EEEM071 Advanced Topics in Computer Vision and
Deep Learning
Coursework Assignment
(Spring 2025)

Vehicle Re-identification

Required resources

- To do this coursework you will need to connect to Google Colab (*suggested*). Please refer to your lab sheets of W5-W10 for more tutorials

Getting started

- Deep Learning for Person Re-Identification: A Survey and Outlook

- Trends in Vehicle Re-Identification Past, Present, and Future: A Comprehensive Review

- Lectures and Lab sheets for CNN Image classification and other Pytorch tutorials

- Reference code base in Github repo (see assignment)

Lab support

- Lab sessions on Monday and Tuesday each week. Get in touch with the TAs (Weiqing, Umar, Amirhossein, Zheng) during those sessions.

- You can use this demo Colab notebook to get started (see assignment)

- You can access the dataset (see assignment)

- A note on the dataset: this is the entire original VeRi dataset however the text id files have been modified such that you will only use a smaller portion of it for training your model. We did this to make using free GPU resources (such as Colab) easier.

Deliverables

- You can run your project in the Colab, if you have access to a local GPU you're welcome to use it.

- You should submit a PDF-format report, along with the log file. You must format your submission using the provided word document template on Surreylearn and convert the final report to the PDF format for submission.

- Deadline: See assignment (NOT miss otherwise penalty will be applied)

Implementation Details

To execute your code with the default settings, run:

```
!STUDENT_ID=kn00794 STUDENT_NAME="Jane Doe" python main.py \
-s veri \
-t veri \
-a mobilenet_v3_small \
--root /content \
--height 224 \
--width 224 \
--optim amsgrad \
--lr 0.0003 \
--max-epoch 2 \
--stepsize 20 40 \
--train-batch-size 64 \
--test-batch-size 100 \
--save-dir logs/mobilenet_v3_small-veri
```

You can change the different arguments to examine the changes in performance. You **must add** the **STUDENT_ID** and **STUDENT_NAME** variables in the command, otherwise the submission will be considered invalid