FACECOM Challenge – Technical Summary

Team Name: Gauri & Siddhi

Approach Title: Robust Dual-Task Face Analysis Under Challenging Visual Conditions

Key Innovations:

- Optimizer: AdamW with Cosine Annealing LR
- Augmentations:
  - MotionBlur, Fog, Brightness/Contrast, Shadows, GaussianNoise
  - Horizontal Flip, Random Crop
- Regularization: Dropout (0.4), Label Smoothing (for ID classification)
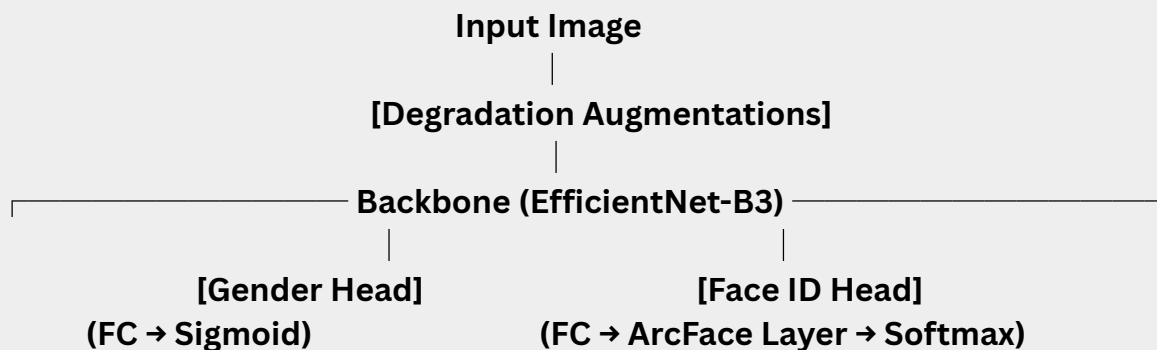- Early Stopping: Based on validation F1-Score and Top-1 Accuracy

Model Architecture:

Backbone:

EfficientNet-B3 pretrained on ImageNet, fine-tuned on FACECOM.

Branch Heads:

- Gender Head: 1 FC layer with Sigmoid activation
- ID Head: 1 FC layer with ArcMarginProduct layer (for ArcFace loss) and Softmax

Input Image
|
[Degradation Augmentations]
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—————— **Backbone (EfficientNet-B3)** ——————
| |
[Gender Head]   **[Face ID Head]**
(FC → Sigmoid)   (FC → ArcFace Layer → Softmax)

Training Strategy:

- Augmentations:
  - MotionBlur, Fog, Brightness/Contrast, Shadows, GaussianNoise
  - Horizontal Flip, Random Crop
- Regularization: Dropout (0.4), Label Smoothing (for ID classification)
- Early Stopping: Based on validation F1-Score and Top-1 Accuracy
- Optimizer: AdamW with Cosine Annealing LR