



Perception Task

Cairo University Racing Team
Formula Student 2024

Task 1 – Cones Detection

Use any classical CV approach (no DL/ML) to detect the cones in the attached video of a real racing car in a track.

Yellow Cones is the left bound of the road.

Blue Cones is the right bound of the road.

Hint:

- Use OpenCV or Pillow (PIL). [Optional]
- Make 2 models, one to detect blue cones, another to detect yellow cones. And merge the output of two models as a final output. [Optional]

Deliverables:

- Python Notebook



Task 2 – Cars Model Classification

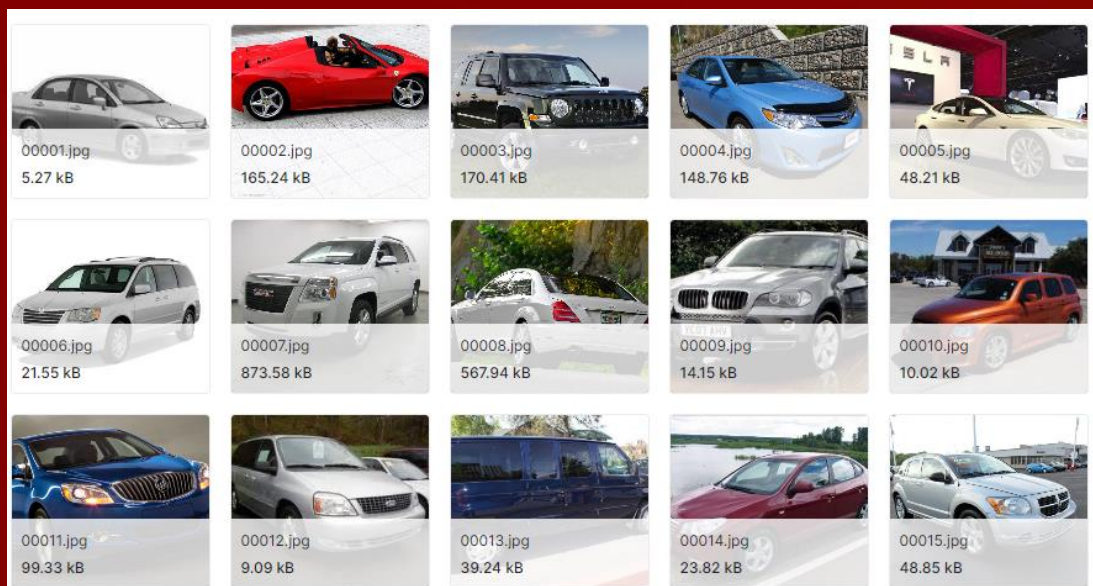
- Use the [famous Stanford Cars](#) dataset, implement a multi-class classifier using Deep Learning.
- The model should classify each car model.

Bonus:

- Use TensorFlow (Not Keras) or Torch.

Deliverables:

- Python Notebook



Bonus Task – Lane Detection

- Use the [Lane Detection Dataset](#) to perform Lane Detection, implement a lane detector classifier using Deep Learning.

Deliverables:

- Python Notebook

