# Effects of Data Augmentation and Image Preprocessing for Traffic Sign Classification in a Convolutional Neural Network

By Michael Bornstein (mbornst@umich.edu)

With the rise of autonomous vehicles, there is a need to accurate and efficient identification of traffic signs. Two different methods of dataset augmentation and two methods of image preprocessing were evaluated for potential benefits when training a convolutional neural network. Each network was trained with the same network architecture for the same number of epochs. Each network was trained 10 times each to get mean and standard deviation data. Dataset augmentation proved beneficial, but at the cost of significant amounts of computer memory and training time. The image preprocessing techniques decreased overall performance.

**LINKS:**
**https://youtu.be/ccelFNI5aik**

**https://drive.google.com/drive/folders/1MAEfFubTfPGAOgPqI_ptRmv6w_712Vig?usp=sharing**

**https://github.com/mbornst/ece-5831-project**