LEAF DISEASE DETECTION AND RECOMMENDATION OF PESTICIDES USING DEEP LEARNING APPROACH

Thesis submitted to Bharathiar University for the award of the Degree of

DOCTOR OF PHILOSOPHY IN COMPUTER SCIENCE

Submitted by

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List of Abbreviations

LIST OF ABBREVIATIONS

ADALINE	Adaptive Linear neuron
ANFIS	Adaptive Neuro Fuzzy Inference System
APGWO	Adaptive Particle-Grey Wolf
ABC	Artificial Bee Colony
AI	Artificial Intelligence
ANN	Artificial Neural Network
ARIMA	Auto-Regressive Integrated Moving Average
BPNN	Back-Propagation Neural Network
BRBFNN	Bacterial foraging optimizer-based Radial Basis Function Neural Network
CMPA	Central Moment Pooling Attention
CSA	Channel-Spatial Attention
CCD	Charge-Coupled Device
CAM	Classification Activation Map
CBN	Conditional Batch Normalization
CNN	Convolutional Neural Network
CRN	Convolutional Rebalancing Network
DCNN	Deep Convolutional Neural Network
DICNN	Dense Inception Convolutional Neural Network
DATAGAN	Dual-Attention and Topology-Fusion with Generative Adversarial Network
EM	Expectation Maximization

FRCNN	Faster Region-based Convolutional Neural Network
FCN	Fully Convolutional Network
FCOS	Fully Convolutional One-Stage
FC	Fully-Connected
GIOU	Generalized Intersection Over Union
GAN	Generative Adversarial Network
GIS	Geographic Information Systems
GPDCNN	Global Pooling Dilated Convolutional Neural Network
GLCM	Grey Level Co-occurrence Matrix
GDP	Gross-Domestic-Product
HSV	Hue, Saturation and Value
HOG	Histogram of Oriented Gradients
RSF	Hybrid Rough Set with intuitionistic Fuzzy approximation space
Inceptionnet	Inception Network
IPM	Integrated Pest Management
INIBAP	International Network for the Improvement of Banana and Plantain
IRRI	International Rice Research Institution
IoT	Internet-of-Things
IoU	Intersection Over Union
JSD	Jensen-Shannon Divergence
KNN	K-Nearest Neighbor
KL	Kullback-Leibler

LWNet	Light Weight Network
LBP	Local Binary Pattern
M-SVM	Multi-class Support Vector Machine
MFL	Multi-dimensional Feature Learning
MFL-DCNN	Multi-dimensional Feature Learning-based Deep Convolutional Neural Network
MCNN	Multilayer Convolutional Neural Network
MLP	Multi-Layer Perceptron
MS-ALN	Multi-Scale Attention Learning Network
NST	Neural Style Transfer
NSGA	Non-dominated Sorting Genetic Algorithm
NE	Nutrient Expert
OSSL	Online Semi-Supervised Learning
Prelu	Parametric relu
PD^2SE-Net	Plant Disease Diagnosis and Severity Estimation Network
PVD	Plantvillage Dataset
PDATFEGAN	Positional-aware Dual-Attention and Topology-Fusion with Evolutionary Generative Adversarial Network
PDATFGAN	Positional-aware Dual-Attention and Topology-Fusion with Generative Adversarial Network
PSSM	Position-Sensitive Score Map
Ph	Potential of Hydrogen
PANs	Principal Adversarial Networks

PCA	Principal Component Analysis
QUEFTS	Quantitative Evaluation of Fertility of Tropical Soils
RF	Rain Fall
ReLu	Rectified Linear Unit
RGB	Red, Green and Blue
RPN	Region Proposal Network
R-FCN	Region-based Fully Convolutional Network
ROI	Region-Of-Interest
RH	Relative Humidity
ResNet	Residual Network
ReSPP	Residual Spatial Pyramid Pooling
RestoreNet	Restoration Network
BPH	Rice Brown Plant Hopper
RS	Rough Set
SS	Sandstorm or Sunset
SLIC	Simple Linear Iterative Cluster
SSD	Single Shot Multibox Detector
SGD	Stochastic Gradient Descent
SRGAN	Super-Resolution Generative Adversarial Network
SVM	Support Vector Machine
SwinTr	Swin Transformer
t-SNE	T-distributed Stochastic Neighbor Embedding

ToLeD	Tomato Leaf disease Detection
TPF	Transition Probability Function
UAN	Unmanned Aerial Vehicle
VGG	Visual Geometry Group
Wconcat	Weight Concat
WS	Wind Speed
YOLO	You Only Look Once