ADL Project - Car Detection In Snow

1 Description

Homam Mokayed at LTU suggested this project, using the dataset he helped create, the Nordic Vehicle Dataset (NVD), to detect cars in snow environments.

2 Dataset

The dataset can be found using this link, `https://nvd.ltu-ai.dev/`, and all information can be found there. The published paper about the dataset can also be found on the website but will be linked here for easy access `https://openaccess.thecvf.com/content/CVPR2023W/AICity/html/Mokayed_Nordic_Vehicle_Dataset_NVD_Performance_of_Vehicle_Detectors_Using_Newly_CVPRW_2023_paper.html`. The website also links to a GitHub you can look at for more information.

3 Task

This dataset is used to train a deep-learning network to detect cars in snow environments. Any deep learning libraries and frameworks can be used to work on this project. However, the following suggestions are for Pytorch, Tensorflow, or Keras.

Here is the step-by-step tasks::

1. Download and look at the Nordic Vehicle Dataset so you understand it and know how to use it.
2. Use any network architecture you choose, but YOLOv9 should be the base.
3. Evaluate the performance using appropriate metrics.

4 Deliverables

Following are the deliverables of the project for each group:

1. Project source code, trained model, and evaluation script on the test set on GitHub repository. The link to the GitHub repository needs to be shared and refer during the presentation.

2. 10 Minutes Project Presentation (4 to 5 slides), which typically includes methods, implementation, results, and learning outcome