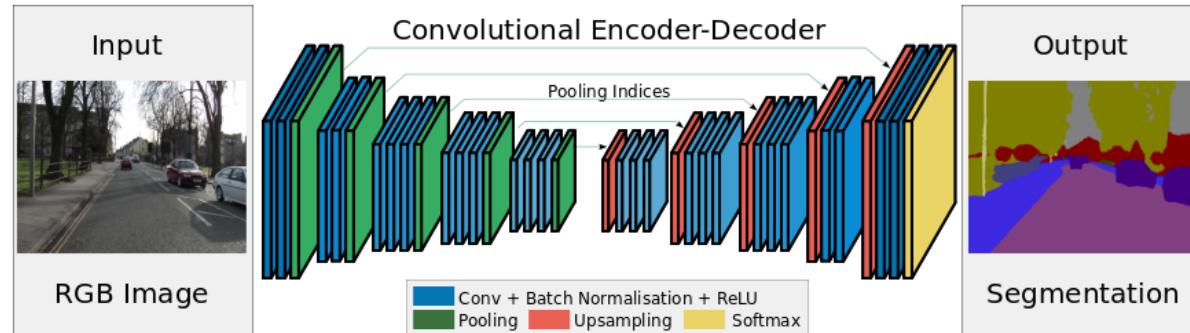
Minimal cost in calls to external systems

Tagged video database
Knowledge and context engine

Facilitators

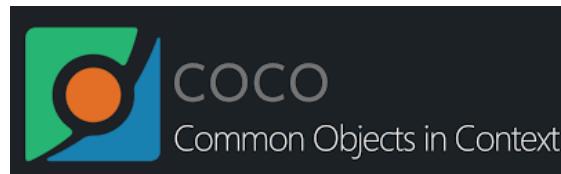
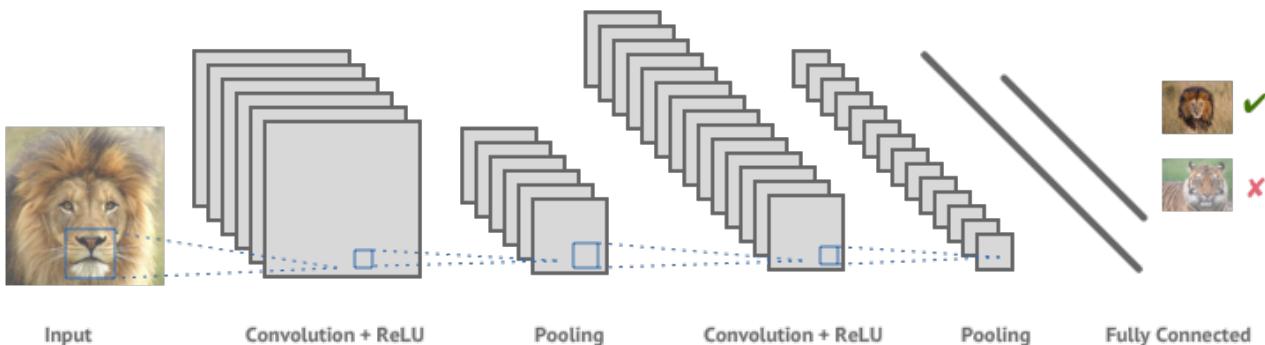


Segmentation of urban and indoor scenes.



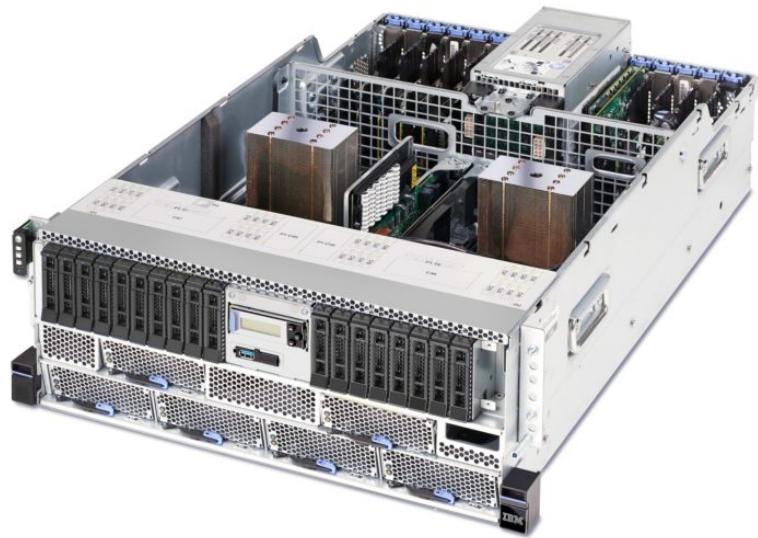
Separates all objects of a scene

Classification of objects



VGGFace2 is a large-scale face recognition dataset. Images are downloaded from Google Image Search and have large variations in pose, age, illumination, ethnicity and profession.

In-house capabilities



- High in-house computing needs.
- Reduction in costs
- Use of market standards
- Development and construction platform can be standardised



THANK YOU



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