CWFA: Category-Wise Feature Averaging

Dynamic Bi-level Optimization Module

$\mathbb{R}^{N \times C \times H \times W}$ $\mathbb{R}^{1 \times C \times H \times W}$

$\bigotimes$ Inner-Product $\longleftarrow$ Selection

$\longrightarrow$ Forward $\dashleftarrow$ Backward

N images from one category $\times \frac{1}{N}$

F_k^T
$F_k^T[-1]$
$F_k^S[-1]$
F_k^S

Real Images
Synthetic Images

Discrimination Loss
Detach
CE Loss
Transpose

Layer-wise Feature Alignment Module

MSE Loss

Q_{out}: Acc. Memory
| 0.55 | 0.55 | 0.56 | 0.57 | 0.60 | 0.59 |

Q_{in}: Acc. Memory
| 0.25 | 0.32 | 0.37 | 0.40 | 0.45 | 0.47 |

If satisfy predefined conditions: Break Outlooper

If satisfy predefined conditions: Break Innerlooper