Accurate Traffic Sign Recognition using the LISA Dataset and Multi-Scale Convolutional Networks

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Abstract- CNN models based off European traffic sign datasets have been over-represented, with the most popular one being the German Traffic Sign Recognition Benchmark (GTSRB). To help facilitate for the gap of CNN models trained off U.S. traffic signs, this paper introduces a model using the Laboratory for Intelligent & Safe Automobiles (LISA) dataset of U.S traffic signs. This CNN model is structured based on the EdLeNet architecture as described by Yann LeCun in his paper on traffic sign recognition. The system yielded an accuracy of __% mAP using 32x32 input images. This level of accuracy remained unchanged when augmented images were fed to the model during the testing phase. This performance rivals that of a Single Shot Multibox Detector (SSD) approach. The emergence of a convolutional network model based on U.S. traffic signs will hopefully pave the way for driver assistance systems in the United States.