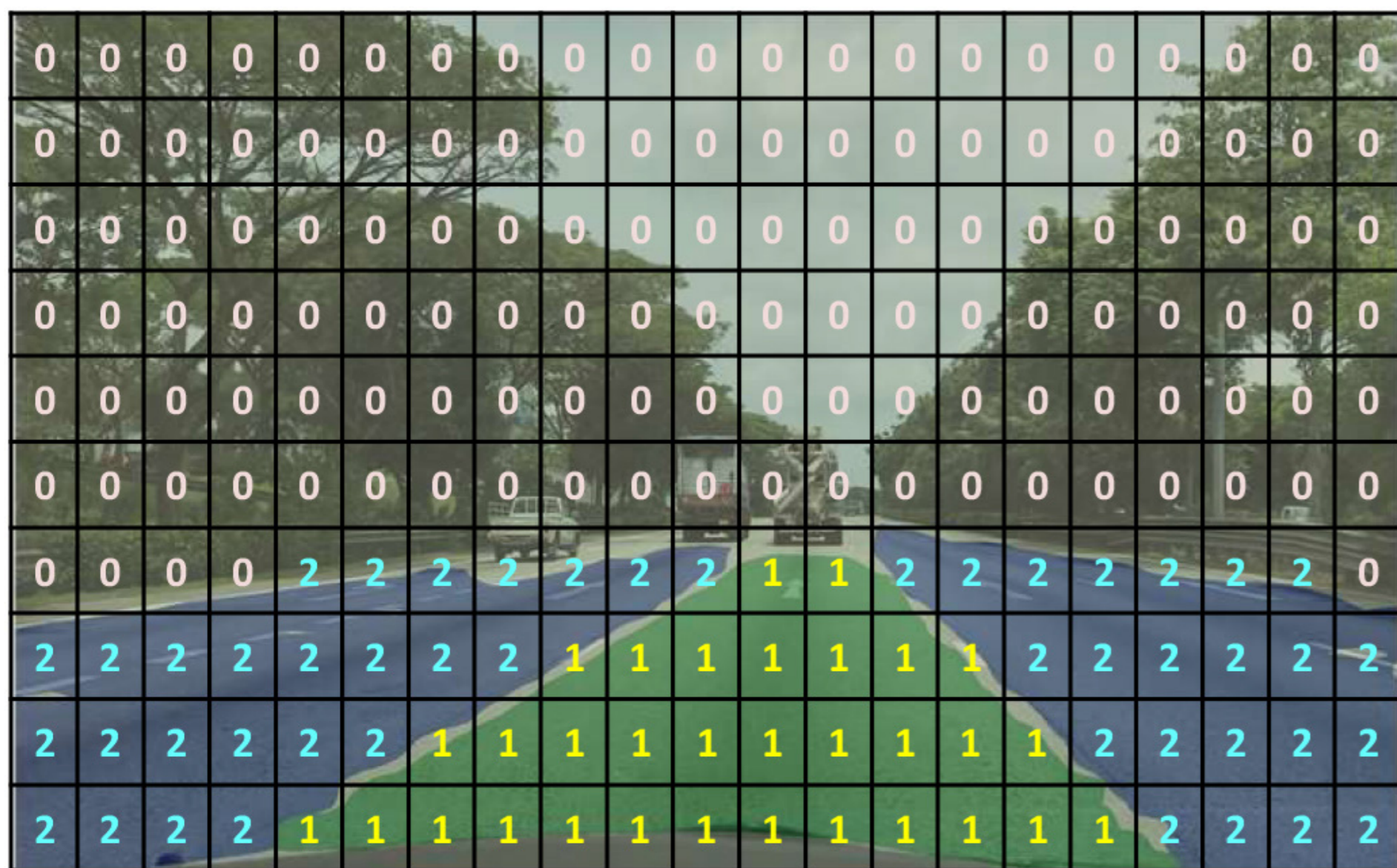


Deep Learning for Video Segmentation

Semantic Segmentation for Drivable Lanes

Twitter Sentiment Visualizer

Unlike traditional image classification tasks, Semantic Segmentation is a core task in Computer Vision and it involves assigning a class label to every single pixel in the image. In this project, there are three classes: the background, drivable and alternate lanes.



Results

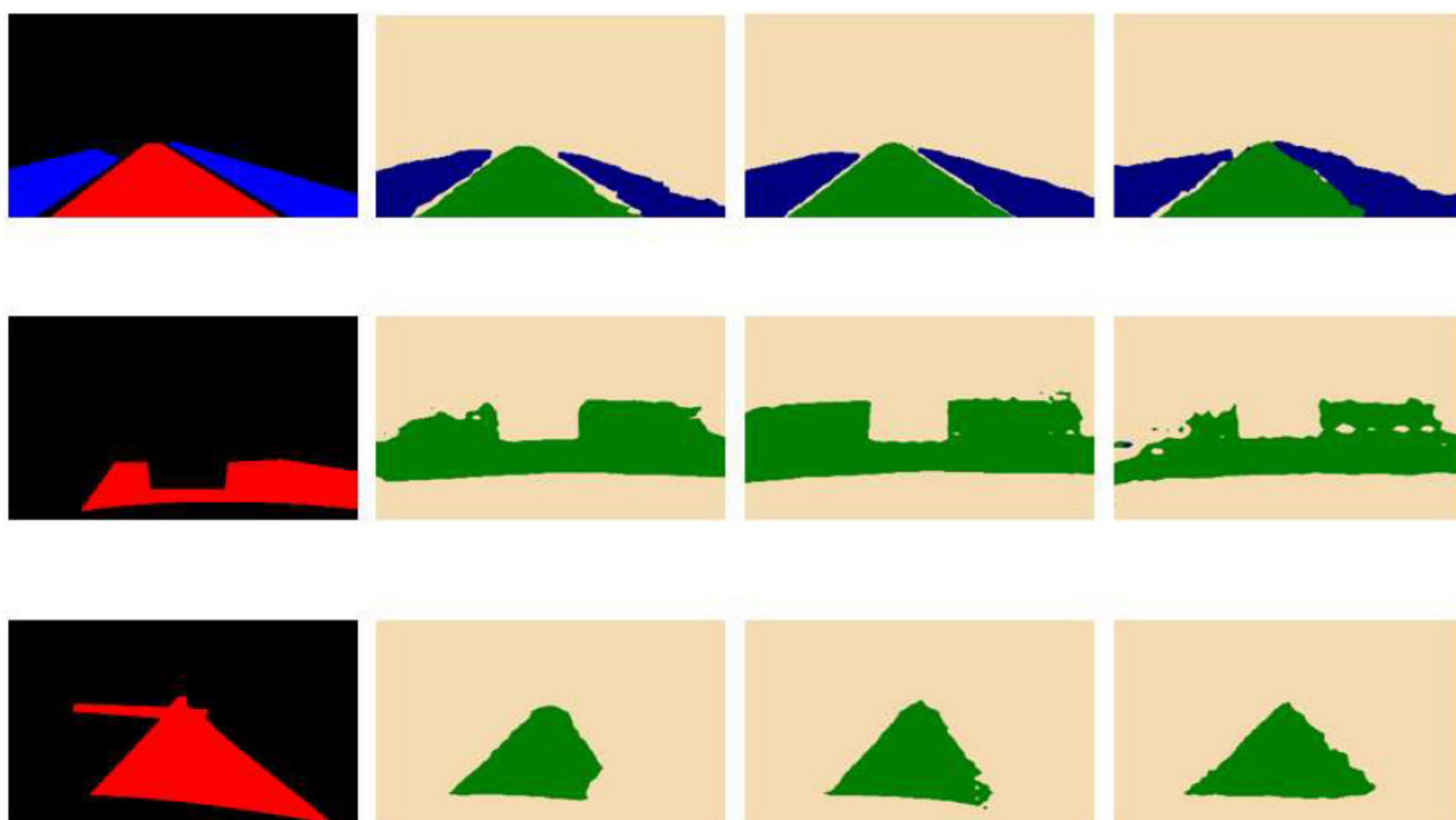
This project uses Convolutional Neural Networks (CNNs) implemented in PyTorch for Semantic Segmentation. Analysis and evaluation between three models on the Berkeley DeepDrive dataset were done and the results are as shown.

Model	mIOU on Validation Dataset
DeepLabV2	78.83
DeepLabV3	84.30
MobileNetV2+ASPP	76.10

Model	Frames Per Second (FPS)
DeepLabV2	~6.6
DeepLabV3	~6.0
MobileNetV2+ASPP	~17.0

Visualisation

Berkeley DeepDrive Dataset



Singapore Roads



After training and evaluating the three models on the Berkeley DeepDrive dataset, the frames of an 18-minute video recording of Singapore were fed into the models and the segmentation masks were applied to the drivable and alternate road lanes.