



#IALeMans - Batch 02 - 13 et 14 avril 2018





# BIENVENUE !



# PRESENTATION

QUI - QUOI - POURQUOI



# DEROULEMENT

**09H30 PRESENTATION**

**10H00 TOUR D'HORIZON DE L'APPRENTISSAGE AUTOMATIQUE**

**10H30 ECHANGES ROUND 1**

**10H45 DATA DATA DATA**

11H00 PAUSE

**11H15 TP CLASSIFICATION AUTOMATIQUE D'IMAGES**

12H30 DEJEUNER

**13H30 OUVERTURE TRAITEMENT DES IMAGES ET STRATEGIE PROJETS**

**14H00 ECHANGES ROUND 2 + FEEDBACKS**

14H30 FIN



# APPRENTISSAGE AUTOMATIQUE

INTELLIGENCE ARTIFICIELLE - MACHINE LEARNING - DEEP LEARNING

PRINCIPE D'ENTRAINEMENT D'UN ALGORITHME AUTO-APPRENANT

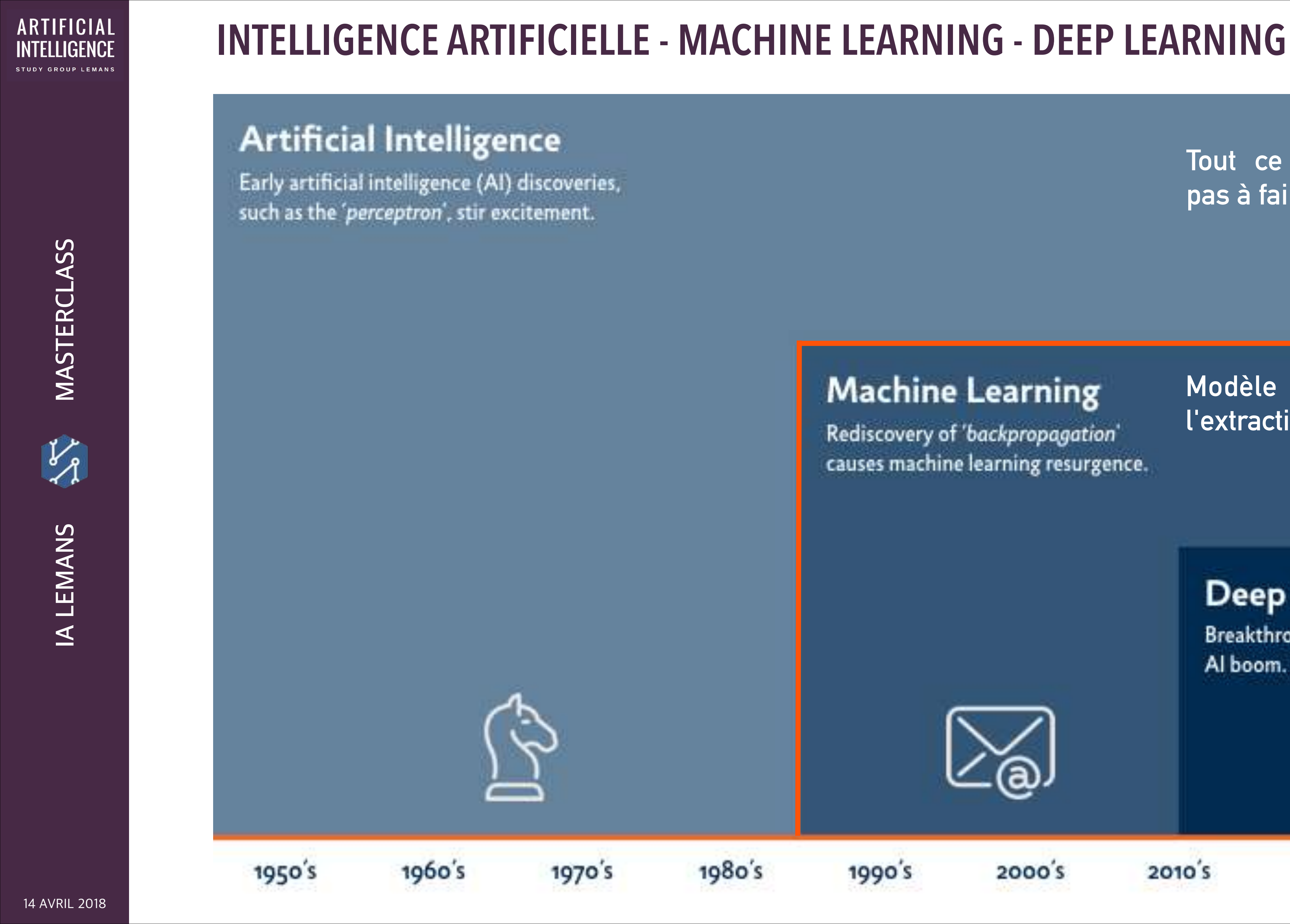
APPRENTISSAGES SUPERVISÉ - NON SUPERVISÉ - PAR RENFORCEMENT

CAS D'USAGE

SORTIR DU FANTASME

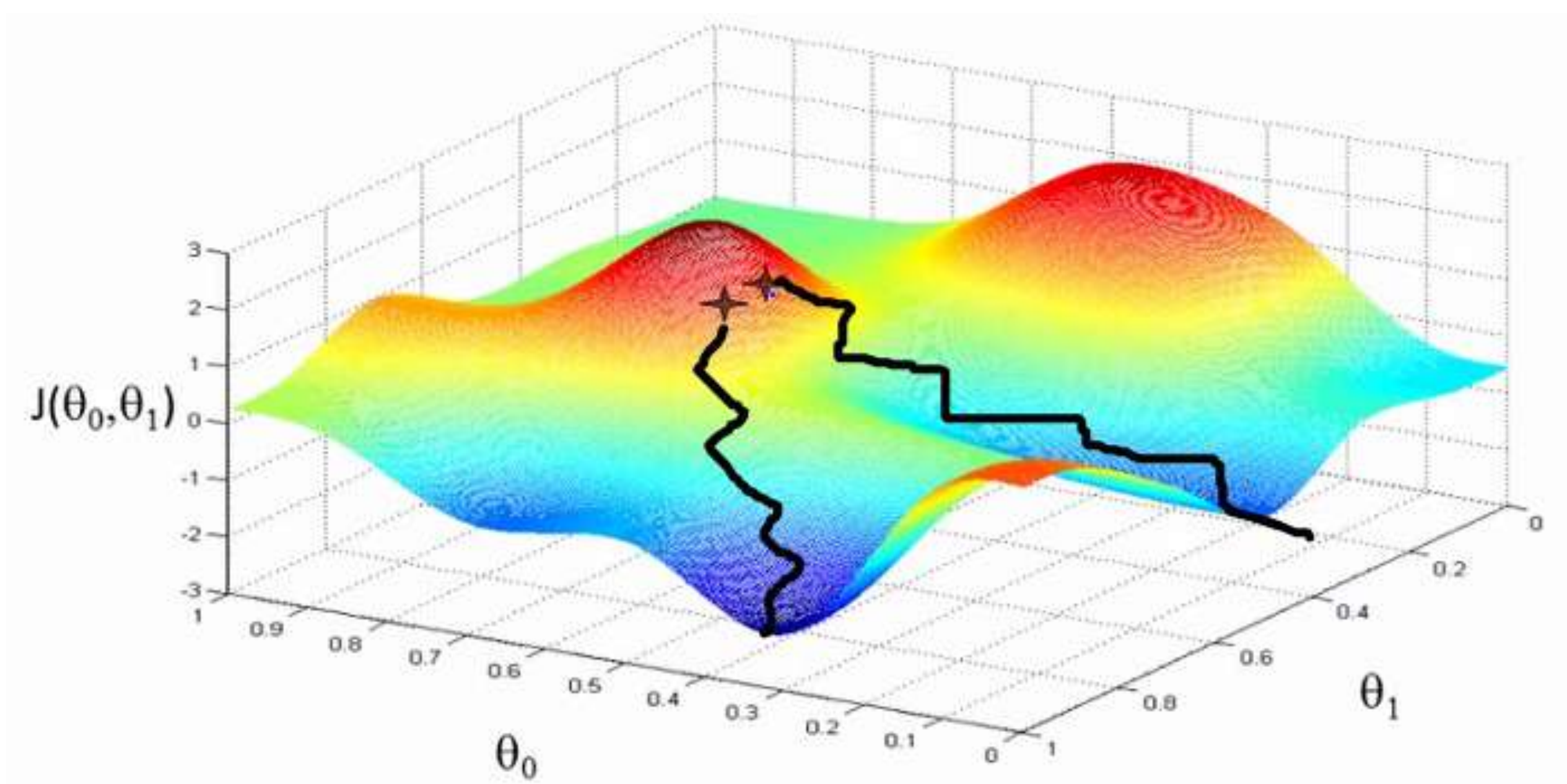
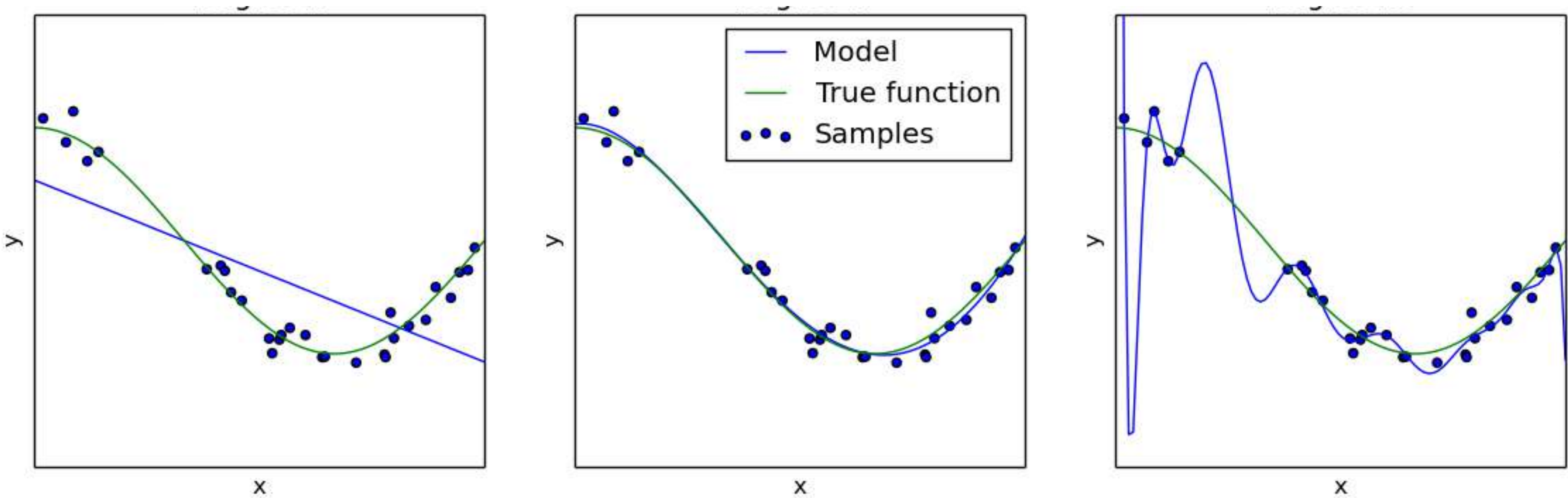
ETHIQUE VS BLACK BOX



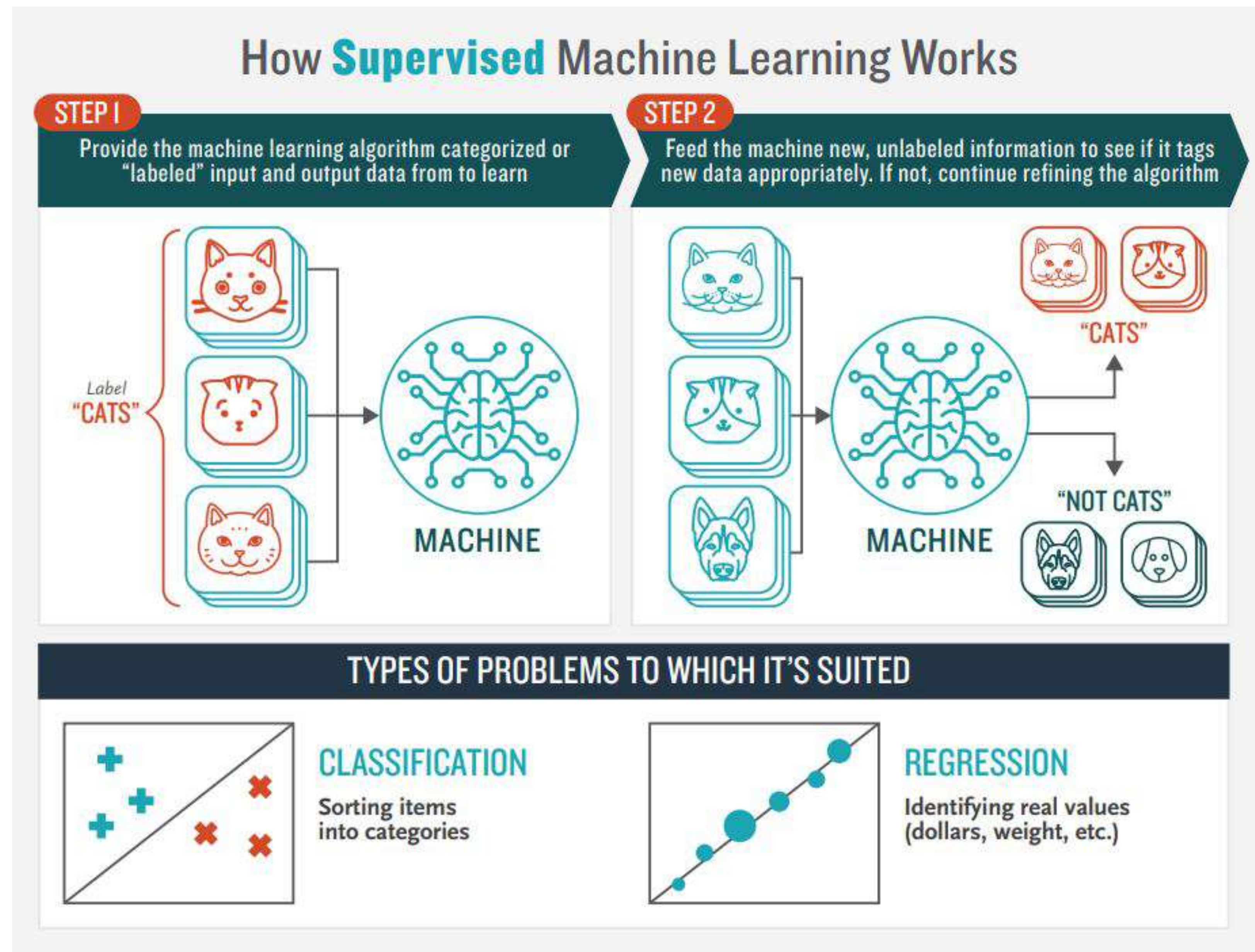




# PRINCIPE D'ENTRAINEMENT D'UN ALGORITHME AUTO-APPRENANT

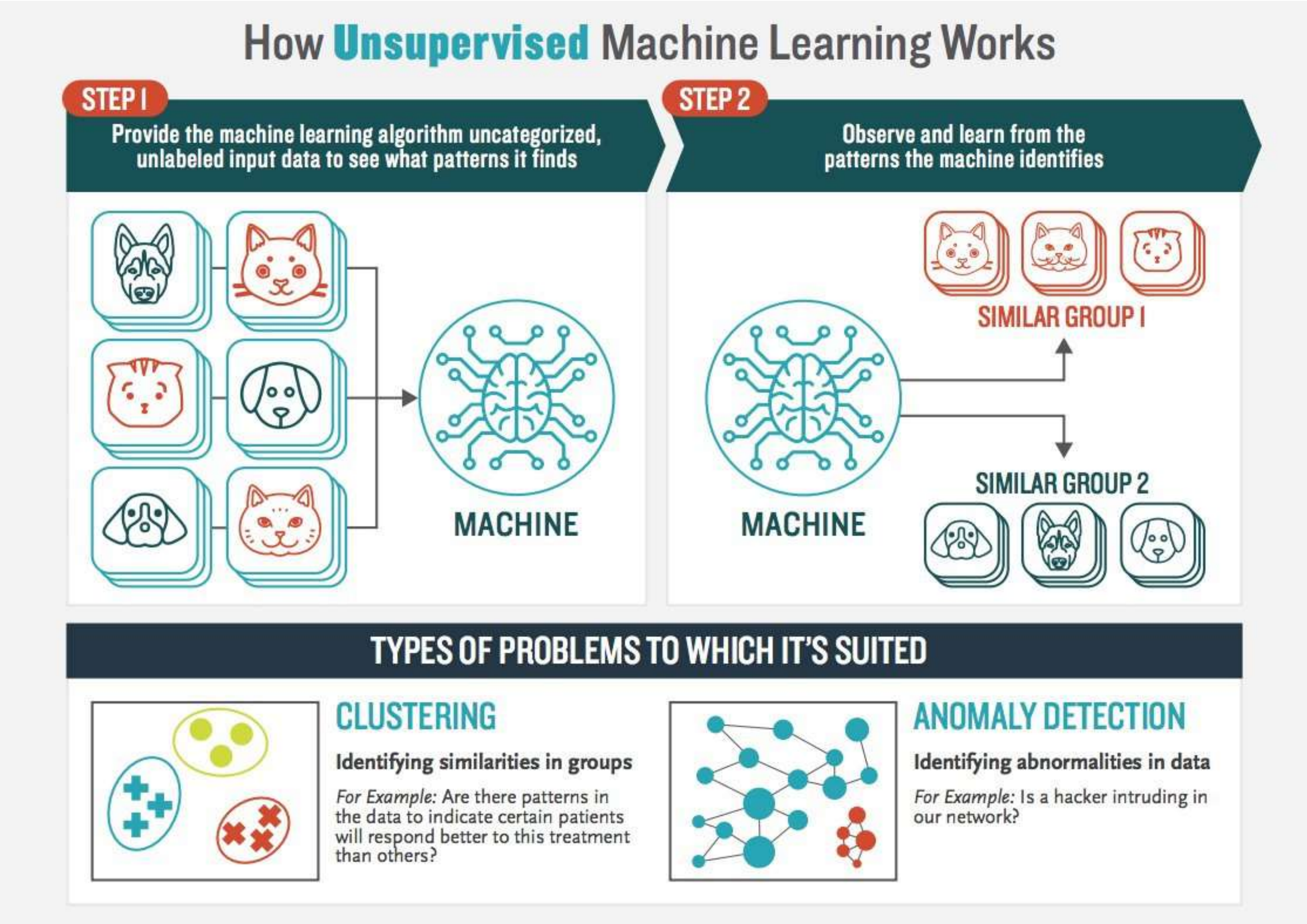








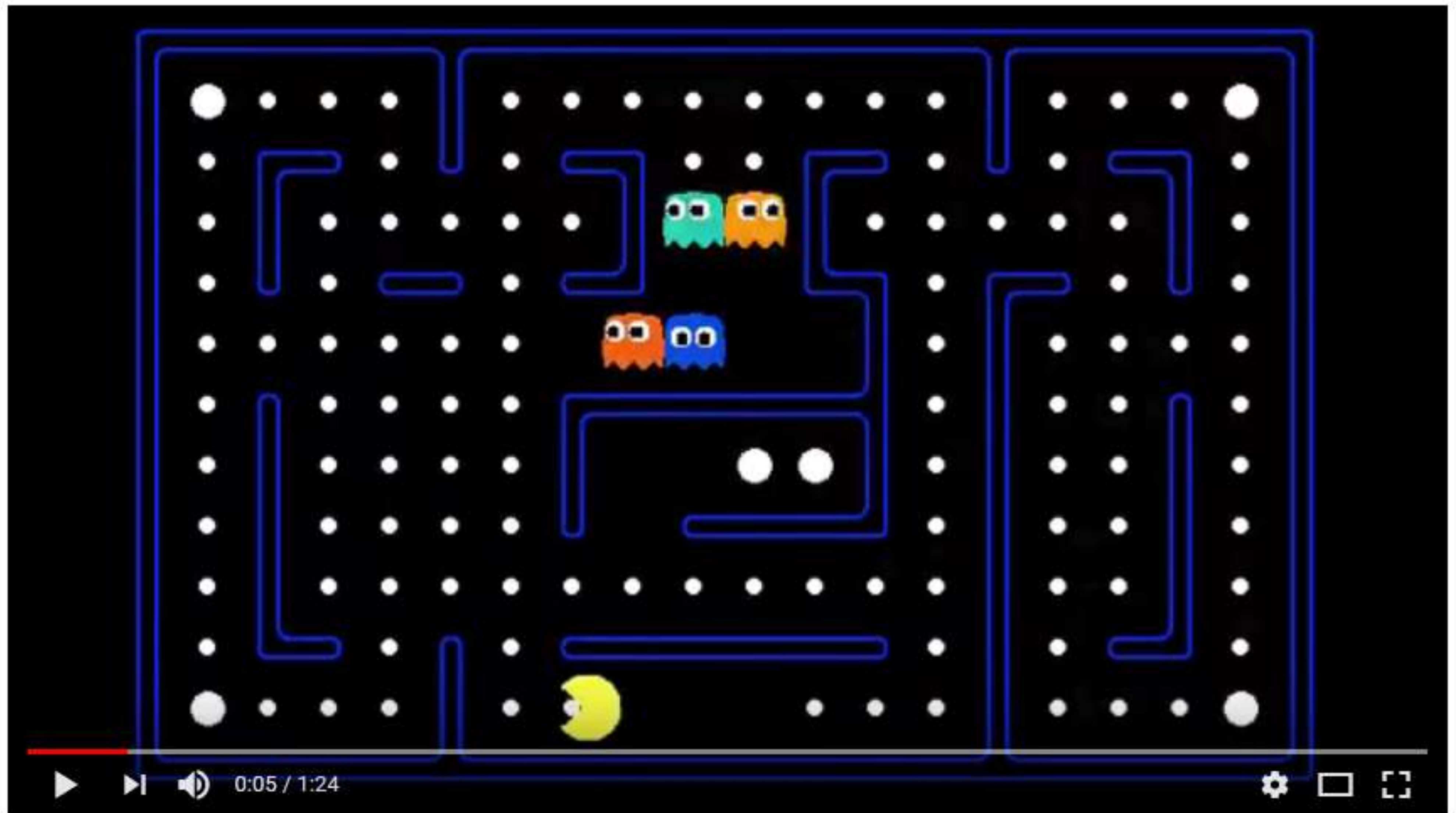
# APPRENTISSAGES SUPERVISÉ - NON SUPERVISÉ - PAR RENFORCEMENT







# APPRENTISSAGES SUPERVISÉ - NON SUPERVISÉ - PAR RENFORCEMENT



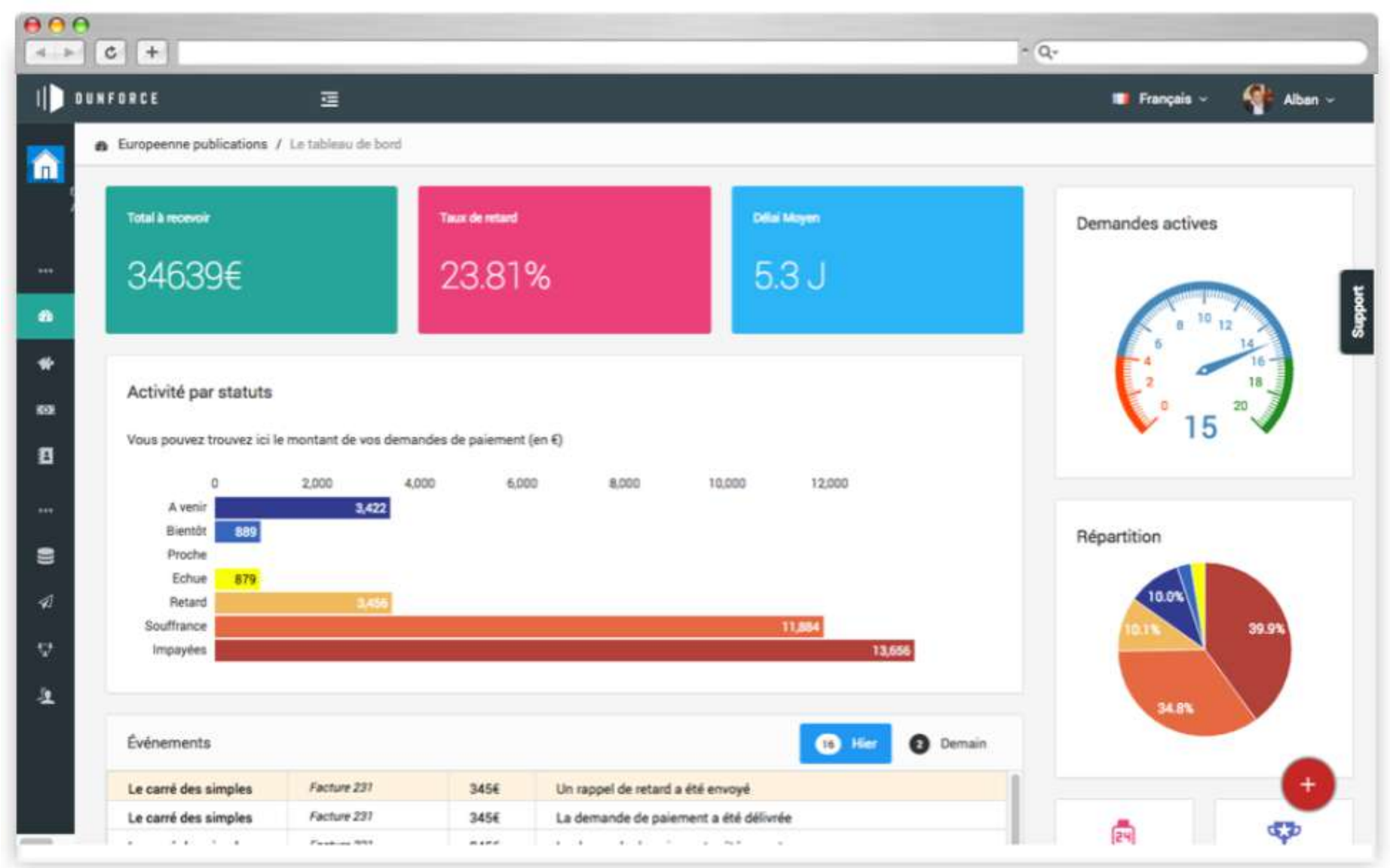
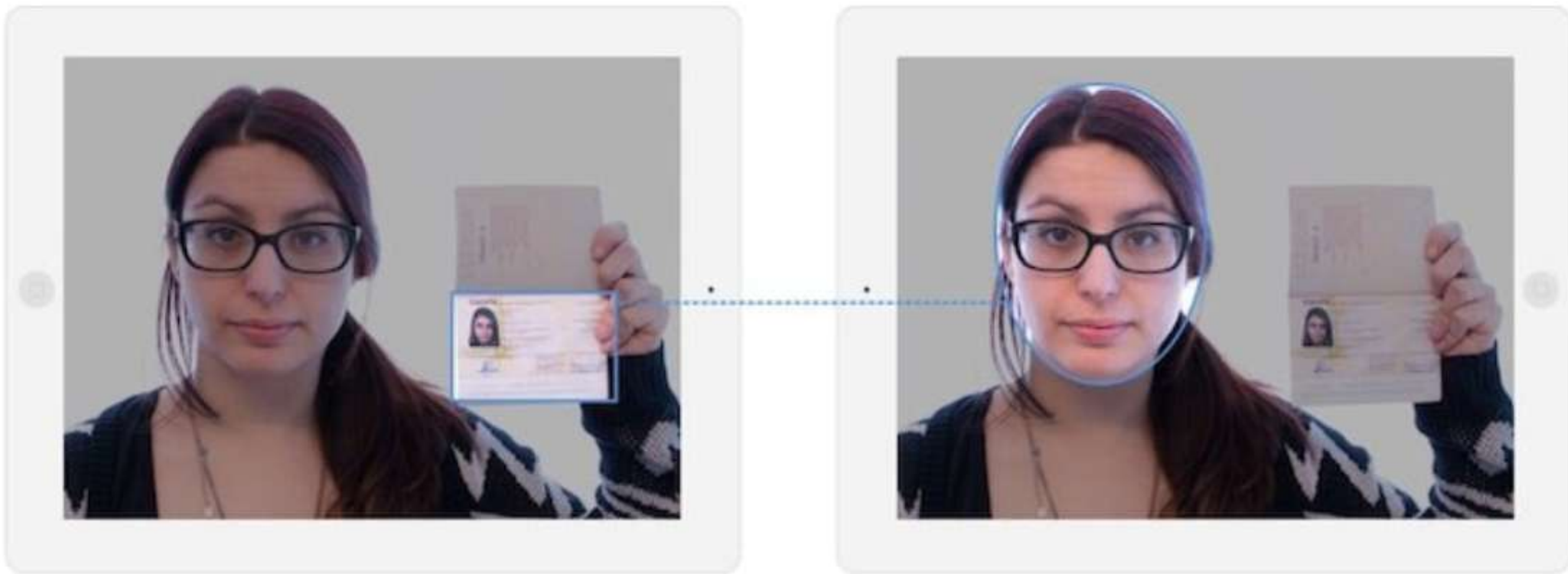
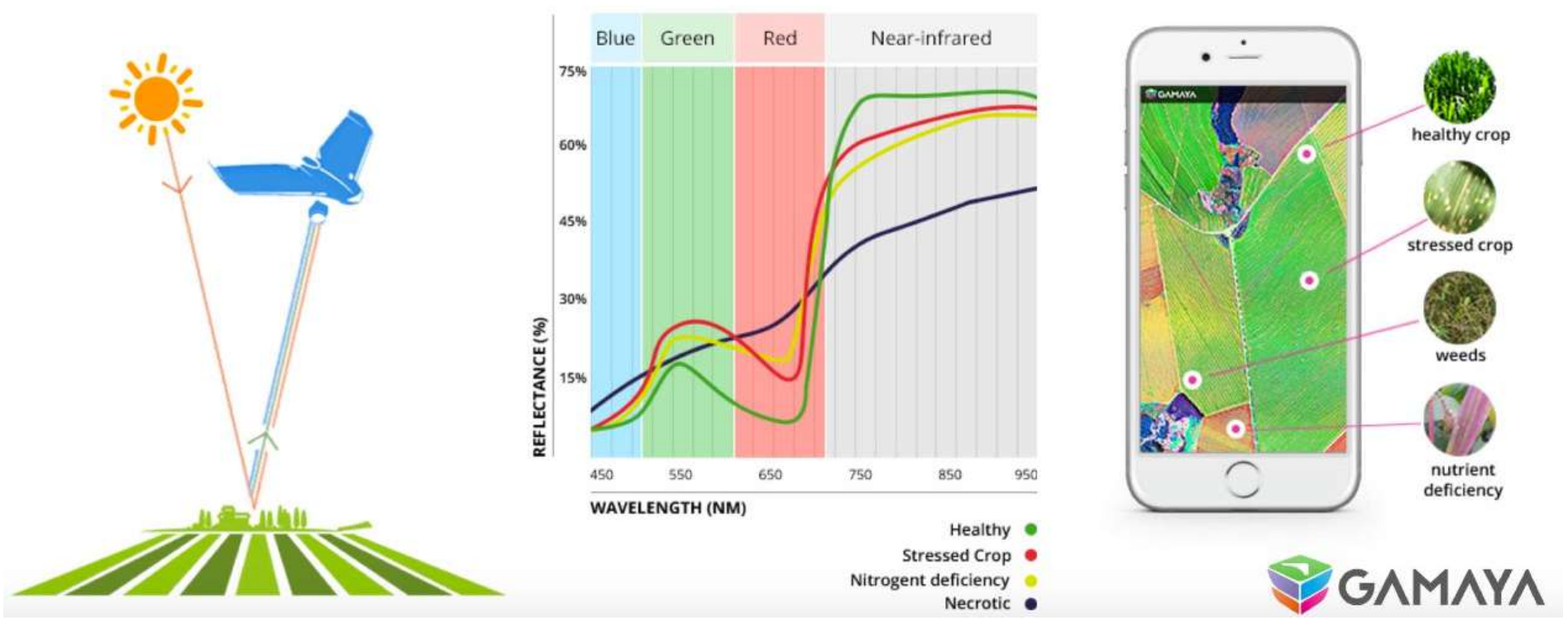
Neural network learns to play pacman

<https://youtu.be/t5--kLRI4UE>





# CAS D'USAGE





# CAS D'USAGE



InstaDropper



myrtill.lemans  
Myrtill chausseur spécialiste enfant, bébé, ado. #conseils  
#cuir, #lemans  
www.myrtill.net

## Nouveau Post Instagram



Vous rêvez de ces petites  
chaussures enfants cuir  
rouge pour votre superman ?  
Dispo du 23 au 32 en semelle  
noir ou blanche

## Suggestions

hashtags #superman #instakids #lemans #dealoftheday #babys shoes #red

mentions : @Le\_Loup\_Blanc

image : ★★★★★

lien ecommerce : [www.myrtill.net/products/baby-red-02351.html](http://www.myrtill.net/products/baby-red-02351.html)

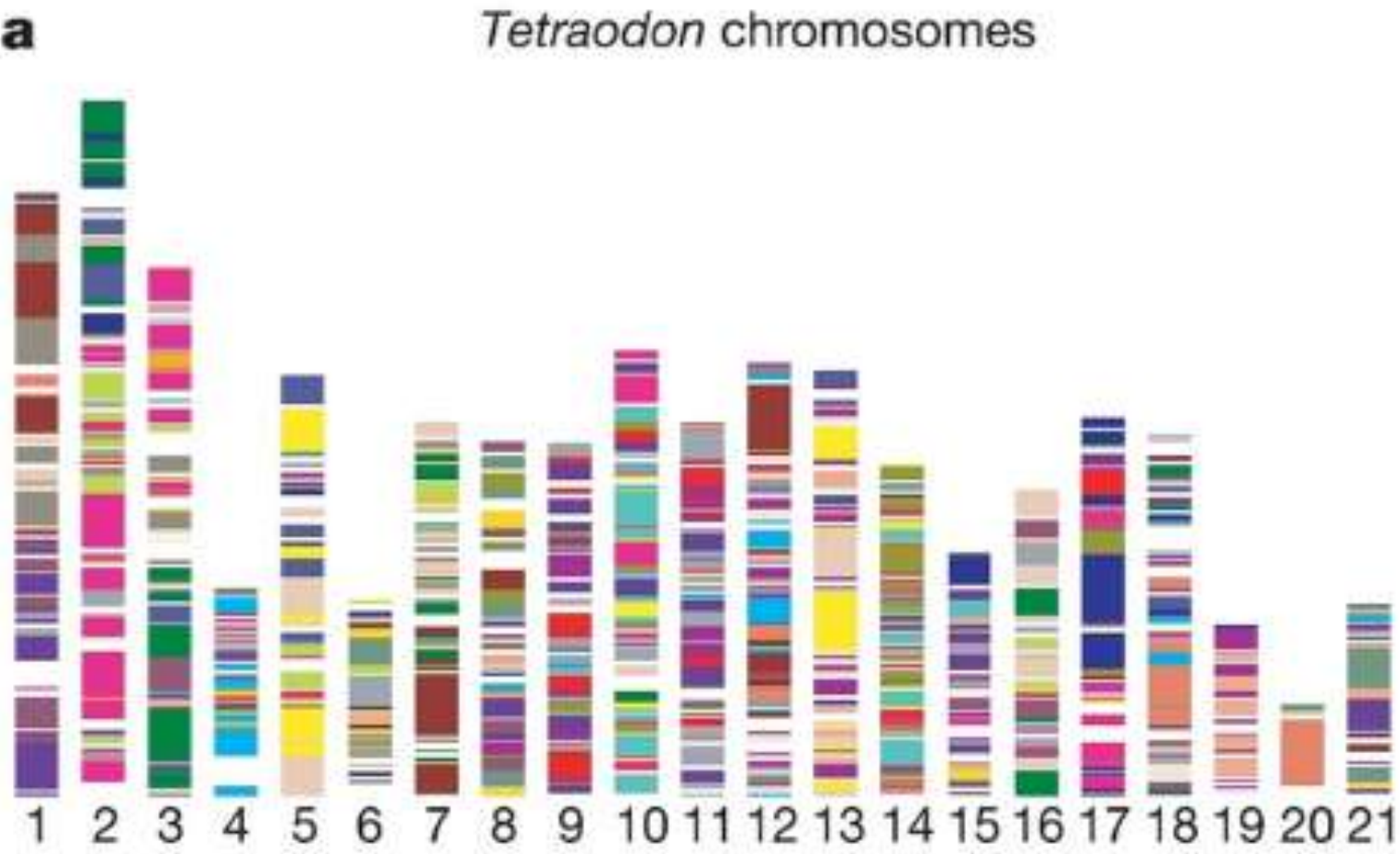




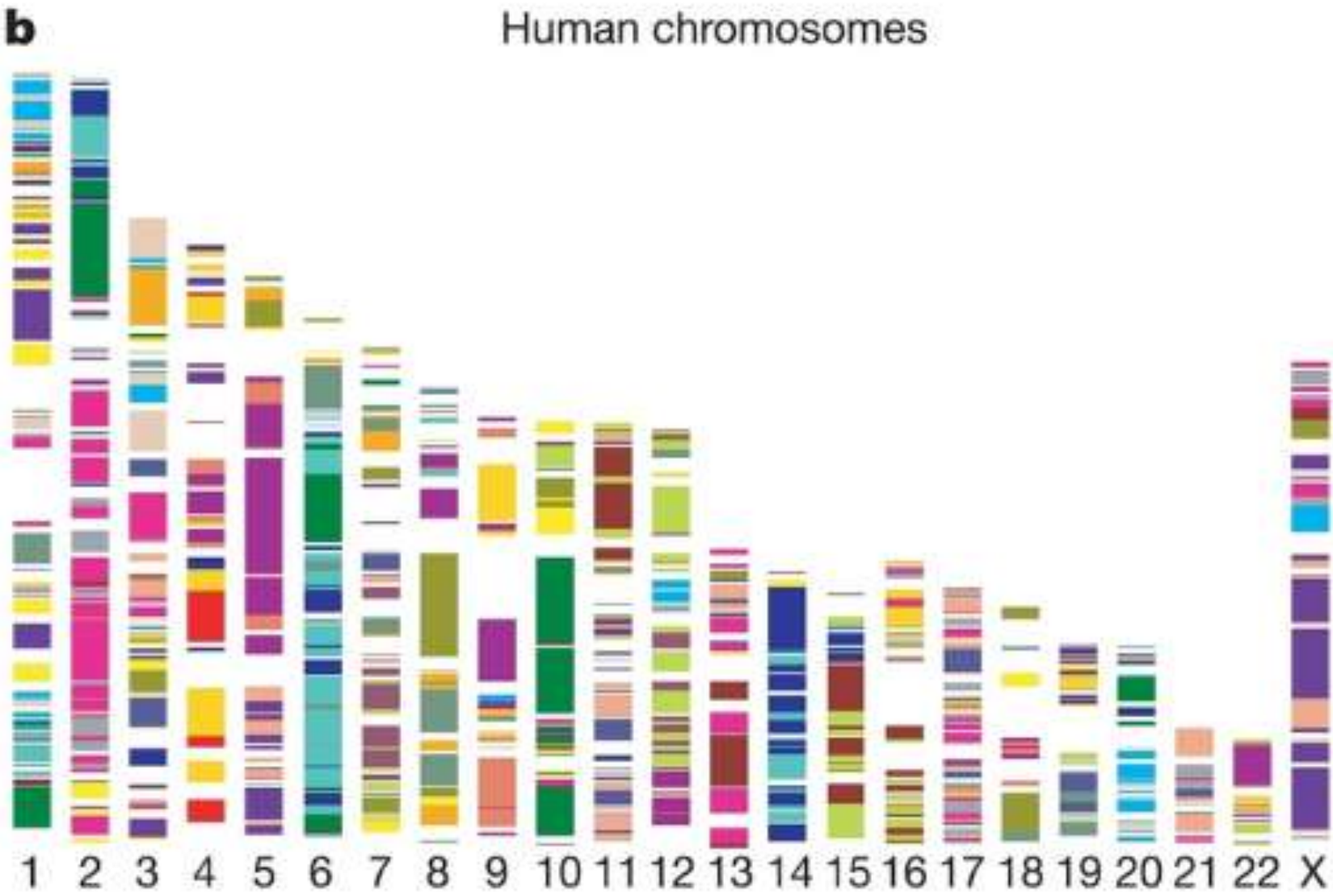
# CAS D'USAGE



IMAGERIE MEDICALE



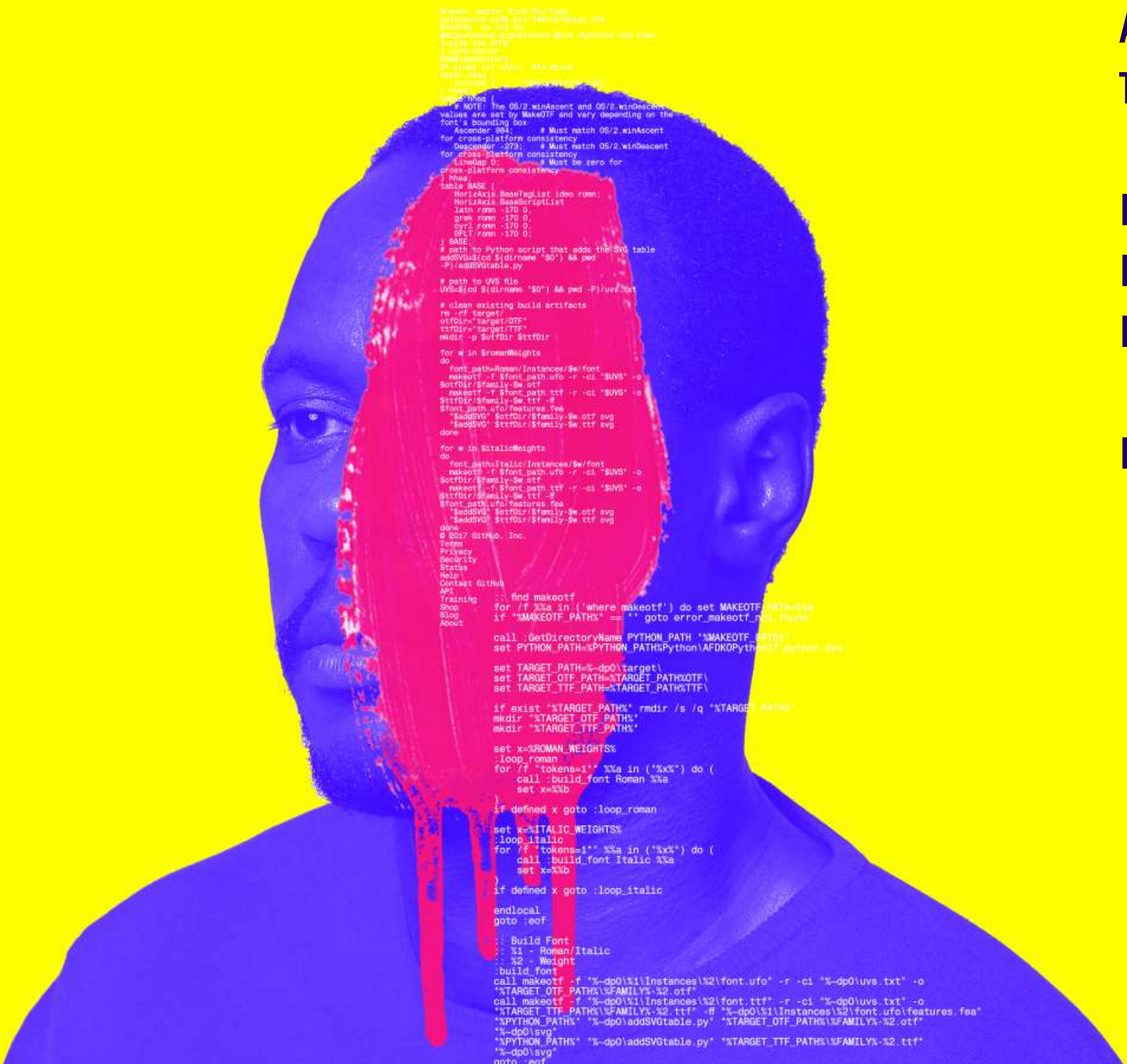
## GÉNOMIQUE







# SORTIR DU FANTASME - ÉTHIQUE ET BLACK-BOX



LA MACHINE N'A PAS D'AUTONOMIE  
AU SENS PHILOSOPHIQUE DU  
TERME ...

MAIS NOUS LUI TRANSFÉRONS NOS  
BIAIS LORS DU TRANSFERT DE  
NOTRE EXPÉRIENCE ...

DOUTE ET SENS CRITIQUE





# ECHANGES

CE QUE VOUS EN FEREZ  
OPÉRATIONS REPETITIVES



# DATA | DATA | DATA

DATA DRIVEN VS DATA INFORMED

DATA + HUMAINS > ALGOS

CYCLE DE PREPARATION





# DATA DRIVEN DATA INFORMED



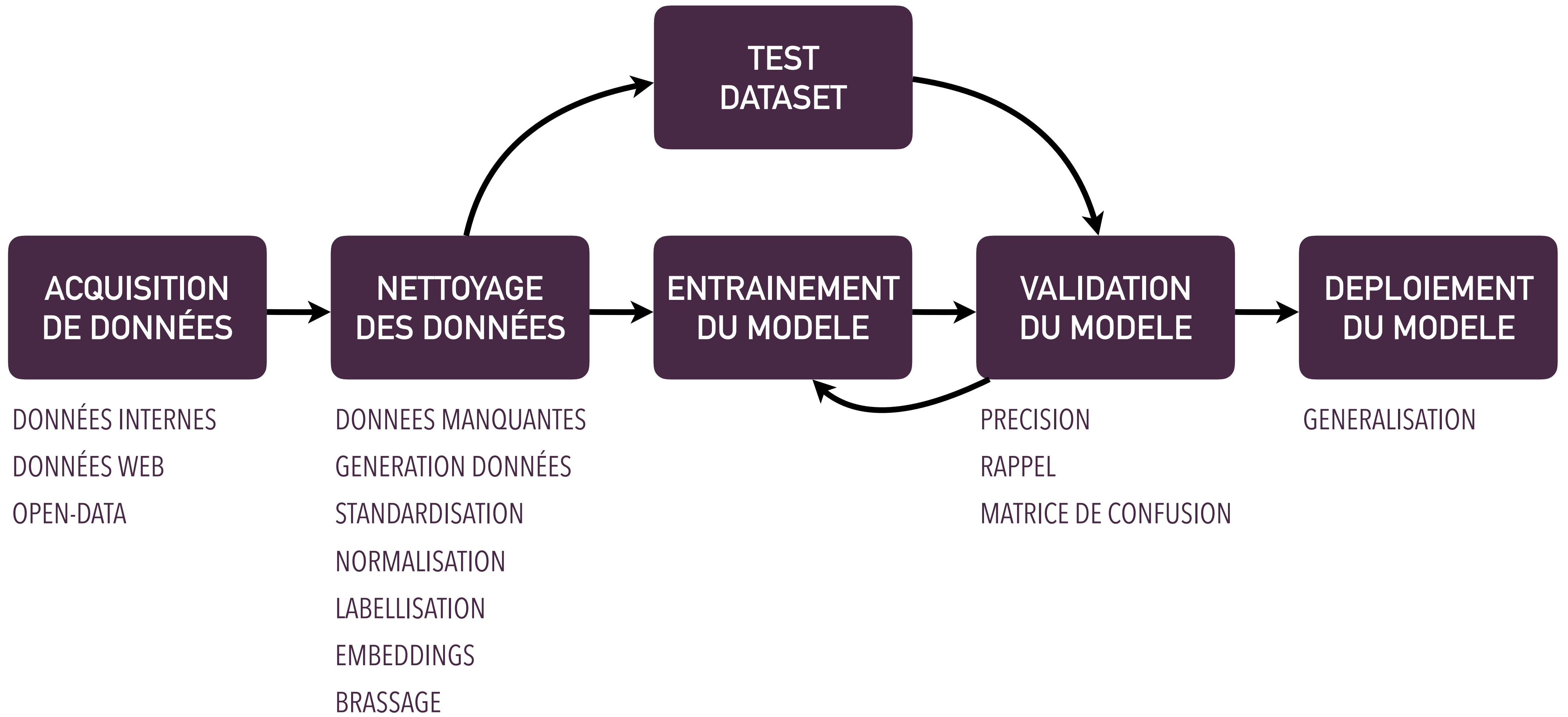
**Casper Sermsuksan**  
Head of Product & Growth at Kulina

<https://medium.freecodecamp.org/which-is-better-data-driven-or-data-informed-cba4d2c9cf42>





# CYCLE DE PREPARATION DE VOS DONNÉES







# CLASSIFICATION AUTOMATIQUE D'IMAGES

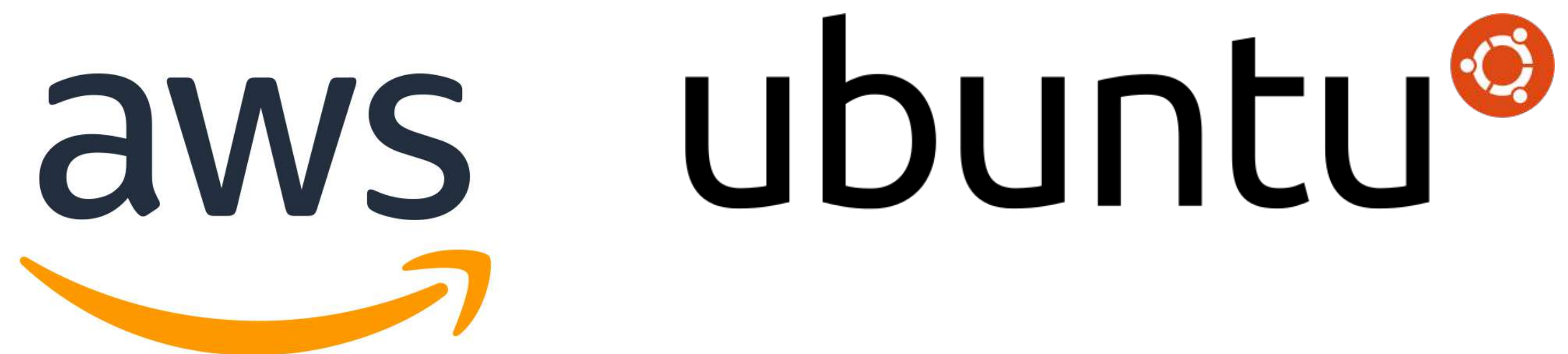
OUTILLAGE

SCENARIO - OBJECTIF - STRATEGIE

CORPUS DE DONNÉES

ENTRAINEMENT ET VALIDATION

# OUTILLAGE





# SCÉNARIO - OBJECTIFS - STRATEGIE

MASTERCLASS



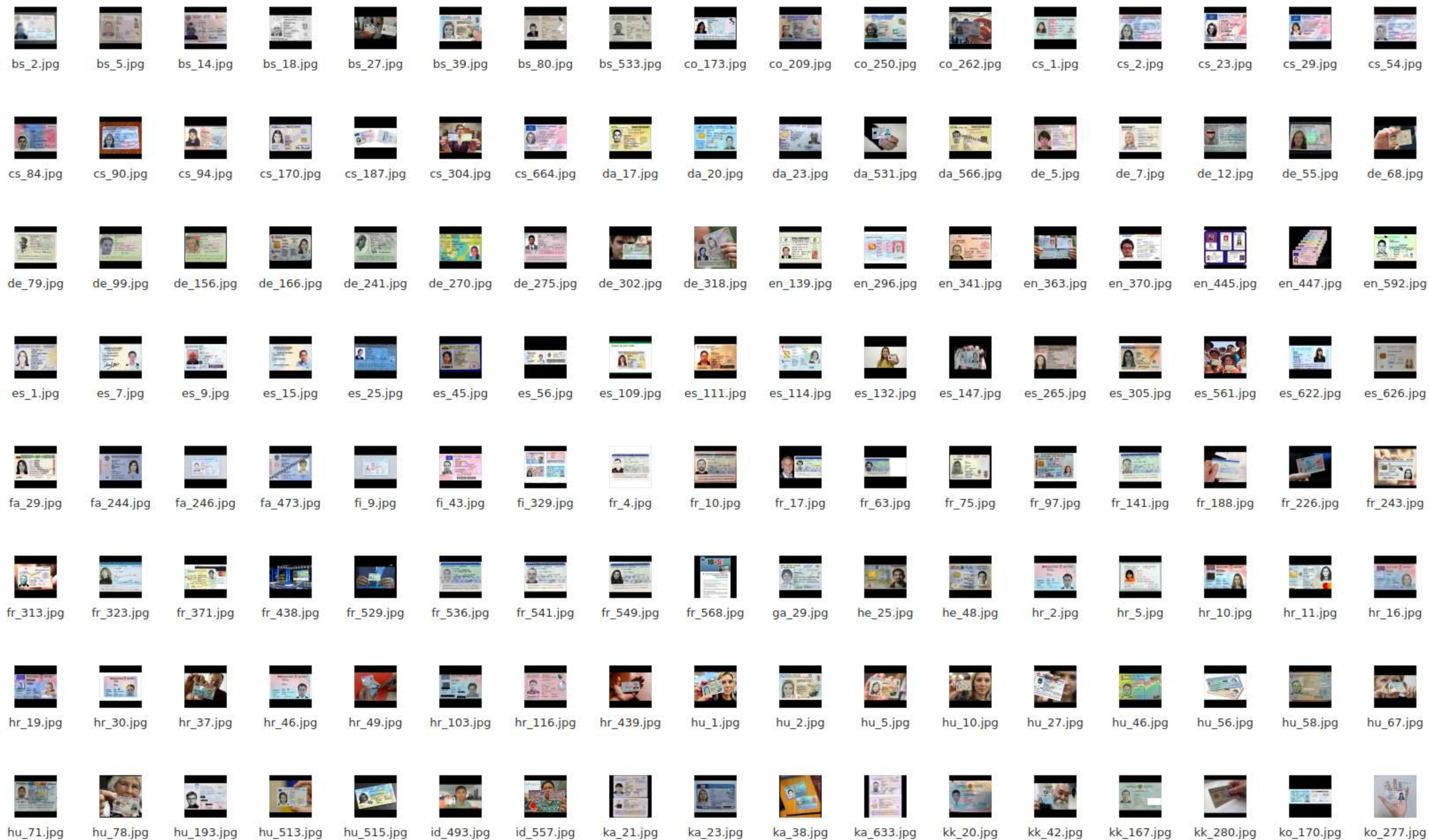
IA LEMANS







# CORPUS DE DONNÉES : 3 classes "anything", "inside", "identity"





# ENTRAINEMENT ET VALIDATION

## Looking at pictures again

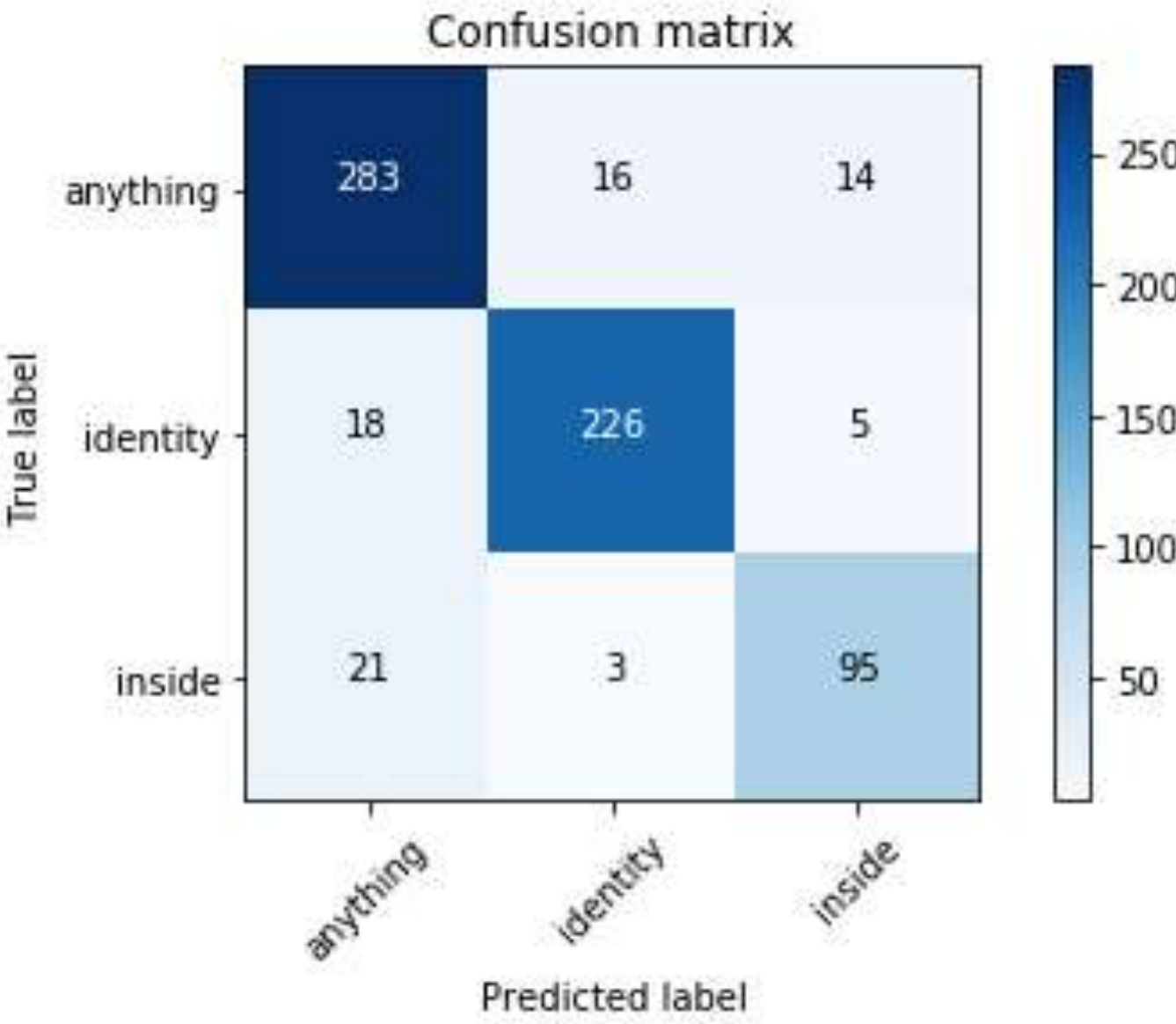
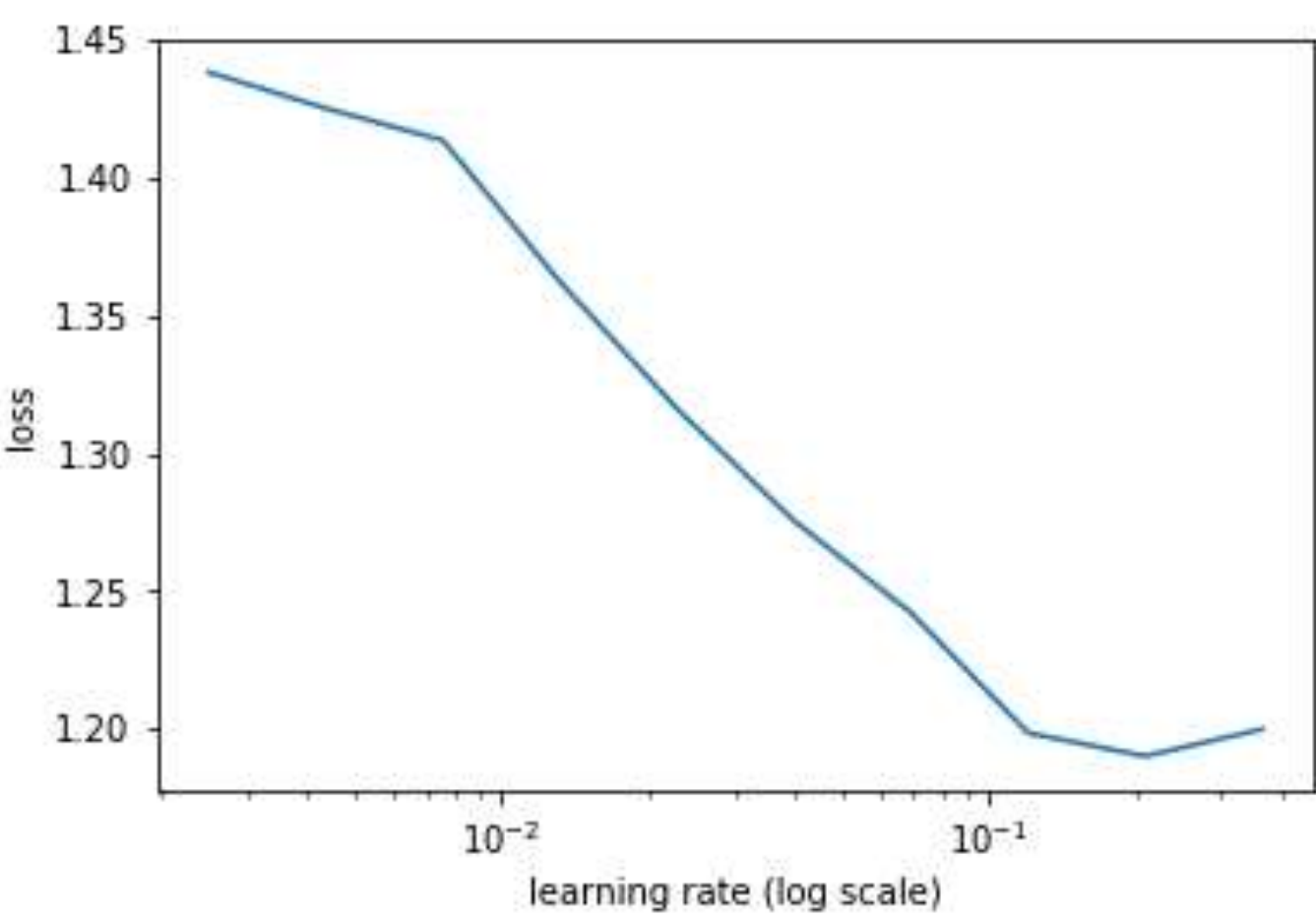
```
In [102]: plot_val_with_title(most_by_correct(0, False), "Most incorrect Anything")
```



```
In [103]: plot_val_with_title(most_by_correct(1, False), "Most incorrect Identity")
```



```
In [104]: plot_val_with_title(most_by_correct(2, False), "Most incorrect Inside")
```



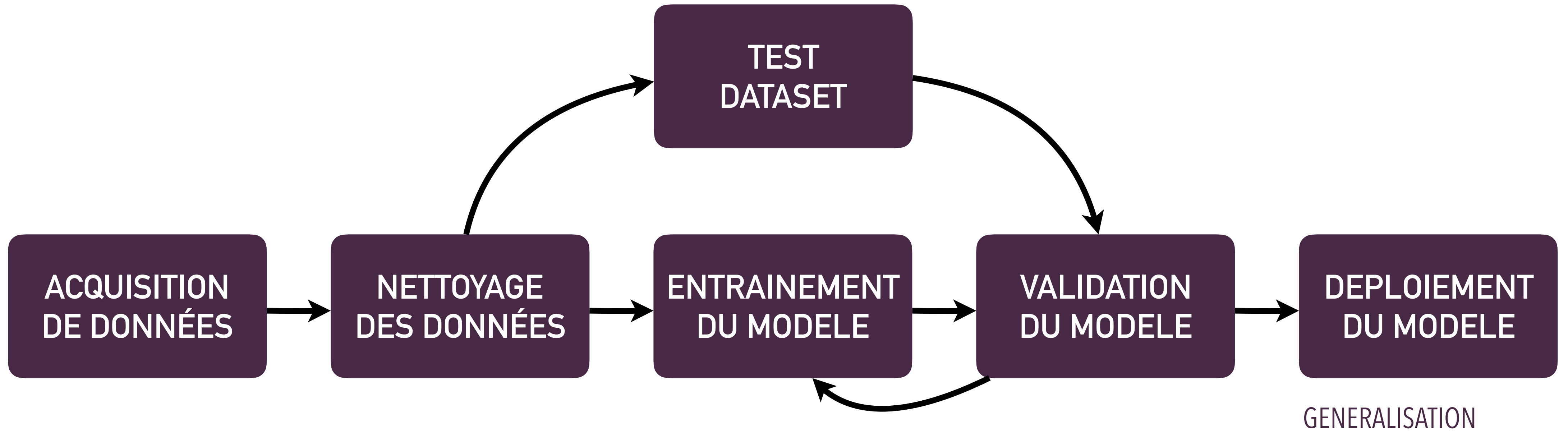


# TRAITEMENT IMAGES

# STRATEGIE PROJETS



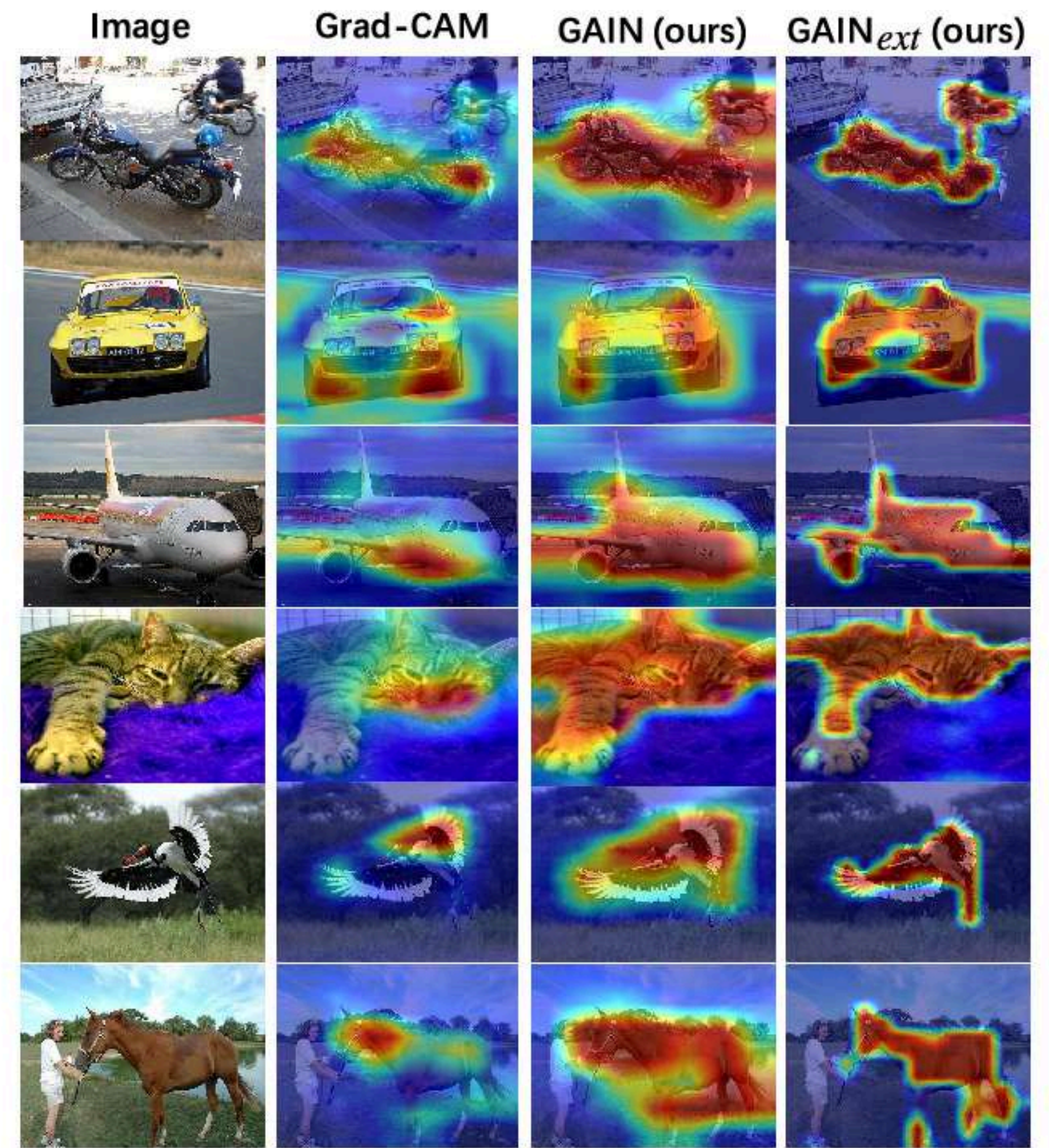
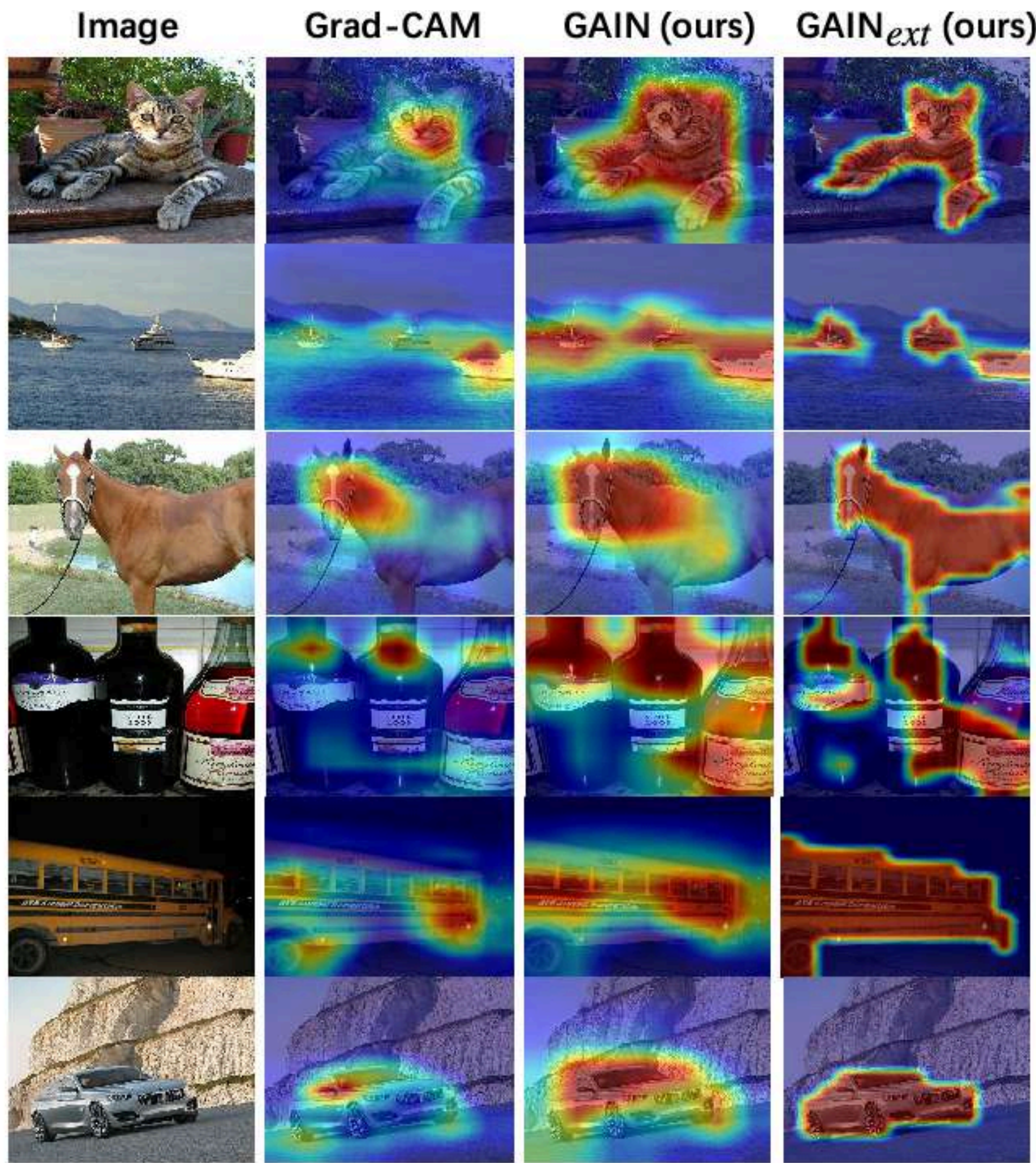
# CONSOLIDATION



GENERALISATION



# EXTENSION TRAITEMENT IMAGES



DETECTION D'OBJETS





# EXTENSION TRAITEMENT IMAGES



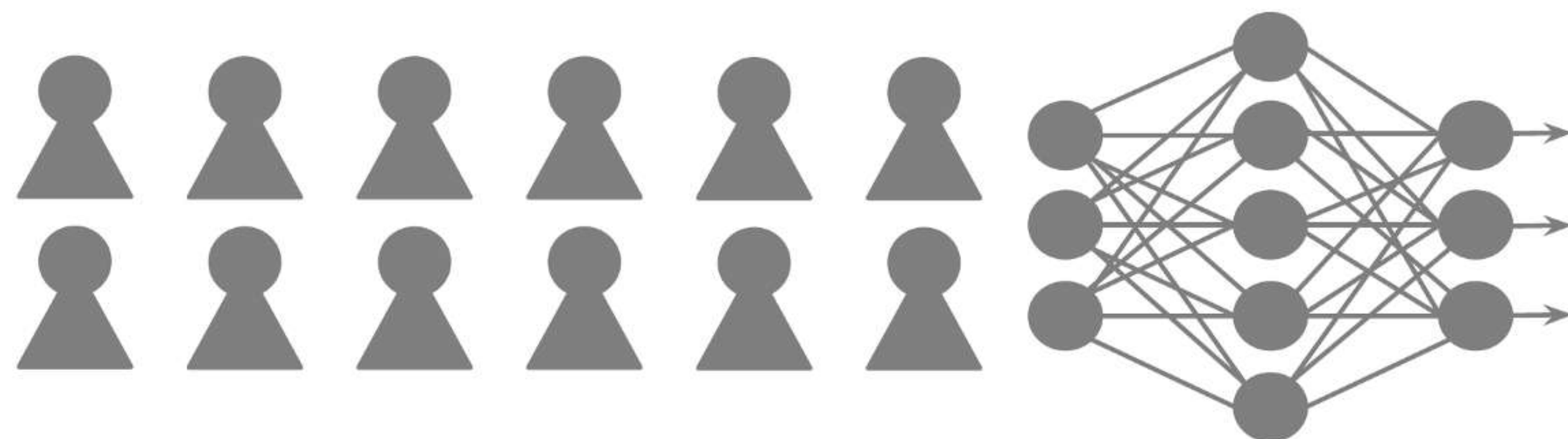
Features:	
Feature Name	Value
Description	{ "type": 0, "captions": [ { "text": "a man swimming in a pool of water", "confidence": 0.7850108693093019 } ] }
Tags	[ { "name": "water", "confidence": 0.9996442794799805 }, { "name": "sport", "confidence": 0.9504992365837097 }, { "name": "swimming", "confidence": 0.9062817096710205, "hint": "sport" }, { "name": "pool", "confidence": 0.8787589073181152 }, { "name": "water sport", "confidence": 0.631849467754364, "hint": "sport" } ]

MULTI LABELLING  
IMAGE DESCRIPTION



# STRATEGIES

**1** Pre-training: cheap large datasets on related domain



RE-TRAIN  
SPECIALISATION  
GOOGLE API VISION

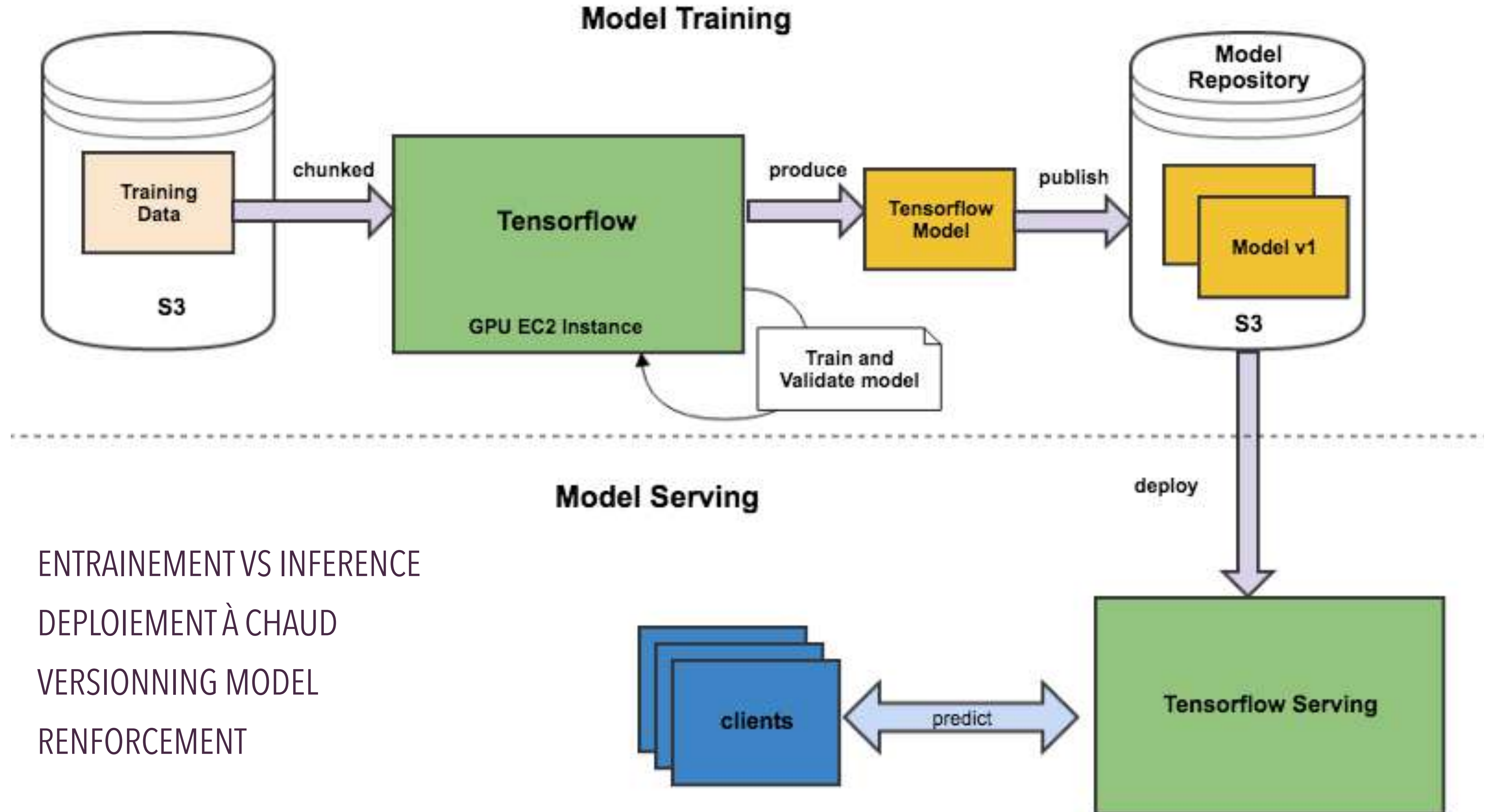
**2** Fine-tuning: expensive well-labeled data



Performance  
boost!



# STRATEGIES



ENTRAINEMENT VS INFERENCE

DEPLOIEMENT À CHAUD

VERSIONNING MODEL

RENFORCEMENT



# ECHANGES

**VOS DONNÉES ACTIVABLES  
ET CELLES AUXQUELLES  
VOUS N'AVIEZ PAS PENSÉ**





# FEEDBACKS



# MERCI !