**TwinLiteNet: An Efficient and Lightweight Model for Drivable Area and Lane Segmentation in Self-Driving Cars**

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**Description:**

This project employs TwinLiteNet architecture as a starting point and it is modified to suit the requirements of road detection. The model will consist of one encoder and two decoders, with the encoder learning the representation of the input image and the decoders performing the segmentation of the road and non-road areas. We will incorporate Dual Attention Modules into the network to capture global dependencies in both spatial and channel dimensions, as suggested in the paper.

To train the model, we will use a dataset of road images with corresponding ground truth labels. We will use various loss functions, such as binary cross-entropy and dice loss and focal and Tversky loss, to optimize the model parameters. We will also use data augmentation techniques, such as random cropping and flipping, to increase the diversity of the training data and improve the model's generalization ability.

**Description of Dataset and Format:**