



K. N. Toosi University of Technology

In the name of God

Computer Vision

Faculty of mechanical
engineering

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Assignment 4

Due date: 01/03/20

- 1- By using [German Traffic Sign Detection Benchmark \(GTSDDB\)](#):
 - a. There are 43 different traffic signs in this dataset. Train the YOLOv4 model for these classes on the training set, then evaluate and report the model's performance on both training and test sets.
 - b. The signs in the dataset can be divided into 4 groups: Prohibitory, Danger, Mandatory, and Others. Train the YOLOv4 model on the training set to detect these four classes, then evaluate and report the model's performance on both training and test sets.
 - c. Discuss the obtained results.

- 2- How could you use Mixup for object detection? Explain your solution in full detail, including the ground truth for augmented image, regression loss (bounding box loss), and classification loss. Augment four different pictures from (GTSDDB) with Mixup, visualize the augmented image and its corresponding bounding boxes, then discuss your solution based on the augmented images.

Good Luck