Traffic Sign Recognition for Autonomous Vehicles

Industry: Automotive

Description: Develop a system to recognize traffic signs from images, a key component of self-driving cars.

Instructions:

1. Load and preprocess image data (resize, augment).
2. Build a CNN model to classify traffic signs into categories (e.g., stop, yield).
3. Train the model and fine-tune hyperparameters.
4. Test on a validation set and evaluate with accuracy and confusion matrix.
5. Simulate real-time recognition with a webcam (optional).

Dataset: German Traffic Sign Recognition Benchmark (GTSRB)
Tools: Python, TensorFlow/Keras, OpenCV