Traffic Sign Classification

This is a classification problem which will use deep learning methods to classify traffic sign images, extract the information from the images (the meaning of the sign) and output the information.

Context: One of the hottest topics of the last few years has been electric, self-driving smart vehicles. What's the one most important feature of self-driving cars? They are able to recognize the traffic signs accurately. And by accurate here I mean they need to recognize traffic signs 100% of the time - there is no room for errors, especially considering human life is in the balance. Creating a model able to recognize all the traffic signs will help deliver safer cars.

The traffic sign data needs to be fed back to the user of the car in real time in case of a non-self-driving car. This ensures that the user is alert. For example, some cars come with the speed recognition feature in the car. The car recognizes the speed limit on the road and feeds it back on the dashboard for the user to be aware (in case they missed it). This feature becomes even more important when it comes to self-driving cars, in which case the car is in control. This will help the car stay in lane, stay within the speed limits and take appropriate actions corresponding to the sign it encounters.

Key Data Source: The data that will be used will be taken from here.

Scope: The dataset contains 43 images of traffic sign classes and nearly 50,000 images to work with. The main data file contains a path to the image and the corresponding shape of the sign (triangular, circular, etc.), the color of the sign (red, yellow, etc.), the image class ID and the sign ID.

Criteria for success: Create a model with a high accuracy (>90%).