



NARASARAOPETA ENGINEERING COLLEGE
(Autonomous)
DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING
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Batch Number	BB-11
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Guide	E. Rama Krishna
Title	Traffic Signs Recognition using Deep Learning
Domain/Technology	Deep Learning
Dataset Link	https://www.kaggle.com/datasets/meowmeowmeowmeowmeow/gtsrb-german-traffic-sign
Base Paper Link	https://ieeexplore.ieee.org/document/9353477
Software Requirements	Browser: Any Latest browser like Chrome Operating System: Windows 10 Language: Python Platform: Visual Studio Code
Hardware Requirements	Processor: Intel(R) Core™2 i5-5500U CPU @ 2.50GHz RAM: 8GB (gigabyte) System Type: 64-bit operating system, x64-based processor
Abstract	The automatic recognition of traffic signs is essential to autonomous driving, assisted driving, and driving safety. Currently, convolutional neural network (CNN) is the most popular deep learning algorithm in traffic sign recognition. However, the CNN cannot capture the poses, perspectives, and directions of the image, nor accurately recognize traffic signs from different perspectives. To solve the problem, the authors presented an automatic recognition algorithm for traffic signs based on visual inspection. Furthermore, a traffic sign recognition learning architecture was created based on CapsNet, which relies on neurons to represent target parameters like dynamic routing, path pose and direction, and effectively capture the traffic sign information from different angles or directions. Finally, our model was compared with several baseline methods through experiments on LISA (Laboratory for Intelligent and Safe Automobiles) traffic sign dataset. The model performance was measured by mean average precision (MAP), time, memory, floating point operations per second (FLOPS), and parameter number. The results show that our model consumed shorter time yet better recognition performance than baseline methods, including CNN, support vector machine (SVM), and region-based fully convolutional network (R-FCN) ResNet 101.