



MASTER OF SCIENCE
IN ENGINEERING

GPU Robot

Robot NVIDIA jetson - GPU project - Grp. 5

Rémi H. – Yann S. – Jonathan AD

January 30, 2026

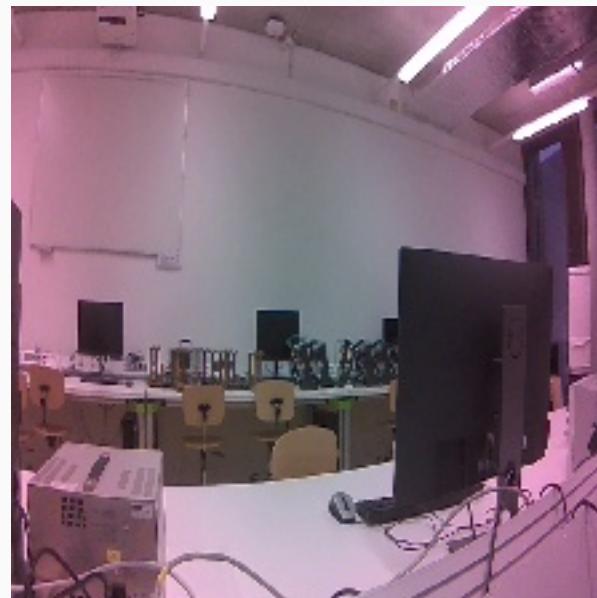
HES-SO Master

Personal Challenge

- work without CUDA3
- no server pictures

Dataset

taking a picture with the robot through PC-webviewer.go and with personal camera

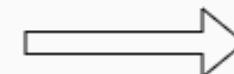
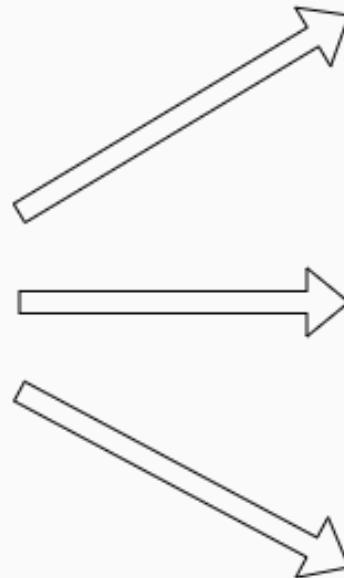


Cutting high res pictures



Original picture 8160×4590

Cut in three



Resize 224x224
Don't keep proportions
RGB balance

Nocible

Cible

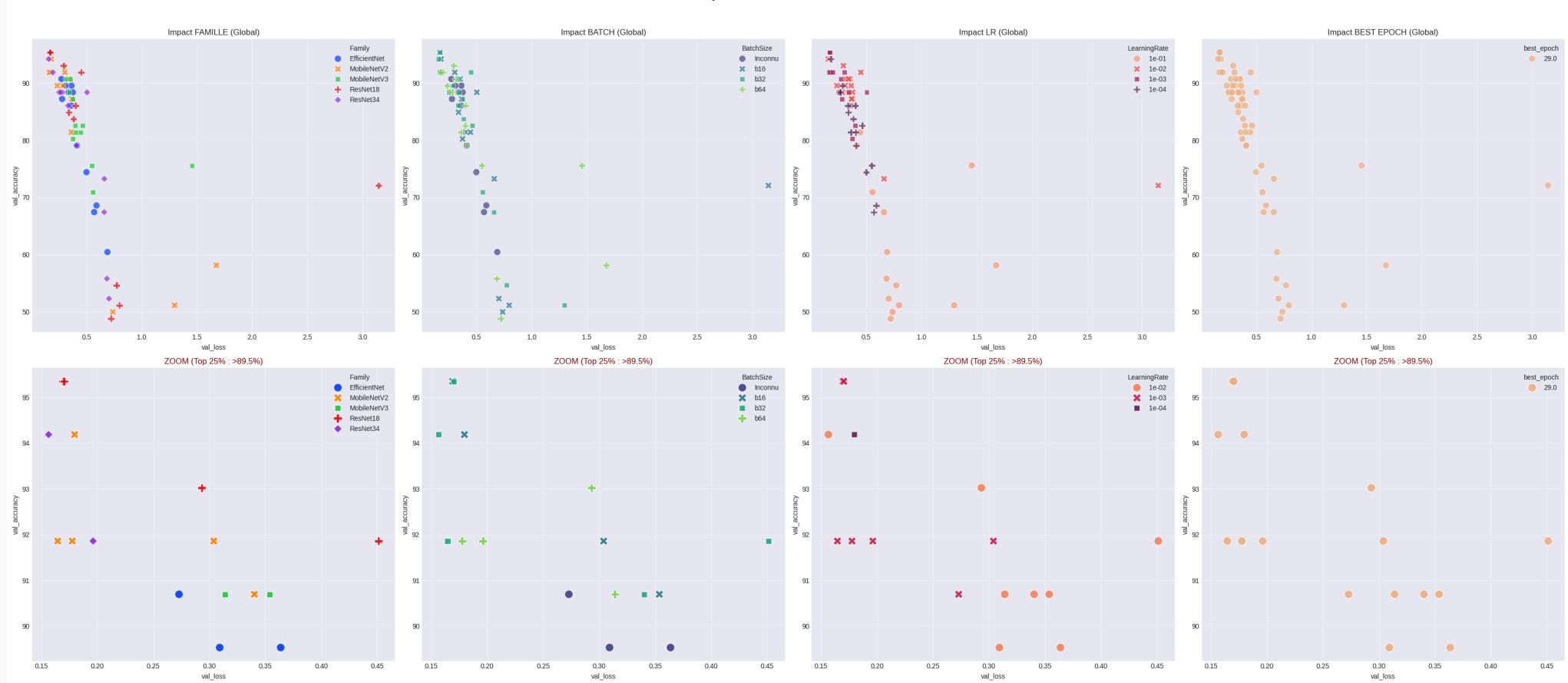
Nocible

Best model

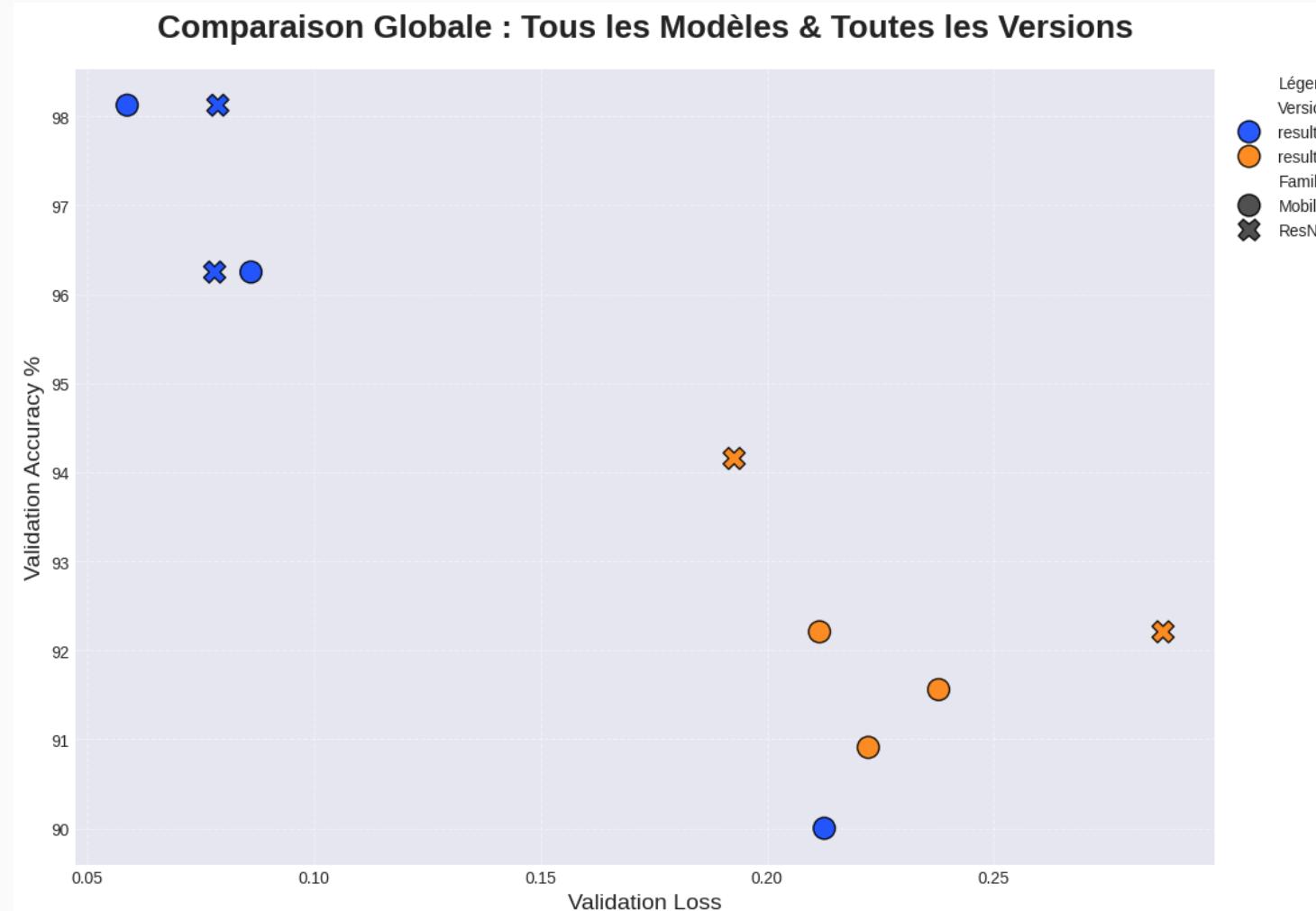
- Top 5 models by Gemini
 - ResNet-18
 - MobileNet_v2
- Hyper-parameters
 - Batch size
 - Learning Rate
 - Epoch
- Metrics
 - Accuracy
 - BCE Loss
 - FPS

Best model

Analyse Détalée : results-wave01



Best model

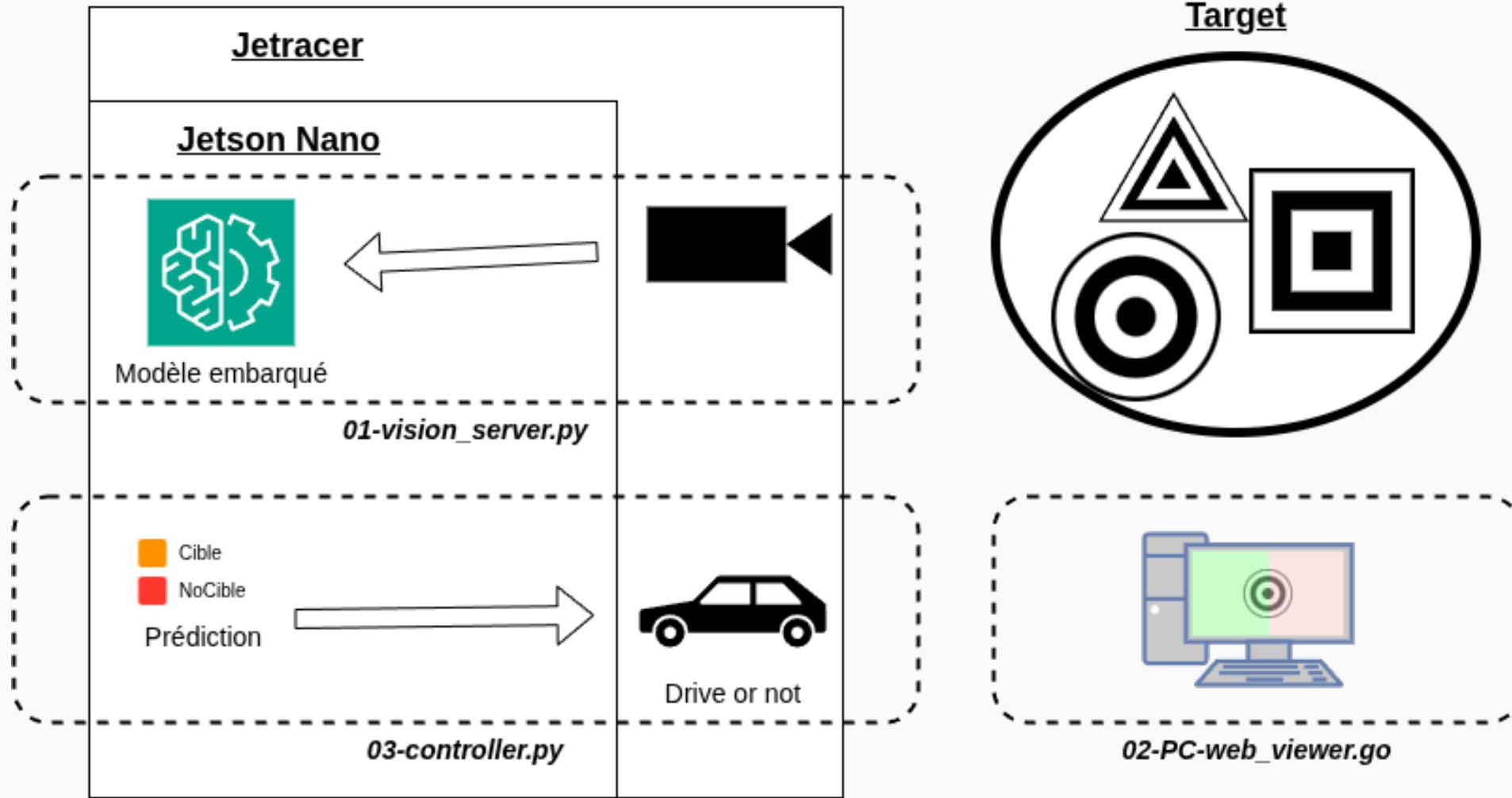


Best model

Model	Batch size	Learning rate	Epochs
mobilenet_v2	16	0,001	40

Accuracy	BCE
98.125 %	0.0588

Inference jetson



Step-up FPS

- ONNX too challenging
→ TensorRT ⇒ 18 → 30 FPS

Demo

- Use case 1 
- Use case 2 
- Use case 3 

Self-evaluation

⇒ self-evaluation: 4,5 / 6