



# Développez une Preuve de Concept (PoC)

Openclassrooms – IML P7 – Justine JARLETON



# Sommaire



MISSION



PLAN  
PRÉVISIONNEL



DÉMARCHE



DASHBOARD  
INTERACTIF



CONCLUSION





# La mission







# Plan prévisionnel



10/5/2024

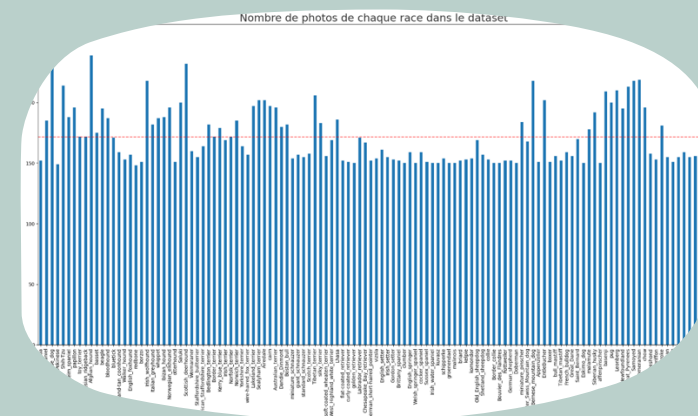
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# Le dataset

120  
races

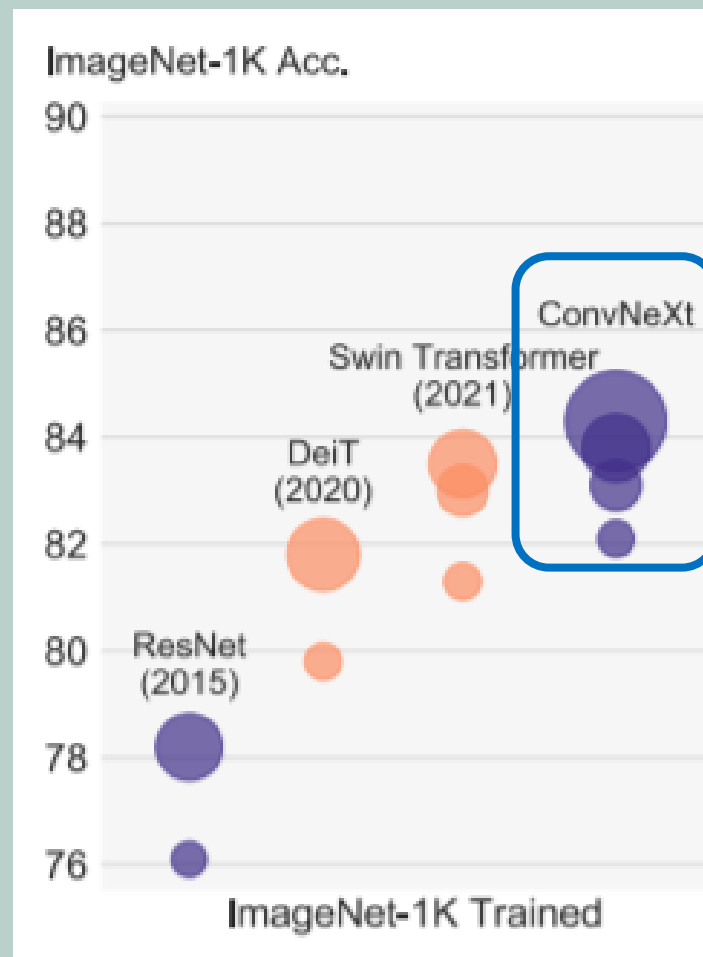
150 à  
250  
photos par  
race

20 580  
images





# Choix du modèle

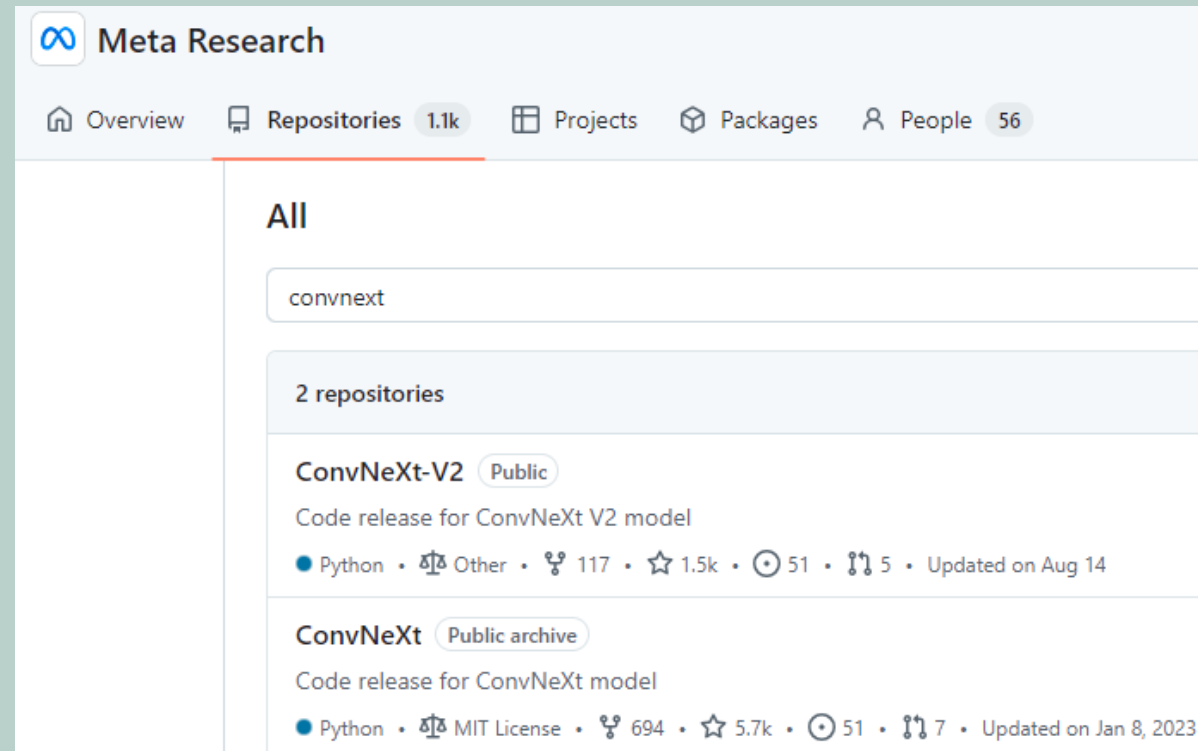




# Veille

- Preprint ArXiv en 2022

- CNN vs ViT ?





# Démarche



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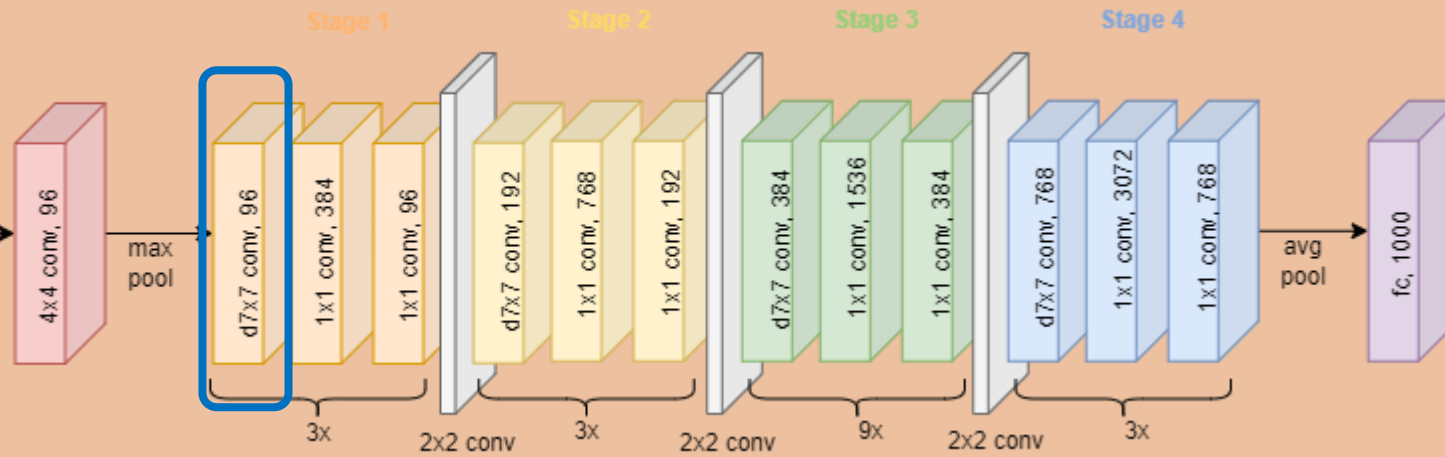


# Les architectures



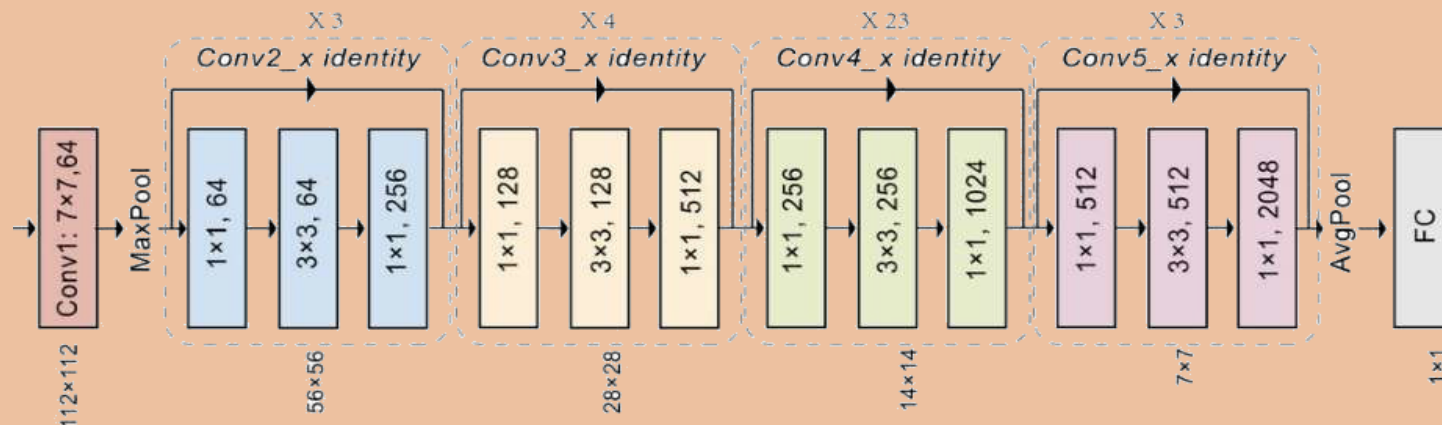
Image

Activation GELU



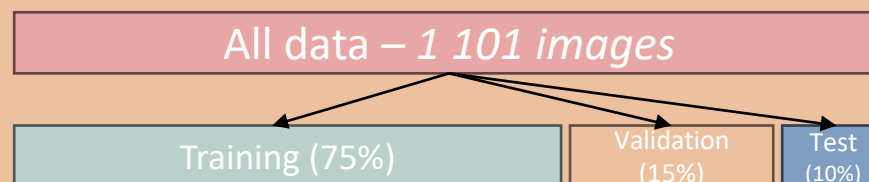
Image

Activation ReLU



# Modélisation

- Préprocessing identique
- Réalisation des jeux de données
- Transfer training (ImageNet)
- Fine tuning
- Entraînement sur les dernières couches seulement



Puis ...



Augmentation progressive du nombre de classes



# Fine tuning

- Epoch, taille batch, **early stop** ...

```
# Ensure you have imported the necessary libraries
from tensorflow.keras.optimizers import RMSprop
from tensorflow.keras.losses import CategoricalCrossentropy

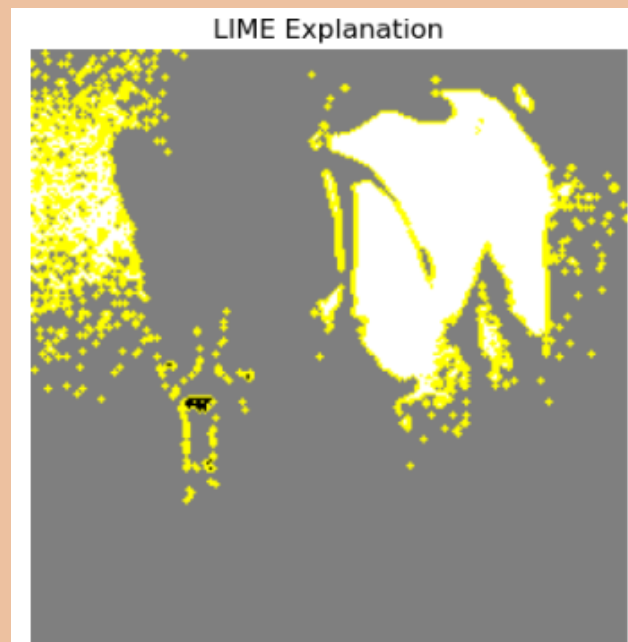
epochs_nb = 30
batch_size = 32
loss=CategoricalCrossentropy(), # Use a callable loss function, not a float
optimizer=RMSprop(learning_rate=0.001)
```

layer_normalization (LayerNormalization)	(None, 7, 7, 768)	1,536	add_17[0][0]
global_average_pooling2d_1 (GlobalAveragePooling2D)	(None, 768)	0	layer_normalization[0][0]
dense_1 (Dense)	(None, 128)	98,432	global_average_pooling2d_...
dense_2 (Dense)	(None, 5)	645	dense_1[0][0]



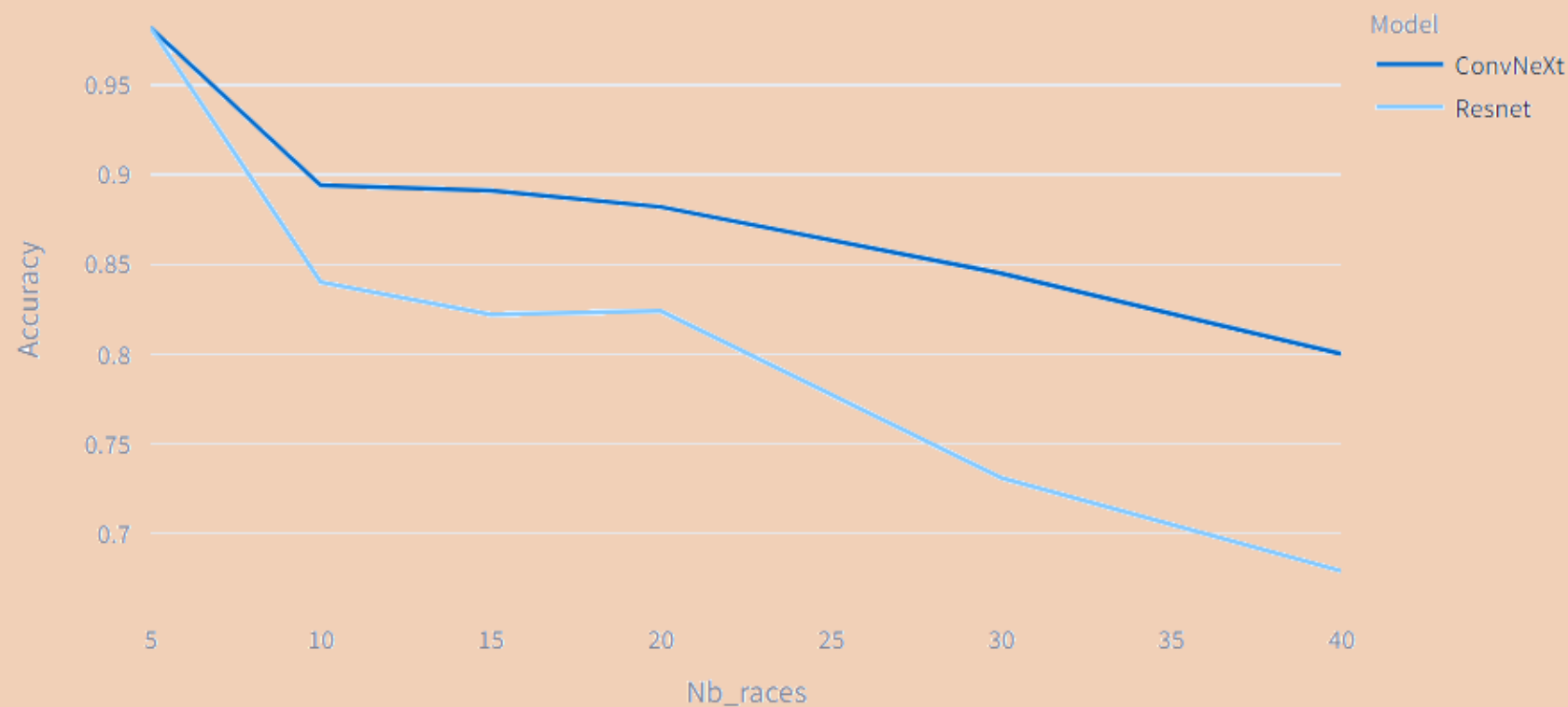


# Feature importance



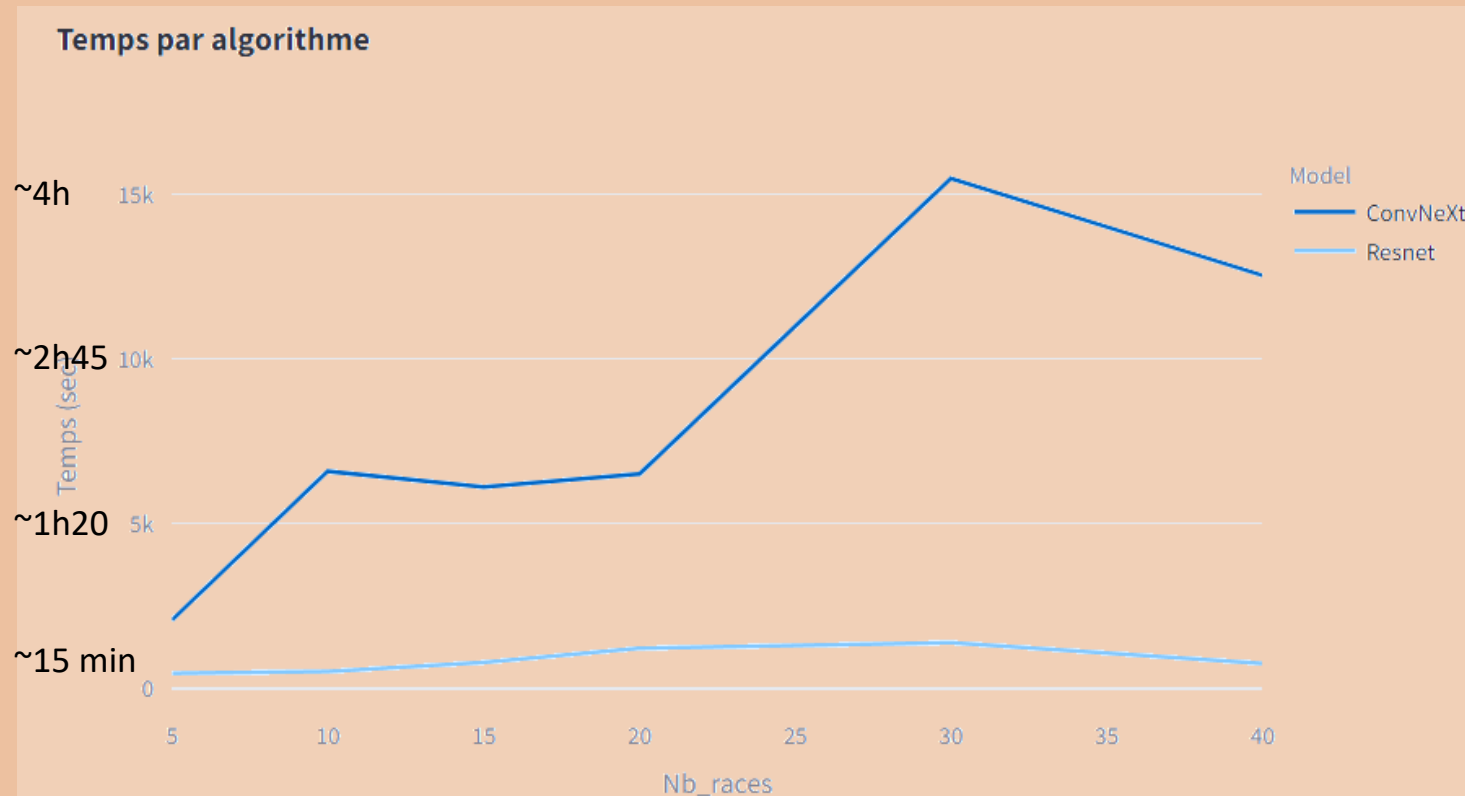
# Résultats

Accuracy par algorithme



# Résultats

Toutefois (sans GPU) ...







# Le Dashboard



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# Construction



OC\_IML\_P7

Public



main



1 Branch



0 Tags



JustineJa add model



IML\_P7\_Model\_ConvNeXt\_V3.ipynb



IML\_P7\_Model\_Resnet\_V3.ipynb



README.md



app.py



banniere.png



model.h5



races.csv



requirements.txt



results\_vf.csv





# Conclusion & perspectives

- Maintien relatif des performances
- Nécessité d'un GPU
- ConvNeXt V2 ?



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# Merci!



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