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List of Symbols

Symbol	Description
AA	Average Accuracy
B	Spectral Bands in HSI
C_{FLOPs}	Computational Overheads
C_{in}	Number of Input Channels
C_{out}	Number of Output Channels
$\hat{\mathcal{C}}$	Classification Accuracy
H	Height of the HSI
h	Number of Heads in ViT
$\mathbf{I}$	HSI Input
K	Key of ViT
κ	Kappa Coefficient
K_v	Size of the Filter
$\hat{\mathcal{L}}_{comp}$	Computational Burden
λ	Regularization Factor
OA	Overall Accuracy
P_M	Number of Parameters
Q	Query of ViT
S	Initial Input Patch Spatial Size
Te	Testing Time
Tr	Training Time
V	Value of ViT
W	Width of The HSI
μ	Micro meter
$\widehat{\mathbf{Y}}$	Predicted Class Probability
$\mathbf{Y}$	Actual Class Probability

Abbreviations

Abbreviation	**Description**
1D	One Dimensional
2D	Two Dimensional
3D	Three Dimensional
CKGFLNet	Convolution-Kaiming-Gaussian Focus Linear Network
CNN	Convolutional Neural Network
DBN	Deep Belief Network
DL	Deep Learning
FC	Fully Connected Layer
FKGT	Flattened Kaiming-Gaussian Transformer
GAN	Generative Adversarial Network
GCN	Graph Convolution Network
GeLU	Gaussian Error Linear Unit
GRU	Gated Recurrent Unit
HBC3DConv	Hierarchical Band Clustering Based 3D Convolution
HCBConv	Hierarchical Clustering-Based Convolution
HCC2DConv	Hierarchical Channel Clustering Based 2D Convolution
HieraKGTNet	Hierarchical Kaiming-Gaussian Transformer Network
HS	Hyperspectral Imaging
HSI	Hyperspectral Image
HU	Houston
IP	Indian Pines
KGFLA	Kaiming-Gaussian Focus Linear Attention
KNN	K-Nearest Neighbor
LGASS	Local-Global Attentive Superpixel Segmentation
LGConv	Logarithmic Group 3D and 2D Convolution
LGConv2D	Two Dimensional Logarithmic Group Convolution
LGConv3D	Three Dimensional Logarithmic Group Convolution

Abbreviation	**Description**
LGSA-ViT	Light Self Gaussian Attention ViT
LiDAR	Light Detection and Ranging
LK	WHU-Hi-LongKou
LR	Learning Rate
LSTM	Long-Short Term Memory
MDCNN	Morphologically Dilated CNN
MHSA	Multi-Head Self-Attention
ML	Machine Learning
MLP	Multi-Layer Perceptron
MPF-Loss	Multiclass Poly-Focal Loss
MSI	Multispectral Image
PCA	Principal Component Analysis
PLS-DA	Partial Least Square Discriminant Analysis
PS	Patch Size
PU	University of Pavia
ReLU	Rectified Linear Unit
RF	Random Forest
RNN	Recurrent Neural Network
SA	Salinas Valley
SAE	Stacked Auto Encoder
SCPE	Spatial Contextual Patch Embedding
$(SC)^2PosEmbed$	Spatial Contextual Sine-Cosine Positional Embedding
SF	Spectral Former
SOTA	State-of-the-Art
SSFTT	Spectral-Spatial Feature Transformer
SVM	Support Vector Machine
ViT	Vision Transformer