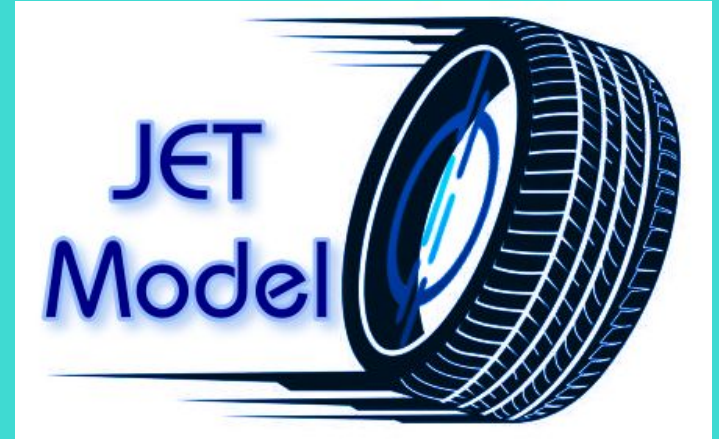




Your Tech Bootcamp



Group 2 - JET Model




(Jedha Evaluation Tyres)

Group members:

- Floriane Dussart
- Youenn Patat



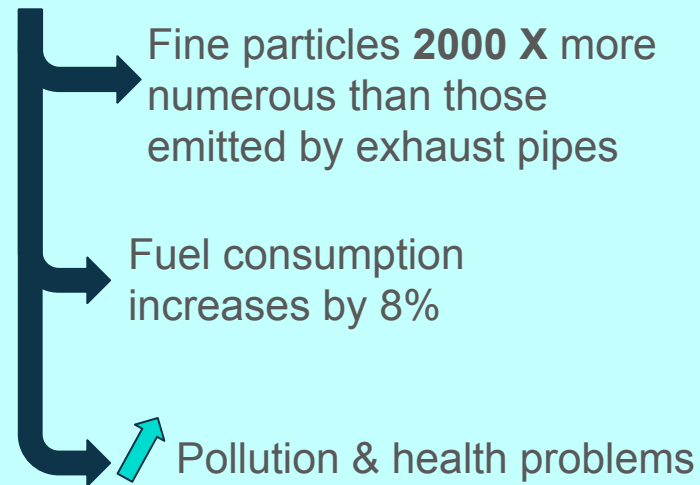
Context/Motivation

- To help users to maintain tyres of their vehicles
-  Tyre quality control by image:
 - Good condition (fit to drive) 
 - Bad condition (not fit to drive) 

→ Accidental statistics

- In France & Europe, **6%** of fatal road accidents

→ Ecological impact





Results

Our App : <https://huggingface.co/spaces/jedhajet/jedhaJetTer>



Boîte de réception (421) - you: JULIE jedhajet - a Hugging Face Tyres_evaluation_presentation HyraXuna/JET_Model

huggingface.co/spaces/jedhajet/jedhaJetTer

Spaces jedhajet/jedhaJetTer like 0 Running Logs App Files Community Settings

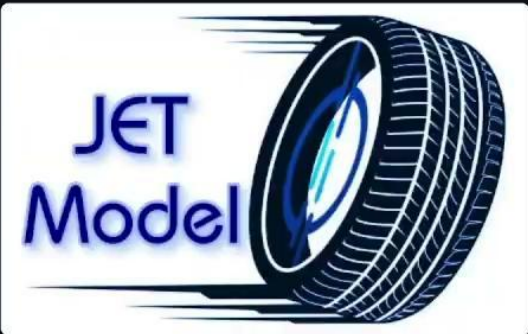
Predictions Overview Dataset Model

JET Model

JET

Détection d'usure de pneu par IA

Jedha Evaluation Tyres
A Convolutional Neural Network Project



L'objectif de ce projet est de déployer un modèle de *deep learning* permettant de contrôler la qualité des pneus à partir d'une image importée. La classification est la suivante:

- 👤 ⚙️ Contrôle de la qualité du pneu par image.
- Bon état (apte à rouler) ☒
- Mauvaise état (pas apte à rouler/à changer) ☒

Les informations sur les données utilisées se trouvent dans la page suivante, [Dataset](#). Les différentes informations sur le modèle de baseline, le plus simple et correct pour des premiers résultat, ainsi que sur le meilleur modèle obtenu pour effectuer les prédictions se trouvent sur la page [Model](#). La page [Predictions](#) vous permet de charger une photo de pneu et d'obtenir une prédiction sur sa qualité ainsi que des conseils de maintenance.

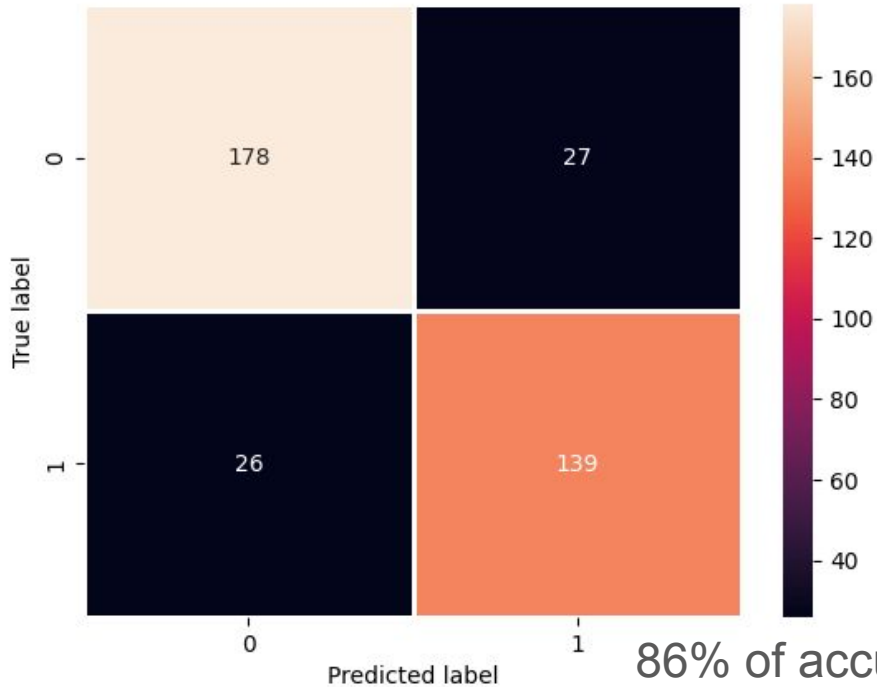
19°C Ensoleillé Rechercher FRA FR 1613 10/04/2025




Results for our best model

Confusion matrix


Result on validation set



- Satisfying results
- We can imagine use the model in sensors in the car, that can take pictures of tyre and send the result of tyre's quality into the dashboard of the car



Ok to drive ✓
Good quality



Not Ok to drive ✗
Bad quality
Change your tyre
- Help to reduce accident and pollution with a better maintaining of tyres

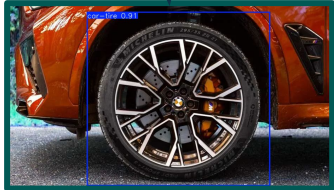


Solution description

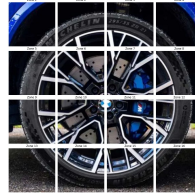


Deep Learning

Detection model

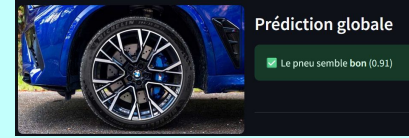


Preprocessing
OpenCv

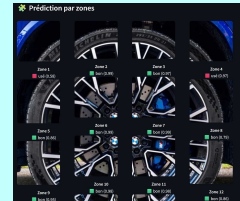


Classification
model

Global Prediction



Clipped
Prediction







Problems encountered

- Little Dataset (~1800 images). Limit for performances in deep learning
- Not enough dataset with more labels for a more precise classification
- Image processing is not straightforward to generalize to images of entire wheels and indicate results for each area of the tyre.



What's next?

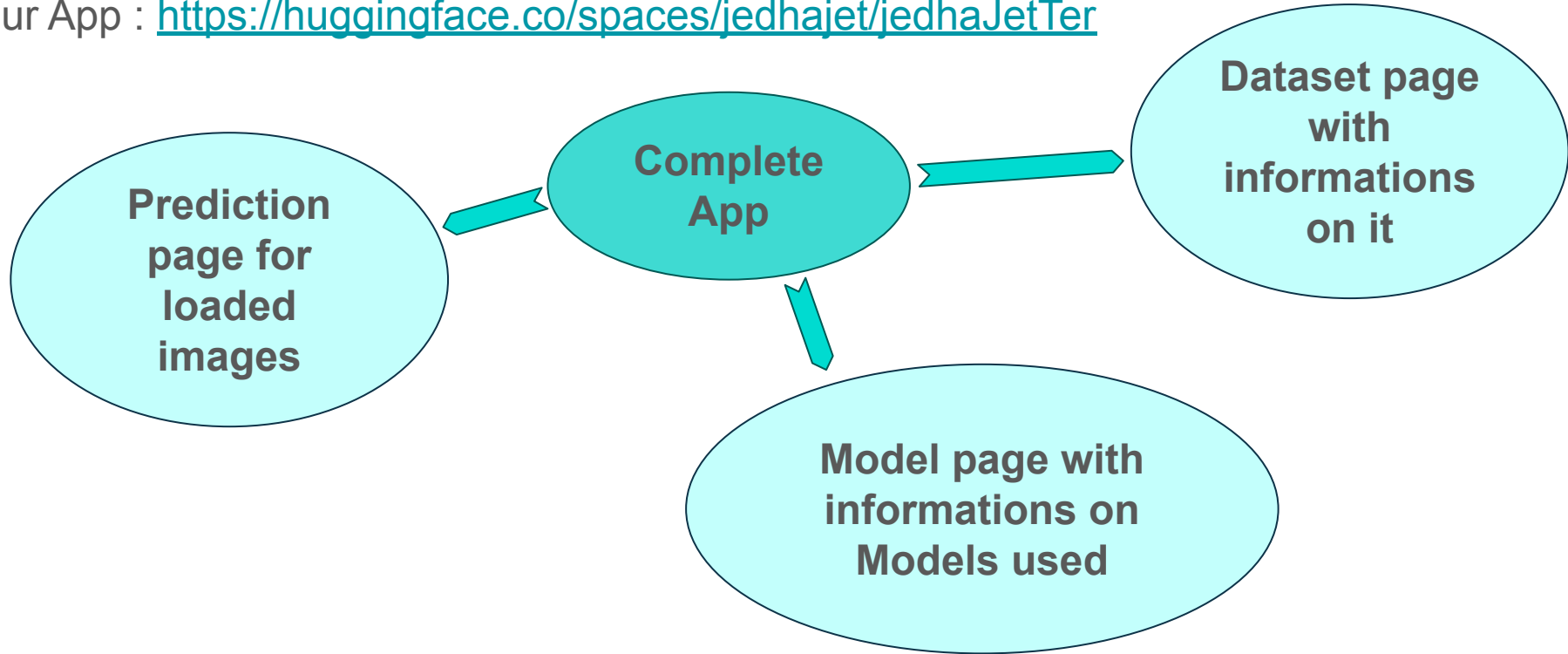
- Improve the image processing to generalize if we have a full wheel image. Select areas with tyre and predict on these sub-images to have a result (average/vote)
- Use bigger dataset with more classes (Not just  or ). Improve the answer with a more precise answer like:
- Maybe by doing some scraping

Class	Answer
100%	Perfect tyre
100-70%	Good quality
70-50	Medium, It's ok but warning. Think to change it shortly
<50%	Bad. Change it



Conclusion

Our App : <https://huggingface.co/spaces/jedhajet/jedhaJetTer>





Jedha

Any questions ?

