CODE	TITLE	DESCRIPTION
VTPML01	Explainable Machine Learning for Obesity Risk Classification Using a Stacked Ensemble with LIME Interpretability	Explainable machine learning for obesity risk classification using a stacked ensemble with LIME interpretability combines multiple predictive models to assess individual risk factors. This approach provides accurate predictions while offering transparent explanations, supporting informed health interventions and personalized care
VTPML02	Using Optimal Machine Learning Algorithms to Predict Heart Failure Patient Classification	Using optimal machine learning algorithms to predict heart failure patient classification applies advanced predictive models to analyze medical data and accurately categorize patient risk levels. This approach aids in early intervention, personalized treatment, and improved clinical decision-making
VTPML03	Predictive Modeling for Early Lung Cancer Detection Using CTGAN-Augmented Features and Tree-Based Learning Techniques	Predictive modeling for early lung cancer detection using CTGAN-augmented features and tree-based learning techniques employs synthetic data generation and advanced machine learning to enhance diagnostic accuracy. This approach supports timely detection, improving treatment planning and patient outcomes
VTPML04	A Machine Learning Framework for Monthly Crude Oil Price Prediction with CatBoost	A machine learning framework for monthly crude oil price prediction with CatBoost leverages gradient boosting techniques to model complex market patterns and fluctuations. This approach provides accurate forecasting, supporting decision-making in energy trading, investment, and policy planning
VTPML05	Intelligent Sports Team Management Powered by Machine Learning	Intelligent sports team management powered by machine learning utilizes data-driven models to analyze player performance, optimize strategies, and enhance decision-making. This approach supports coaches and managers in building efficient teams and improving overall game outcomes
VTPML06	Dynamic Ransomware Detection using time-based API calling	Developed a machine learning-based ransomware detection system using API call behavior and a Random Forest classifier, achieving over 95% accuracy in distinguishing ransomware from benign software. Integrated the model into a Flask-based web application for real-time detection, providing a scalable and practical tool for cybersecurity threat mitigation
VTPML07	Machine Learning-Based Fault Diagnosis of Rolling Bearings Using Spectrogram Zeros Under Variable Rotating Speeds	Machine learning-based fault diagnosis of rolling bearings using spectrogram zeros under variable rotating speeds leverages time-frequency analysis to extract robust fault features. This approach enables accurate and reliable detection of bearing defects, improving machinery health monitoring and predictive maintenance
VTPML08	Enhancing Crop Recommendations Using Advanced Deep Belief Networks: A Multimodal Strategy	Enhancing crop recommendations using advanced deep belief networks: a multimodal strategy integrates diverse agricultural data such as soil, climate, and crop patterns for precise predictions. This approach supports farmers with optimized crop selection, boosting yield and sustainability
VTPML09	Intelligent Network Traffic Anomaly Detection Using ML Algorithms	Intelligent network traffic anomaly detection using ML algorithms employs advanced models to identify unusual patterns and potential threats in real time. This approach enhances cybersecurity by improving the accuracy and speed of detecting intrusions and malicious activities

Contact: +91 40-66418877, +91 95810 22022, +91 40-66418876, +91 95810 12012
Email: projects@vertilinktech.com, info@vertilinktech.com, www.vertilinktech.com

CODE	TITLE	DESCRIPTION
VTPML10	Intelligent Psychological Support System for Student Entrepreneurship	Intelligent psychological support system for student entrepreneurship leverages AI-driven insights to provide personalized guidance, motivation, and stress management. This approach enhances mental well-being and decision-making, supporting the growth and resilience of student entrepreneurs
VTPML11	Machine Learning Models for Regional Life Expectancy Forecasting	Machine learning-based life expectancy prediction in developed and developing regions applies predictive models to analyze socioeconomic, health, and environmental factors. This approach provides valuable insights for policymakers and healthcare planners to improve public health strategies and resource allocation
VTPML12	Machine Learning Approach for Predicting Parkinson's Disease at Early Stages	Machine learning approach for predicting Parkinson's disease at early stages leverages advanced algorithms to analyze clinical and biomedical data for early symptom detection. This method supports timely diagnosis, enabling better treatment planning and improved patient outcomes
VTPML13	Enhancing Hospitality Management Through ML-Based Cancellation Prediction	Enhancing hospitality management through ML-based cancellation prediction employs machine learning models to forecast booking cancellations with high accuracy. This approach helps hotels optimize resource allocation, reduce revenue loss, and improve customer service strategies
VTPML14	Improving Port Throughput via ML-Based Ship Waiting Time Prediction	Improving port throughput via ML-based ship waiting time prediction utilizes machine learning models to estimate vessel delays and optimize scheduling. This approach enhances operational efficiency, reduces congestion, and supports smarter maritime logistics management
VTPML15	Machine Learning-Based Fault Detection in Photovoltaic Systems	Developed a machine learning-based fault detection framework for photovoltaic systems using electrical and environmental data, with models including Logistic Regression, SVM, Random Forest, and ANN. Achieved over 98% accuracy with ANN in detecting faults such as partial shading and dirt accumulation, providing a cost-effective solution for improving solar energy reliability
VTPML16	Pain Level Classification Using Discrete Wavelet Transform-Based Feature Extraction and Machine Learning Approaches	Pain level classification using discrete wavelet transform-based feature extraction and machine learning approaches analyzes physiological and signal data to quantify pain intensity. This method supports objective pain assessment, aiding clinical decision-making and personalized patient care
VTPML17	Enhanced Credit Risk Prediction Using Ensemble Learning with Data Resampling Techniques	Enhanced credit risk prediction using ensemble learning with data resampling techniques combines multiple classifiers with balanced datasets to improve predictive accuracy. This approach helps financial institutions reduce default risks and make more reliable lending decisions
VTPML18	Machine Learning based Method for Insurance Fraud Detection on Class Imbalance Datasets with Missing Values	Machine learning-based method for insurance fraud detection on class imbalance datasets with missing values applies advanced preprocessing and robust algorithms to handle data irregularities. This approach improves fraud detection accuracy, helping insurers minimize financial losses and enhance decision-making

CODE	TITLE	DESCRIPTION
VTPML19	Trustworthy Predictions: An Explainable AI Approach to Breast Cancer Diagnosis	Developed an explainable AI-based system for breast cancer diagnosis, combining machine learning models with interpretability techniques to ensure reliable and transparent predictions. The approach enhances trust in AI-driven healthcare by providing accurate classification while offering clear insights into model decision-making
VTPML20	Machine Learning-Driven Real-Time Battery Health Estimation for EV Battery Swapping	Developed a Flask-based web application for real-time EV battery health estimation using Random Forest Regression and XGBoost, predicting State of Health (SoH) and remaining charge cycles. The system enables accurate, user-friendly monitoring at battery swapping stations, improving efficiency, sustainability, and proactive battery management
VTPML21	Improving Fetal Health Classification Accuracy Using machine learning and Active Sampling	Developed an XGBoost-based machine learning system for analyzing Cardiotocography (CTG) data, achieving 96% accuracy in detecting pregnancy complications. The model enhances diagnostic precision, reduces clinician workload, and supports timely decision-making in maternal and fetal healthcare
VTPML22	Power Load Forecasting Using Deep MLP Model with Multivariate Meteorological Features	Power load forecasting using deep MLP model with multivariate meteorological features employs deep neural networks to predict electricity demand based on weather and environmental factors. This approach enhances grid management, energy planning, and operational efficiency in power systems
VTPML23	Enhancing Medicare Fraud Detection Through Machine Learning	Enhancing Medicare fraud detection through machine learning leverages predictive models to identify suspicious claims and anomalous patterns in healthcare data. This approach improves accuracy and efficiency, helping reduce financial losses and ensure compliance in healthcare systems
VTPML24	Sleep Apnea Detection Using Extreme Gradient Boosting on Engineered Physiological Signal Features	Sleep apnea detection using extreme gradient boosting on engineered physiological signal features applies advanced machine learning to analyze vital signs for accurate disorder identification. This approach supports early diagnosis and intervention, improving patient health and sleep quality

CODE	TITLE	DESCRIPTION
VTPDL01	A Scalable Image-Based Framework for Detecting and Monitoring Rice Leaf Diseases	A scalable image-based framework for detecting and monitoring rice leaf diseases leverages deep learning to accurately identify and track crop health issues. This approach supports timely interventions, enhancing yield quality and promoting sustainable agricultural practices
VTPDL02	A Deep Learning Approach to the Recognition of Handwritting	A deep learning approach to the recognition of handwriting utilizes neural networks to accurately interpret and classify handwritten text
VTPDL03	Advancing Kidney Tumor Detection in CT Scans with a Hybrid Computational Framework	Advancing kidney tumor detection in CT scans with a hybrid computational framework combines multiple deep learning and image processing techniques to accurately identify renal tumors
VTPDL04	Enhancing Credit Card Fraud Detection in Banking Using Graph Neural Networks and Autoencoders	Enhancing credit card fraud detection in banking using graph neural networks and autoencoders leverages relational data and anomaly detection to identify suspicious transactions
VTPDL05	Anomaly Detection in Industrial Machine Sounds Using High-Frequency Feature Analysis and Gated Recurrent Unit Networks	Anomaly detection in industrial machine sounds using high-frequency feature analysis and gated recurrent unit networks applies deep learning to identify abnormal acoustic patterns. This approach enables early fault detection, improving maintenance efficiency and reducing operational downtime
VTPDL06	Enhanced Melanoma Diagnosis Using ConvNeXt-Based Deep Learning Framework	Enhanced melanoma diagnosis using a ConvNeXt-based deep learning framework leverages advanced Convolutional Neural Networks to accurately detect and classify skin lesions
VTPDL07	Attention-Driven Lightweight Network for Colorectal Cancer Classification	Attention-driven lightweight network for colorectal cancer classification utilizes focused neural network architectures to highlight critical regions in medical images for accurate diagnosis. This approach offers efficient and reliable cancer classification
VTPDL08	Multi-Class Classification of Normal WBCs Using Convolutional Neural Networks	Multi-class classification of normal WBCs using Convolutional neural networks applies deep learning to accurately distinguish between different types of white blood cells. This approach supports automated hematological analysis, aiding faster diagnosis and advancing medical research
VTPDL09	An Interpretable Deep Learning Approach for Classifying Bean Leaf Diseases	An interpretable deep learning approach for classifying bean leaf diseases leverages neural networks to accurately identify plant disease patterns while providing clear explanations for predictions. This approach supports farmers and agricultural experts in early detection and informed crop management

CODE	TITLE	DESCRIPTION
VTPDL10	Early Identification of Severe Arrhythmias Using Deep Active Learning Techniques	Early identification of severe arrhythmias using deep active learning techniques leverages intelligent data selection and deep models to detect critical heart rhythm disorders at an early stage. This approach enhances diagnostic accuracy, enabling timely treatment and reducing life-threatening risks
VTPDL11	Echocardiographic Image Analysis for Heart Disease Detection via Deep Neural Networks	Echocardiographic image analysis for heart disease detection via deep neural networks utilizes advanced deep learning to extract meaningful cardiac features from ultrasound images. This approach improves diagnostic accuracy, aiding cardiologists in early detection and treatment planning
VTPDL12	Deep Learning Approaches for Accurate Lithological Mapping from Remote Sensing Imagery	Deep learning approaches for accurate lithological mapping from remote sensing imagery leverage advanced feature extraction to distinguish diverse types and geological structures. This method enhances mineral exploration, environmental studies
VTPDL13	Ship Classification in Remote Sensing Images Using Deep Neural Networks	Ship classification in remote sensing images using deep neural networks leverages powerful feature extraction to accurately identify and categorize different ship types from aerial or satellite imagery. This approach supports maritime surveillance, port management, and naval defense applications
VTPDL14	Deep Neural Networks for Early Monkeypox Detection from Medical Images	Deep neural networks for early monkeypox detection from medical images utilize advanced image analysis to identify disease. This approach helps and enables faster diagnosis, timely treatment, and improved epidemic control
VTPDL15	A Transparent Deep Learning Approach for Mango Leaf Disease Classification	An explainable deep learning model for accurate mango leaf disease classification combines high-performance image recognition with interpretable AI techniques. This approach ensures reliable disease detection while providing transparency for farmers and agricultural experts in decision-making
VTPDL16	Automated Osteoporosis Identification in Bone X-ray Images Using Deep Feature Learning	Automated osteoporosis identification in bone X-ray images using deep feature learning leverages advanced neural networks to extract subtle bone texture patterns for accurate diagnosis. This approach supports early identification, reducing fracture risks and improving patient care
VTPDL17	Robust Detection of Rotten Fruits Filtering for Food Waste Reduction	Designed a dual-stage deep learning framework using NASNetMobile with intra-domain transfer learning for fruit classification and quality grading. By integrating advanced augmentation techniques like AugMix, CutMix, and MixUp, the system achieved high accuracy and robustness, supporting real-time intelligent agricultural automation
VTPDL18	Integrating Quantum Vision Theory with Deep Learning for Enhanced Object Recognition	Developed a hybrid Heavy QV-Xception model that integrates Quantum Vision theory with the Xception architecture to enhance object recognition. By leveraging quantum-inspired wave-function representations and depthwise separable convolutions, the model outperforms standard CNNs on benchmark datasets, achieving superior accuracy

CODE	TITLE	DESCRIPTION
VTPDL19	A Dual Approach: Machine vs Deep Learning for Predicting Ovarian Cancer in Early Stages	Implemented a dual predictive framework combining machine learning algorithms and deep learning models to detect ovarian cancer at early stages. The system enhances diagnostic accuracy and reliability, offering a robust tool for early cancer prediction and improved patient outcomes
VTPDL20	Neuroimaging Meets AI: Deep Learning for Forecasting MCI in Cognitively Normal Subjects	Developed an enhanced deep learning model based on the Xception architecture with channel attention mechanisms, achieving 99% accuracy in distinguishing Cognitively Normal and Mild Cognitive Impairment subjects. The system effectively captures subtle neuroimaging biomarkers, supporting early Alzheimer's diagnosis and timely clinical intervention
VTPDL21	Optimizing Thyroid Nodule Diagnosis Through Deep Learning Algorithms	Optimizing thyroid nodule diagnosis through deep learning algorithms employs advanced image analysis to differentiate between benign and malignant nodules with high accuracy. This approach enhances diagnostic precision, supporting early intervention and improved patient outcomes
VTPDL22	Fingerprint Liveness Detection via Global Feature Encoding with Vision Transformers	Fingerprint liveness detection via global feature encoding with vision transformers employs advanced deep learning to distinguish between real and fake fingerprints. This approach enhances biometric security systems by improving accuracy and robustness against spoofing attacks
VTPDL23	Predicting Adolescent Concern Toward Unhealthy Food Advertisements Using Deep Neural Networks with Feature Embeddings and Explainable AI	Predicting adolescent concern toward unhealthy food advertisements using deep neural networks with feature embeddings and explainable AI leverages advanced modeling to understand behavioral responses. This approach provides interpretable insights, supporting public health strategies and targeted nutritional interventions
VTPDL24	Optimized Diabetic Foot Ulcer Classification Using NASNetLarge with Advanced Transfer Learning and Data Augmentation Techniques	Optimized diabetic foot ulcer classification using NASNetLarge with advanced transfer learning and data augmentation techniques employs deep neural networks to accurately identify ulcer severity. This approach supports early diagnosis, effective treatment planning, and improved patient outcomes.