



**Ahmedabad**  
University

**CSE641: Computer Vision: Modern Methods And Applications**

**Report-7**

**Group 1**

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**Introduction:**

- The main goal during this week involved creating two new models namely FastViT and CoAtNet-0 to assess their performance on the Flickr dataset. We conducted an additional experiment by training RSTPReid with EfficientNetB3 and CoAtNet-0 models that we had already trained previously. The comparison of dataset performance and model generalization capabilities became possible because of this experimental setup.

**Implementation of Models:**

- Our work this week centered on the implementation along with training of FastViT and CoAtNet-0 architecture in addition to running additional analysis with EfficientNetB3 and CoAtNet-0 models on RSTPReid dataset. Extensive model improvement through changes in both parameters and architecture structure occurred as we optimized the performance for each model. Each model's mathematics was evaluated through computations of FLOPs (Floating Point Operations) and both inference time and trainable parameter counts to show its mathematical potential. The retrieval function was used to obtain retrieval ranks for evaluating model retrieval capabilities. The complete evaluation process enabled us to determine accuracy levels together with efficiency outcomes which steered our development toward more advanced generalizable models.

**Models Trained:**

1. EfficientNetB0
2. EfficientNetB3
3. Inception
4. MobileNet-V3
5. CoatNet-0
6. FastVit
7. Resnet-18

**Evaluation Metrics:**

- We analyzed two models namely EfficientNetB3 and CoAtNet-0 through detailed performance evaluations in this week. The analysis concentrated on evaluating the computational efficiency alongside resource requirements through the calculation of these metrics:

Models	Flops	Parameters	Inference Time	
			Single Query	5 Queries
EfficeintNetB3	10.329G	54.846M	0.6676 s	4.5723 s
CoatNet-0	12.712G	70.418M	0.7937 s	4.7496 s

### Goals for next week:

- During the upcoming week our team will perform a specific person retrieval evaluation of models. The evaluation will analyze retrieval performance together with ranking metrics that include Top-k accuracy and mAP alongside computational efficiency assessment. The evaluation findings will guide us to identify ways such as parameter adjustments which could improve retrieval system efficiency.
- The study will expand its testing phase by performing a full evaluation of all models against ICFG data to verify their performance across multiple distribution patterns. The evaluation of person re-identification models will identify which method provides superior retrieval results while maintaining efficient performance.