

MECHATRONICS ENGINEERING

FINAL YEAR PROJECT

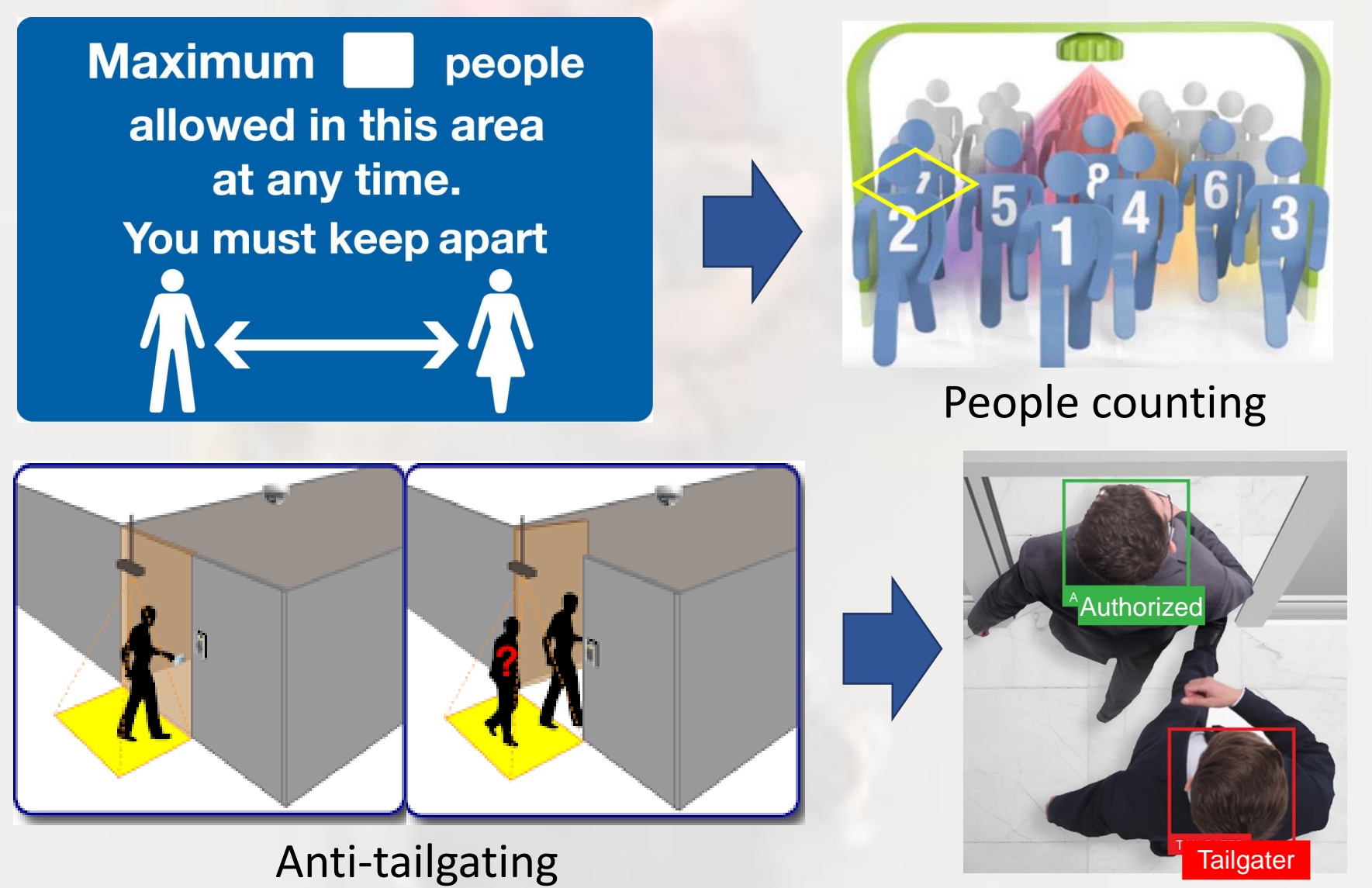
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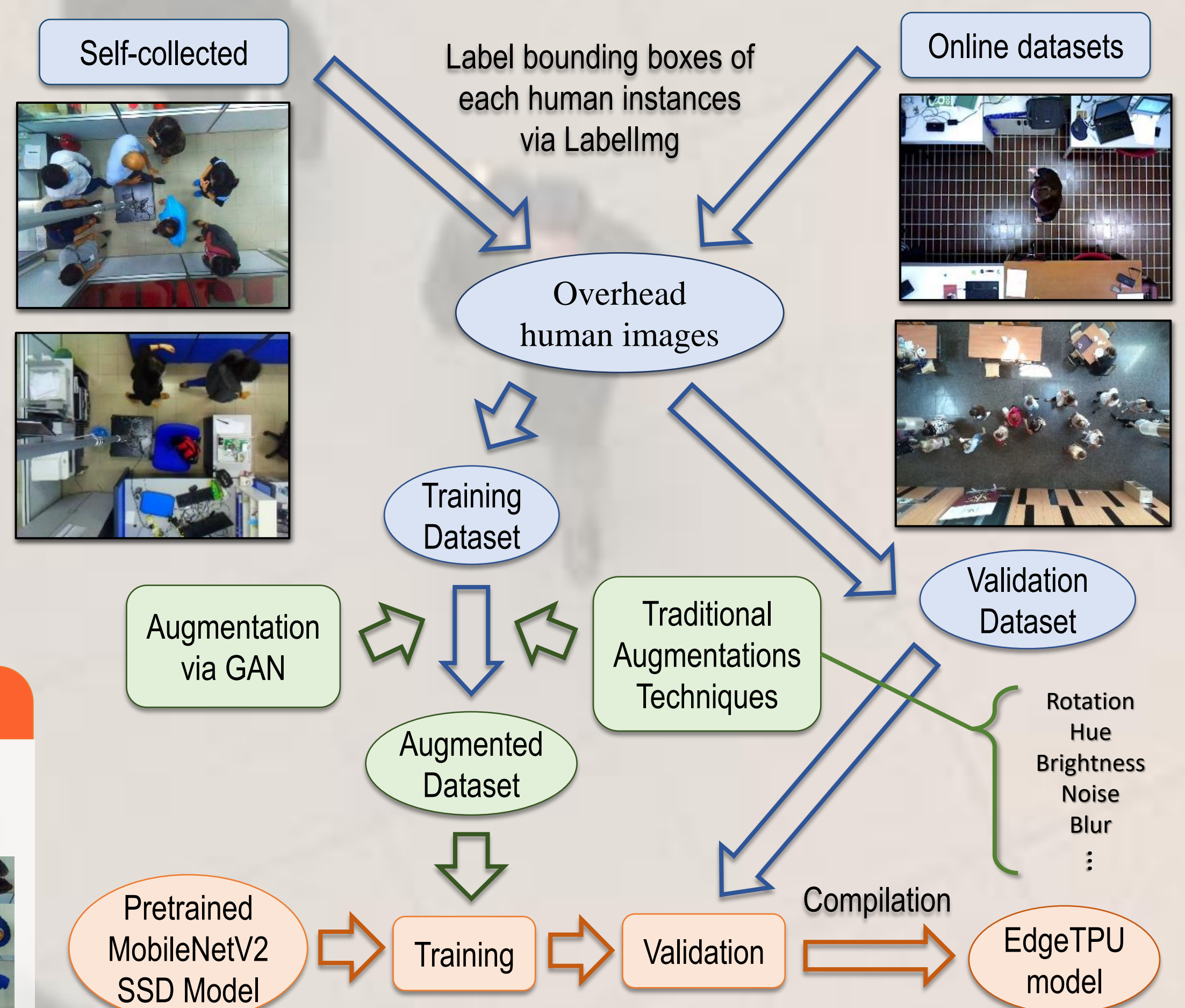
Sem #2, 2021

Overhead Person Detection on Mobile Platforms

1) Problem statement



2) Methodology / Overview of solution



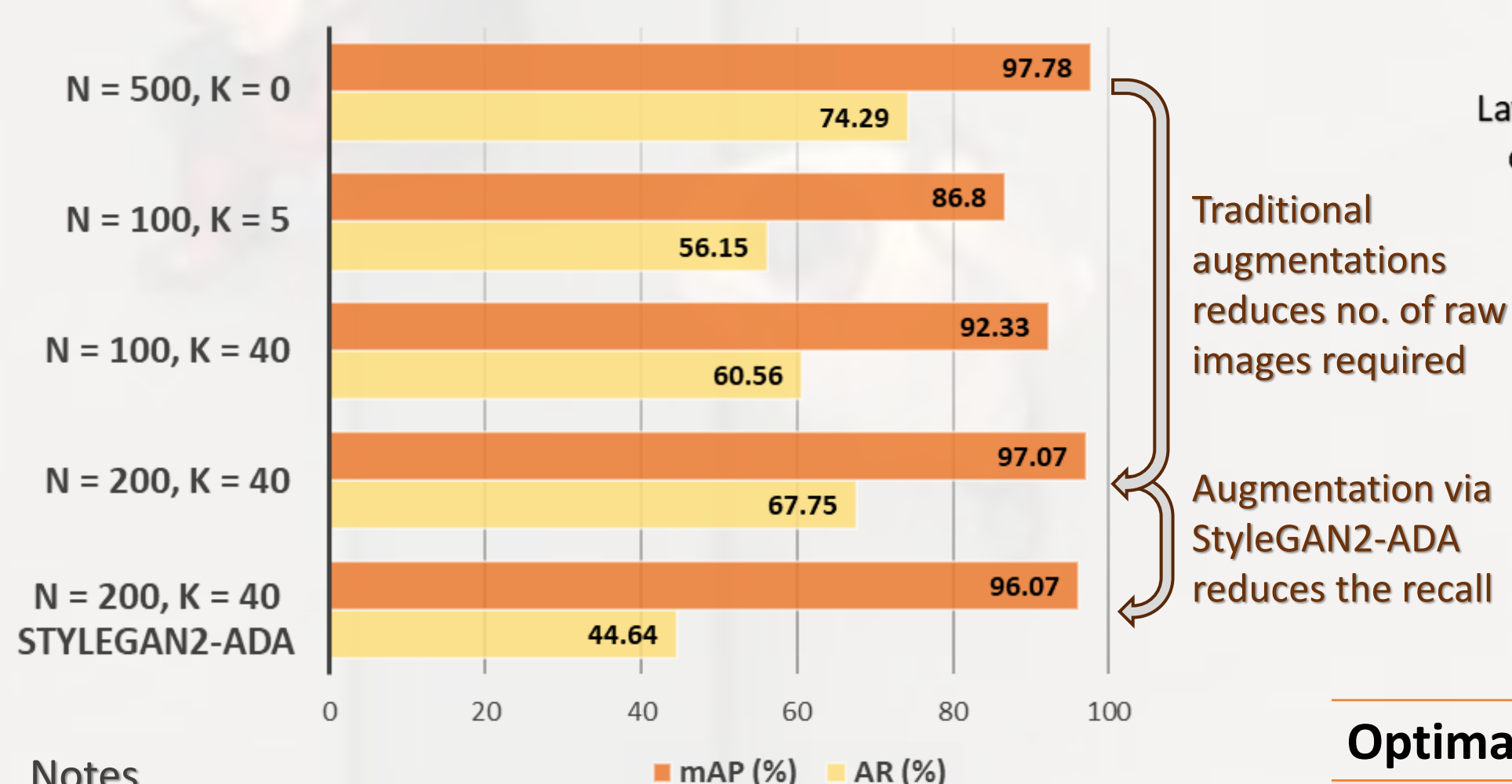
3) Results and Discussion

Performance of GAN models in image augmentation

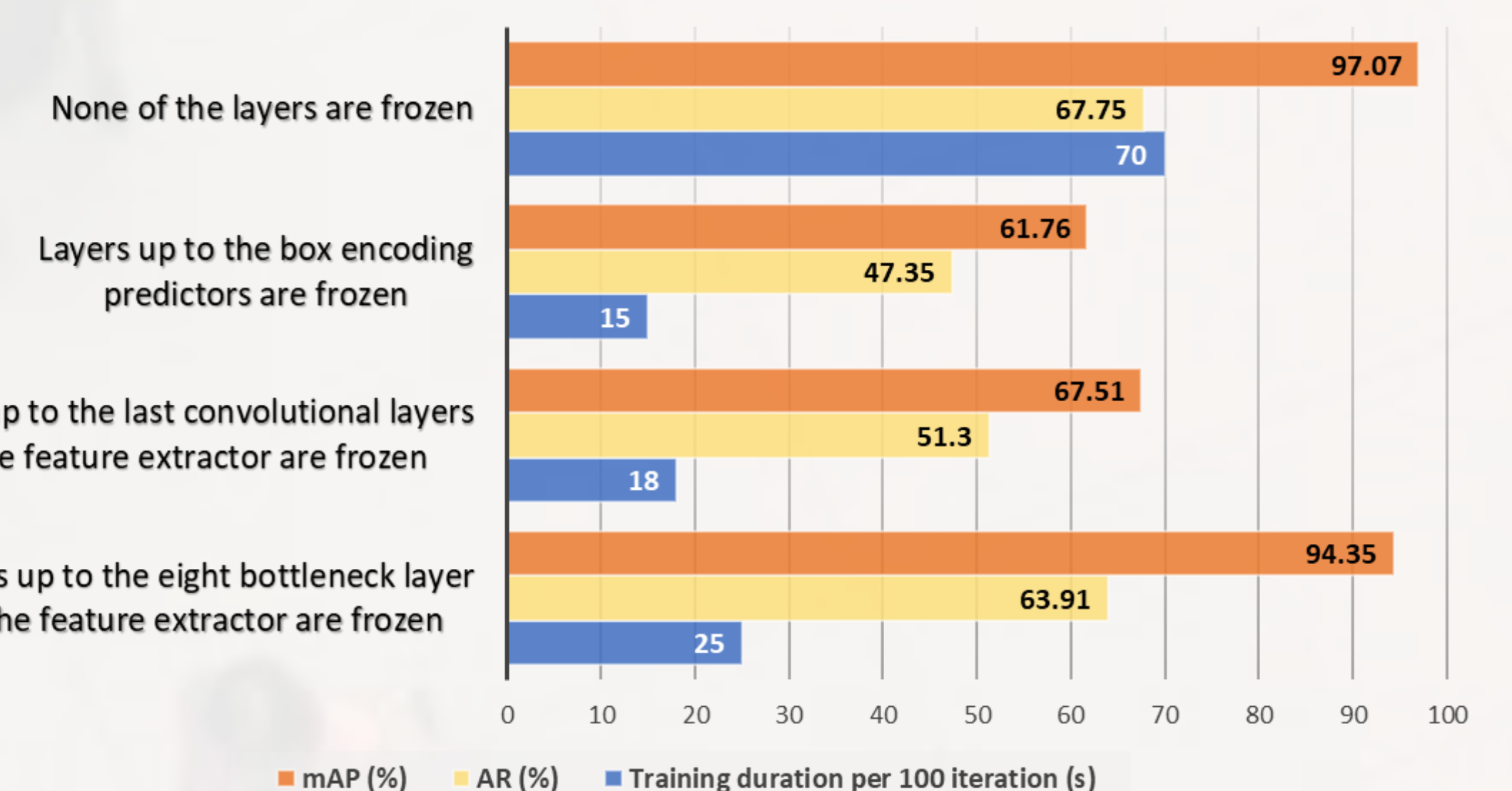


- Unable to generate realistic overhead human images
- Mode collapse
- Able to generate realistic images different from the original images.
- No mode collapse

Effect of augmentation on model performance



Effect of transfer learning on model performance & training speed



- More layers are frozen, lesser the computation during training, the faster the training.
- Earlier layers of the pretrained model learnt the low-level features of an image.
- However, if the features learnt by the frozen layers are not relevant to target task, the performance of the model will drop.

Optimal setting for training pipeline

N = 200, K = 40, No augmentation via StyleGAN2-ADA, Freeze up to 8th bottleneck layer in the feature extractor.

Performance achieved

Precision = 94.35%; Recall = 63.91%
Training time = 25s per 100 iterations