**Data and Code Availability**

This document provides a detailed description of S1\_Code.zip.

**Description of Code Files:**

**Diversified processing of data sets.py:** Performs data augmentation on the collected dataset to increase its size and diversity. Operations include random adjustments to image brightness, sharpness, chroma, translation along the X and Y axes, and horizontal flipping.

**Mark the runway.py:** Processes input images to detect and mark lane lines. The algorithm utilizes Canny edge detection followed by a Hough transform to identify and annotate the runway.

**Models.py:** Defines the neural network architecture. It contains the implementation of the proposed model, which integrates the Non Local Block and Ghost Module into a ResNet-18 baseline.

**Train.py:** Manages the model training process. This script includes the training loop, loss function, and the implementation of the ReduceLROnPlateaulearning rate scheduler for adaptive learning rate adjustment, alongside an early stopping mechanism.

**Access to Full Data and Code:**

The complete dataset and the most up-to-date version of the code are permanently and publicly available to ensure full reproducibility:

**Dataset:** The entire dataset used for training and evaluation in this study has been deposited on Zenodo:

**DOI:** [10.5281/zenodo.17240505](https://doi.org/10.5281/zenodo.17240505).

**Code Repository:** The complete codebase, including these scripts and additional resources, is hosted on GitHub:

**URL:** https://github.com/haohan-888/Robot-steering-angle-prediction-lightweight-network-based-non-local-attention-and-lane-guidance