NANYANG TECHNOLOGICAL UNIVERSITY SINGAPORE

School of Computer Science and Engineering
College of Engineering

Data Augmentation for Computer Vision Problems

Enhancing Training and Generalization of Object-Detection Models

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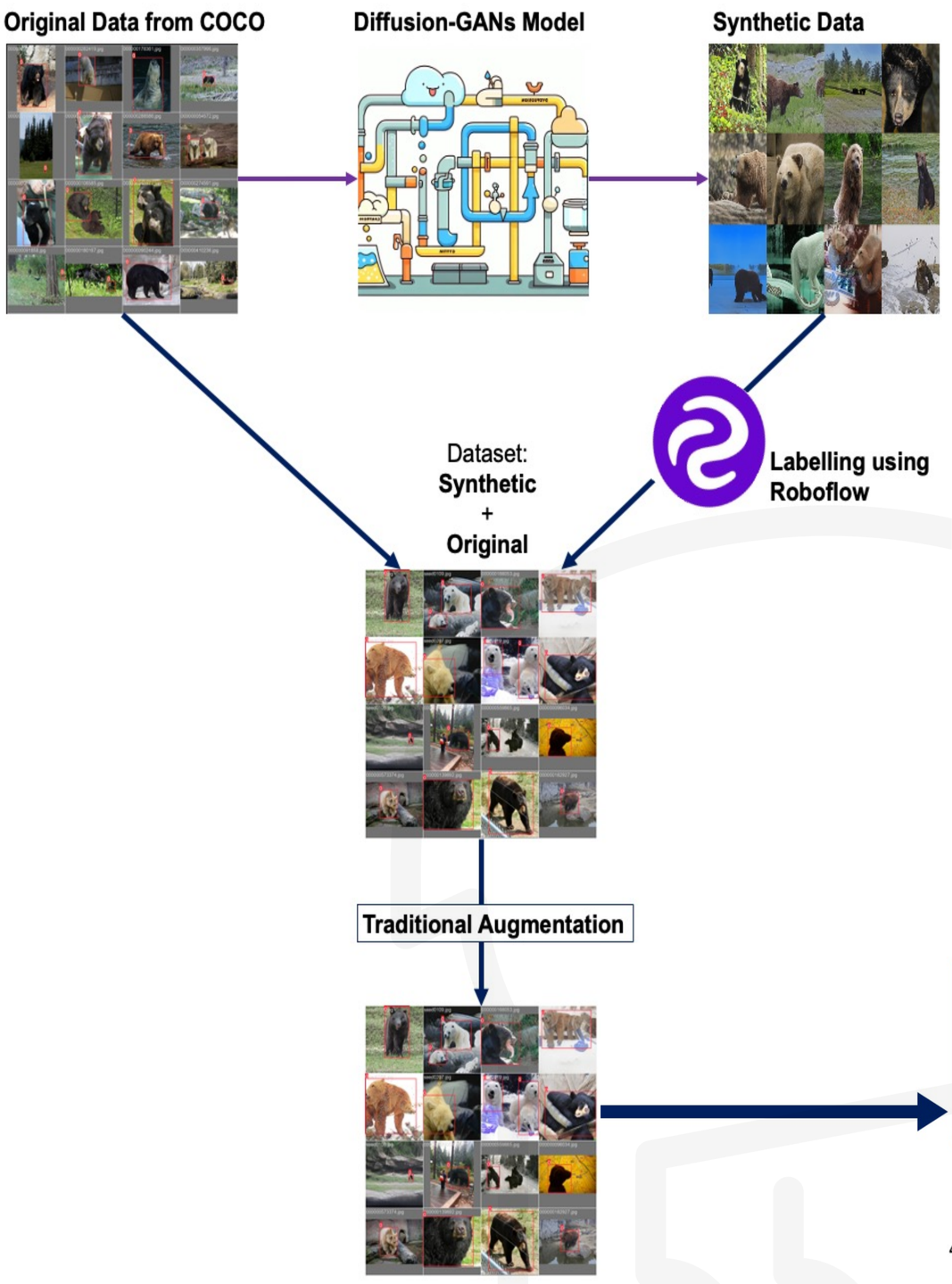
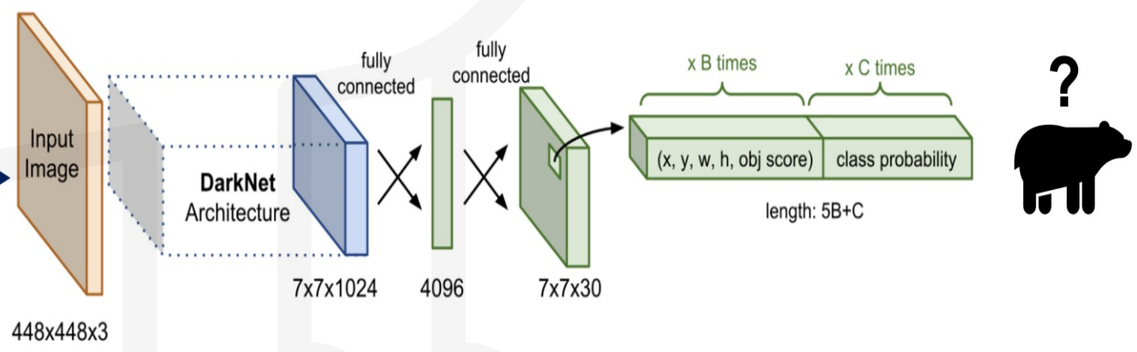
Adding Generated Synthetic Data to Original Dataset



Project Objectives:

This research objective aims to address the limitations of existing data augmentation techniques in computer vision by leveraging the power of GANs and diffusion models. By integrating traditional data augmentation methods with GANs, the framework can generate synthetic images that closely resemble real data, thereby expanding the diversity and quantity of training samples. The inclusion of diffusion models in the framework introduces additional augmentation strategies by simulating gradual transformations of images. This enables controlled manipulation of specific image attributes, resulting in the generation of diverse and realistic synthetic data. By incorporating such augmented data, the framework facilitates improved training and generalization of computer vision models.



Traditional Augmentation Techniques

Evaluation of Models Trained Using Data Augmentation