CODE	TITLE	DESCRIPTION
VTPAI01	A Fine-Grained Object Detection Model For Aerial Images Based On Yolov10 Deep Neural Network	A fine-grained object detection model for aerial images based on YOLOv10 leverages deep neural networks to accurately detect and distinguish small, densely distributed, and visually similar objects in complex aerial scenes. The proposed approach enhances precision and robustness, making it suitable for applications like surveillance, urban planning, and environmental monitoring
VTPAI02	A Comprehensive Dataset and Evaluation of Deep Learning Techniques for Pedestrian Head Detection in Crowds	RPEE-Heads Benchmark: a dataset and empirical comparison of deep learning algorithms for pedestrian head detection in crowds offers annotated images to evaluate and compare detection models in dense environments. This approach supports advancements in crowd analysis, safety monitoring, and surveillance systems
VTPAI03	Dual Detection of License Plates and Helmets Using an Optimized YOLO and Neural Networks	Dual detection of license plates and helmets using an optimized YOLO and neural networks focuses on simultaneously identifying vehicles' license plates and detecting helmet usage by riders
VTPAI04	Enhanced Framework for Real-Time Vehicle Detection and Tracking	Enhanced framework for real-time vehicle detection and tracking leverages advanced computer vision and deep learning techniques to accurately identify and follow vehicles in dynamic environments. This approach improves traffic monitoring, road safety, and intelligent transportation system efficiency
VTPAI05	Short-Term Air Temperature Forecasting Using LSTM and XGBRegressor	Short-term air temperature forecasting using LSTM and XGBRegressor combines deep learning's ability to capture temporal dependencies with gradient boosting's predictive strength. This hybrid approach delivers accurate and robust forecasts
VTPAI06	A Comprehensive Benchmark Dataset for Traffic Accident Detection Using Video Surveillance	A comprehensive benchmark dataset for traffic accident detection using video surveillance provides annotated video data to train and evaluate deep learning models. This resource supports the development of accurate and robust accident detection systems, enhancing road safety and traffic management
VTPAI07	YOLOv10-Driven Enhanced Vehicle Detection in Low-Light On-Board Environments	YOLOv10-driven enhanced vehicle detection in low-light on-board environments utilizes advanced deep learning techniques to improve the visibility and accuracy of vehicle recognition under challenging nighttime and low-illumination conditions
VTPAI08	A Computationally Efficient Deep Learning Approach for Localization and Classification of Diseases and Pests in Coffee Leaves	A computationally efficient deep learning approach for localization and classification of diseases and pests in coffee leaves leverages optimized neural networks to accurately identify affected areas. This approach supports timely intervention, improving crop health and boosting coffee yield quality
VTPAI09	Enhancing Fire Detection with YOLOv10: Advanced Techniques for Flame and Smoke Recognition	Enhancing fire detection with YOLOv10 employs advanced techniques to accurately recognize both flames and smoke . This approach improves early warning systems, supporting rapid response and minimizing damage in fire-prone environments

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VTPAI10	Music Emotion Classification with Neural Network Architecture and Librosa	Music emotion classification with neural network architecture and Librosa leverages audio feature extraction and deep learning to identify emotional states conveyed in music
VTPAI11	Fake Face Detection Based on Videos using opencv and Neural Network Architecture	Fake face detection based on texture and high-frequency noise using OpenCV and neural network architecture focuses on identifying subtle artifacts and inconsistencies in facial images. This method enhances the reliability of detecting deepfakes and manipulated media
VTPAI12	Detecting the Small Object Recognition by Drone Images using yolov10	Detecting small object recognition by drone images using YOLOv10 leverages advanced deep learning to accurately identify tiny and densely distributed targets from aerial views. This approach enhances applications in surveillance, agriculture, and disaster management where precise small-object detection is critical
VTPAI13	Real-Time Infant Emotion Recognition via Optimized YOLOv10 Model	This project develops an infant facial expression recognition system using the advanced YOLOv10 architecture to classify emotions such as Cry, Happy, Neutral, and Back of Head. By leveraging YOLOv10's lightweight yet powerful feature extraction, the model achieves high accuracy and real-time performance, outperforming traditional methods like YOLOv8.
VTPAI14	Lightweight YOLO-Based Model with Hybrid Attention for Surgical Instrument Recognition	This project focuses on developing a lightweight YOLO-based deep learning model for the detection and recognition of laparoscopic surgical instruments in minimally invasive surgeries. By integrating a hybrid attention mechanism, the model effectively emphasizes important instrument regions while reducing the influence of complex surgical backgrounds such as tissue, smoke, and lighting variations.
VTPAI15	Automated Detection and Classification of Tooth Types and Dental Anomalies in Panoramic Radiographs	Automated detection and classification of tooth types and dental anomalies in panoramic radiographs employs deep learning to accurately identify teeth and diagnose abnormalities. This approach enhances dental diagnostics, supporting early intervention and improved patient care
VTPAI16	UnderWaterNet: Efficient Visual Detection of Marine Garbage for Eco Monitoring	This project introduces an underwater garbage detection system using YOLOv10n, a lightweight and efficient object detection model optimized for IoT and robotic platforms. The system delivers high-precision, real-time debris detection while minimizing memory and computational requirements, making it suitable for deployment on embedded devices.
VTPAI17	Edge-Ready Road Damage Detection Using an Enhanced YOLO with Hyperparameter Tuning	Developed an edge-ready road damage detection system using an enhanced YOLO model with hyperparameter tuning for improved accuracy and speed. The solution enables real-time damage detection on resource-constrained edge devices, supporting smart transportation and infrastructure monitoring
VTPAI18	Enhanced Helmet Detection in Complex Industrial Environments Using an Improved YOLO-Based Model	Enhanced helmet detection in complex industrial environments using an improved YOLO-based model leverages advanced deep learning to accurately identify helmet compliance among workers. This approach promotes workplace safety by enabling real-time monitoring and reducing occupational hazards

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VTPAI19	Efficient Railway Foreign Object Detection Using Enhanced YOLO with EfficientNet Backbone and Attention Mechanisms	Developed a two-stage railway foreign object detection framework integrating a lightweight classifier and YOLOv8 for fast and accurate detection. Enhanced model efficiency using Knowledge Distillation, achieving state-of-the-art performance in real-time railway safety monitoring	IEEE 2025 - ARTIFICIAL INTELLIGENCE
VTPAI20	MF-YOLO: Mask Wearing Detection Algorithm for Dense Environments	MF-YOLO: mask wearing detection algorithm for dense environments employs an optimized YOLO-based model to accurately identify mask usage in crowded settings. This approach supports public health compliance monitoring and reduces the risk of airborne disease transmission	
VTPAI21	Advanced Surveillance with YOLOv10: Fusion-Based Detection of Threatening Objects	Advanced surveillance with YOLOv10: fusion-based detection of threatening objects combines multiple data sources and deep learning techniques to accurately identify potential hazards. This approach enhances security monitoring, supporting timely threat detection and response in critical environments	
VTPAI22	Smart Surveillance for Fall Detection with YOLOv10 in Unstructured Outdoor Settings	Smart surveillance for fall detection with YOLOv10 in unstructured outdoor settings leverages deep learning to accurately identify human falls in complex environments. This approach enhances safety monitoring, enabling timely interventions and reducing injury risks in public and outdoor spaces	
VTPAI23	Enhancing Precision Agriculture Pest Control: A YOLOv10-Based Deep Learning Approach for Insect Detection	Enhancing precision agriculture pest control: a YOLOv10-based deep learning approach for insect detection employs advanced neural networks to accurately identify and classify harmful insects in crops. This approach supports targeted pest management, reducing crop damage and promoting sustainable agricultural practices	
VTPAI24	Enhanced YOLO for Real-Time Multi-Scale Traffic Detection under Haze Conditions	Enhanced YOLO for real-time multi-scale traffic detection under haze conditions leverages advanced deep learning to accurately identify vehicles and objects in low-visibility environments. This approach improves road safety and traffic monitoring by ensuring reliable detection in challenging weather conditions	
VTPNLP01	Assessing the Psychological Impact of Internet Blackouts	Assessing the psychological impact of internet blackouts: a stress analysis case study examines how sudden loss of online connectivity affects mental health and stress levels. This approach provides insights into coping mechanisms and informs strategies for mitigating digital disruption effects	IEEE 2025 - NATURAL LANGUAGE PROCESSING
VTPNLP02	Sentiment Analysis for Cyberbullying Detection Using NLP and LSTM	Sentiment analysis for cyberbullying detection using NLP and LSTM applies natural language processing with deep sequential models to identify harmful and offensive content . This approach supports safer digital environments by enabling early detection and prevention of cyberbullying	
VTPNLP03	Optimizing Mobile App Recommendations Using Crowdsourced Educational Data	Optimizing mobile app recommendations using crowdsourced educational data leverages user-generated insights and machine learning to provide personalized and relevant app suggestions. This approach enhances learning experiences by matching educational tools to individual needs and preferences	

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VTPNLP04	Combining Sentiment Analysis and High-Dimensional Indicators for Bitcoin Price Range Prediction with LSTM	Combining sentiment analysis and high-dimensional indicators for Bitcoin price range prediction with LSTM integrates market sentiment with complex financial features to improve forecasting accuracy. This approach aids traders and investors in making informed decisions within highly volatile cryptocurrency markets
VTPNLP05	Enhancing User Feedback Analysis with Review Text Granularity for Better Sentiment and Rating Prediction	Enhancing user feedback analysis with review text granularity for better sentiment and rating prediction leverages fine-grained textual features to capture deeper contextual meaning. This approach improves the accuracy of sentiment classification and rating predictions, supporting smarter recommendation and decision-making systems
VTPNLP06	Integrated Emotion and Sentiment Analysis Using Multi-Modal Data	Integrated emotion and sentiment analysis using multi-modal data combines textual, audio, and visual inputs to capture deeper emotional context. This approach improves the accuracy of affective computing applications, enhancing human-computer interaction, mental health monitoring, and personalized recommendations
VTPNLP07	Leveraging Emotional Traces for Automatic Identification of Suicidal Ideation in Text	Leveraging emotional traces for automatic identification of suicidal ideation in text employs deep linguistic and affective feature analysis to detect early warning signs. This approach supports mental health monitoring and timely interventions to prevent self-harm risks
VTPNLP08	Intelligent Paraphrase Recognition Using Advanced NLP Techniques	Intelligent paraphrase recognition using advanced NLP techniques employs deep language models to detect semantic equivalence between differently worded sentences
VTPNLP09	Enhanced Neural Text Summarization with Syntactic and Headline Insights	Enhanced neural text summarization with syntactic and headline insights leverages deep learning to generate concise and contextually relevant summaries. This approach improves information retrieval, readability, and content understanding across diverse textual datasets
VTPNLP10	Enhancing Agricultural Decision-Making with Combined Language Models	Enhancing agricultural decision-making with combined language models leverages multiple AI-driven natural language models to analyze and interpret complex agricultural data. This approach supports informed crop management, predictive insights, and optimized farming practices
VTPNLP11	Streamlining News Topic Classification: A Deep Learning Approach with a Global News Dataset	Streamlining news topic classification: a deep learning approach with a global news dataset employs neural networks to automatically categorize news articles across diverse topics. This approach enhances information organization, retrieval, and analysis for media and research applications
VTPNLP12	A Deep Neural Network Approach for Classifying Pulmonary Diseases from Respiratory Sounds	A deep neural network approach for classifying pulmonary diseases from respiratory sounds utilizes advanced audio feature extraction to distinguish between different lung conditions. This method supports non-invasive diagnosis, enabling early detection and improved respiratory healthcare

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VTPNLP13	English Visual Question Answering: Building a Culturally Relevant Dataset from Image Captions	English visual question answering: building a culturally relevant dataset from image captions focuses on creating annotated datasets that reflect cultural context and nuances. This approach improves VQA model performance and ensures more accurate and context-aware responses to image-based queries
VTPNLP14	Deep NLP Techniques for Tweets in Fake News Detection Systems	Deep NLP techniques for tweets in fake news detection systems leverage advanced language models to analyze linguistic patterns and contextual cues. This approach enhances the accuracy of identifying misinformation on social media platforms, supporting reliable information dissemination
VTPNLP15	Enhanced Stock Price Prediction Across Global Markets Through Data-Driven Modeling	Enhanced stock price prediction across global markets through data-driven modeling employs advanced machine learning techniques to analyze diverse financial indicators and market trends
VTPNLP16	A Deep Transfer Learning Framework for Multi-Platform Sentiment Prediction	Developed an NLP-based sentiment analysis framework using an LSTM model, achieving 92.8% accuracy across five emotion classes. The system effectively combines text preprocessing with deep learning to deliver robust sentiment classification for multi-source textual data
VTPNLP17	Explainable Detection of Depression in Social Media Contents Using Natural Language Processing	Developed a hybrid LSTM-GRU deep learning model for depression detection from social media posts, incorporating preprocessing techniques like emoji normalization, slang replacement, and emotion score extraction. The system achieved strong performance across accuracy, precision, recall, and F1-score, enabling effective real-time mental health monitoring
VTPNLP18	An Enhanced RNN-LSTM Model For Accurate And Real-Time Click Fraud Detection In Online Advertising	Ad click fraud detection using machine learning and deep learning algorithms leverages predictive models to identify abnormal click patterns and fraudulent activities in online advertising. This approach enhances digital marketing efficiency
VTPNLP19	Contextual Multi-Modal Deep Learning for Bangla Sarcasm and Humor Detection	Contextual multi-modal deep learning for Bangla sarcasm and humor detection combines textual, visual, and contextual cues to interpret nuanced expressions in Bangla content. This approach enhances natural language understanding, supporting applications in sentiment analysis
VTPNLP20	KEGAT: A Knowledge-Enhanced Graph-Aware Transformer for Detecting AI-Generated Fake News	A knowledge-enhanced graph-aware transformer for detecting AI-generated fake news integrates external knowledge with graph-based relational learning to capture complex semantic dependencies
VTPNLP21	Multiclass Mental Illness Prediction Using LSTM and Natural Language Processing Techniques	Multiclass mental illness prediction using LSTM and natural language processing techniques leverages deep sequential models to analyze textual data for identifying different mental health conditions. This approach supports early diagnosis, personalized treatment, and improved mental health care delivery

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VTPNLP22	A Semantic Weight Adaptive Model Based on Visual Question Answering	A semantic weight adaptive model based on visual question answering dynamically adjusts semantic importance to improve the accuracy of answering image-related queries	IEEE 2024 - NLP
VTPNLP23	Deep Learning Advancements in Video Summarization Innovations	Deep learning advancements in video summarization innovations leverage neural networks to automatically extract key frames and meaningful segments from lengthy videos. This approach enhances content retrieval, storage efficiency, and user experience across media and surveillance applications	
VTPIP01	Advanced Feature Extraction and Transformation Method for Pneumonia Detection in Chest X-Ray Images	Advanced feature extraction and transformation method for pneumonia detection in chest X-ray images leverages deep learning techniques to highlight critical patterns and abnormalities. This approach enhances diagnostic accuracy, supporting early detection and effective patient management	IEEE 2025 - IMAGE PROCESSING
VTPIP02	A Novel Neural Network Architecture for Facial Emotion Recognition	A novel neural network architecture for facial emotion recognition leverages deep learning to capture subtle facial features and expressions with high accuracy. This approach supports applications in human-computer interaction, mental health monitoring, and affective computing	
VTPIP03	A Local-Global Adapter-Based Method for Sketch Face Recognition	A local-global adapter-based method for sketch face recognition combines fine-grained local feature extraction with holistic global representations to accurately match sketches to photos. This approach enhances forensic identification and security applications by improving recognition performance across diverse facial depictions	
VTPIP04	Deep Learning-Based Automated Defect Detection in Solar Cell Images	Deep learning-based automated defect detection in solar cell images leverages neural networks to identify manufacturing flaws and surface anomalies with high precision	
VTPIP05	Gender Identification from Pashto Handwritten Text Using Neural Network Architecture Designs	Gender identification from Pashto handwritten text using neural network architecture designs applies deep learning to analyze writing patterns and stylistic features	
VTPIP06	Acoustic Field Reconstruction Using Iterative Unsupervised Learning in Acoustic Holography	Acoustic field reconstruction using iterative unsupervised learning in acoustic holography employs deep learning to model complex sound wave patterns without labeled data	
VTPIP07	Hierarchical Deep Learning for Enhanced Parkinson's Disease Detection via Handwriting Analysis	Hierarchical deep learning for enhanced Parkinson's disease detection via handwriting analysis employs multi-level neural networks to identify subtle motor impairments in writing patterns. This approach enables early diagnosis, supporting timely intervention and improved patient care	

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VTPIP08	Multimodal Ensemble Fusion Deep Learning for Brain Tumor Subtype Classification Using MRI Images and Clinical Data	Multimodal ensemble fusion deep learning for brain tumor subtype classification using MRI images and clinical data integrates imaging and patient information to accurately differentiate tumor types. This approach enhances diagnostic precision, supporting personalized treatment planning and improved clinical outcomes
VTPIP09	CrackVision: Sophisticated Concrete Crack Identification Through Transfer Learning and Deep Learning	CrackVision: sophisticated concrete crack identification through transfer learning and deep learning leverages pre-trained neural networks to accurately detect and classify structural cracks. This approach supports infrastructure maintenance, ensuring safety and reducing repair costs
VTPIP10	Towards Efficient Solar Panel Fault Detection Through Neural Network Modeling	Towards efficient solar panel fault detection through neural network modeling leverages deep learning to identify performance anomalies and defects in solar panels. This approach enhances maintenance strategies, reduces energy losses, and improves the reliability of solar power systems
VTPIP11	Automated Chromosome Identification in Metaphase Cells Using Deep Neural Networks	Automated chromosome identification in metaphase cells using deep neural networks applies advanced image analysis to accurately detect and classify chromosomes. This approach supports genetic research, clinical diagnostics, and cytogenetic studies by improving speed and accuracy
VTPIP12	Enhancing Tuberculosis Detection in Chest X-Rays Using Deep Learning and Image Preprocessing	Enhancing tuberculosis detection in chest X-rays using deep learning and image preprocessing leverages advanced neural networks and preprocessing techniques to accurately identify TB-related abnormalities.
VTPIP13	Self-Segmentation Guided Diffusion for Thermal to Pseudo-Color Image Translation	Self-segmentation guided diffusion for thermal to pseudo-color image translation employs diffusion models with segmentation cues to generate realistic and informative colorized outputs from thermal images
VTPIP14	Image Enhancement and Target-Aware Fusion of Infrared and Visible Images	Image enhancement and target-aware fusion of infrared and visible images integrates complementary modalities to produce clearer and more informative representations. This approach improves target detection, surveillance, and situational awareness in complex environments
VTPIP15	A Deep Learning Approach to Lung Nodule Analysis Using Attention-Infused Xception	Developed an Xception-based deep learning model to classify chest CT images into adenocarcinoma, large cell carcinoma, squamous cell carcinoma, and normal tissue with high accuracy. The system leverages depthwise separable convolutions, data augmentation, and Grad-CAM visualizations, providing efficient, interpretable, and clinically applicable lung cancer diagnosis support
VTPIP16	Few-Shot Semantic Segmentation of Aerial Images Using U-net and Efficient-Net	Few-shot semantic segmentation of aerial images using U-Net and EfficientNet leverages limited labeled samples with powerful feature extraction to achieve accurate segmentation. This approach enhances applications in urban planning, environmental monitoring, and disaster management

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VTPIP17	Dehazing Aerial Drone Images via Regional Saturation-Value Mapping and U-Net-Driven Soft Segmentation	Dehazing aerial drone images via regional saturation-value mapping and U-Net-driven soft segmentation enhances image clarity by removing atmospheric distortions. This approach improves visibility and feature extraction, supporting applications in surveillance, mapping, and remote sensing
VTPIP18	Guided Image Channel Selection in Medical Image Processing Using SegNet for Skin Lesions	Developed an enhanced SegNet-based deep learning framework for accurate skin lesion segmentation, incorporating advanced preprocessing with OpenCV and multimodal image fusion. The system effectively handles variability in lesion appearance and lighting conditions, achieving robust and precise boundary detection to support early skin cancer diagnosis
VTPIP19	Comparative Analysis of CNN Architectures for Malaria Detection in Blood Cell Images	Developed a machine learning-based framework for malaria detection using image analysis of red blood cells, improving diagnostic accuracy and accessibility. The approach enables rapid, resource-efficient diagnosis and can be integrated with IoT-enabled devices to support deployment in resource-limited regions
VTPIP20	Smart Human Action Monitoring Using RGB and Motion Signals	Developed a privacy-preserving indoor action recognition system by fusing infrared sensing with wearable sensor data. The framework enables accurate daily activity detection while ensuring user privacy, supporting applications in smart healthcare and assisted living
VTPIP21	A Generalized Approach for FOV Mask Segmentation in Fundus Retinal Imaging	Implemented a U-Net-based deep learning model to replace the traditional Otsu method for Field of View segmentation in retinal images, enhancing accuracy for diabetic retinopathy detection. The system uses red-channel grayscale conversion with logarithmic transformation to highlight fine vascular details, enabling precise and reliable segmentation
VTPIP22	An Optimized Wheat Disease Detection Framework Using YOLOv10 with C2f-DCN and SCNet	An optimized wheat disease detection framework using YOLOv10 with C2f-DCN and SCNet leverages advanced deep learning techniques to accurately identify and classify crop diseases. This approach supports timely intervention, enhancing yield protection and sustainable agricultural practices
VTPIP23	A Dual-Stage Framework for Cavity Detection in Nuclear Materials Using ESRGAN and Swin-UNet	A dual-stage framework for cavity detection in nuclear materials using ESRGAN and Swin-UNet combines super-resolution enhancement with advanced segmentation to accurately identify material defects. This approach improves safety assessments and quality control in nuclear engineering applications
VTPIP24	Robust Zero-Watermarking of Medical Images Using Deep CNN-Based Feature Extraction for Secure Copyright Protection	Robust zero-watermarking of medical images using deep CNN-based feature extraction leverages deep learning to embed invisible, tamper-resistant watermarks for copyright protection. This approach ensures the security and integrity of sensitive medical imaging data while preserving diagnostic quality