

LIST OF SYMBOL

x	Input data or feature vector
y	True label or output
$\hat{y}$	Predicted label from the model
$f(x)$	Mapping function of the CNN
θ	Trainable parameters (weights and biases)
L	Loss function (e.g., cross-entropy loss)
σ	Activation function (e.g., ReLU, Softmax)
z_i	Logit output (raw score) for class i
$\sigma(z_i)$	Probability of class i via Softmax function
$*$	Convolution operation between filter and input
K	Convolution kernel (filter)
I	Input image matrix
$S(i, j)$	Output of convolution at location (i, j)
h, w	Height and width of image or feature map
c	Number of channels (depth of feature map)
α	Slope coefficient for Leaky ReLU activation
$DWConv(x)$	Output of Depthwise Convolution in MobileNet
$PWConv(x)$	Output of Pointwise Convolution in MobileNet
$H_\ell(\cdot)$	Composite transformation at DenseNet layer ℓ
x_ℓ	Output of layer ℓ in DenseNet (used in dense connections)
$F(x, \{W_i\})$	Residual function in ResNet block
$\mathbb{R}^n$	Real-valued vector space of dimension n
η	Learning rate during optimization
t	Epoch or training iteration index
TP	True Positive — correctly predicted positive class
TN	True Negative — correctly predicted negative class
FP	False Positive — incorrectly predicted positive class
FN	False Negative — incorrectly predicted negative class
<i>Accuracy</i>	overall correctness
<i>Precision</i>	positive predictive value
<i>Recall</i>	true positive rate
$F1$	harmonic mean

AUC	Area under the ROC curve
ROC	Receiver Operating Characteristic curve
TPR	True Positive Rate (Recall)
FPR	False Positive Rate
$\mathcal{D}_{train}$	Training dataset
$\mathcal{D}_{val}$	Validation dataset
$\mathcal{D}_{test}$	Test dataset