International Conference on Emerging Trends in Science and Technology (ICETST-2024)

Organized by :

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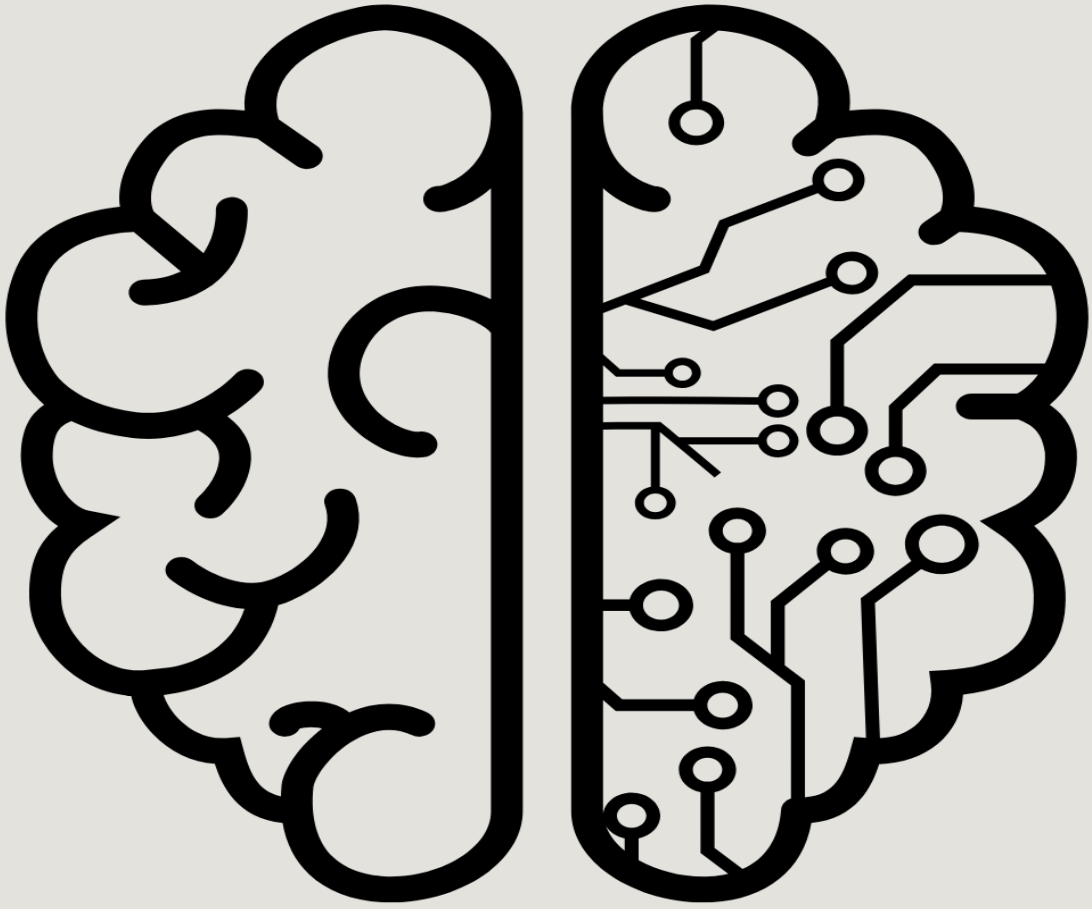
ESP Journal of Engineering & Technology Advancements

International Journal, Scholarly Peer-Reviewed and Published Globally

ICETST-2024



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Sharing Knowledge & Wisdom

(An International community for Independent & academic Research Scholars)

International Conference on Emerging Trends in Science and Technology (ICETST-2024)

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VVS Arcade, 18/1, Puthur High Road,

Opposite to Aruna Theater,

Tiruchirappalli - 620017

About the Conference

The International Conference on Emerging Trends in Science and Technology (ICETST-2024) is an important global academic event organized to bring together researchers, academicians, scientists, industry professionals, and students from different parts of the world. The conference serves as a platform for exchanging innovative ideas, presenting advanced research findings, and discussing the latest developments in science, engineering, and modern technologies. ICETST-2024 mainly focuses on emerging technologies that are transforming industries and society through intelligent systems, advanced computing, and secure digital solutions. The conference encourages interdisciplinary collaboration and promotes research activities that contribute to technological advancement and sustainable development.

One of the major objectives of ICETST-2024 is to create a bridge between academic research and industrial applications. The conference highlights how modern technologies such as Artificial Intelligence (AI), Machine Learning (ML), Deep Learning, Internet of Things (IoT), Cyber Security, Blockchain Technology, Cloud Computing, and Edge Computing can solve real-world problems. Researchers and practitioners participating in the conference gain opportunities to discuss innovative methods, exchange technical knowledge, and explore future trends in emerging scientific domains. The event also supports collaborative research and encourages networking among participants from universities, research institutions, and industries.

The conference also offers opportunities for paper presentations, workshops, tutorials, panel discussions, and research symposiums. Researchers and students can present their original research papers and receive feedback from experts and reviewers. Workshops and tutorials provide hands-on learning experiences related to modern tools, technologies, and research methodologies. Panel discussions encourage open interaction among experts, academicians, and participants regarding technological challenges, innovation strategies, and future research opportunities. Such activities make the conference highly interactive and academically beneficial for all attendees.

Another significant feature of ICETST-2024 is its emphasis on research publication and academic recognition. The conference aims to publish high-quality research papers in reputed indexing platforms such as Springer, Scopus, Web of Science (WoS), UGC Care, DOI, and Google Scholar indexed publications. This provides researchers with international visibility and enhances the academic value of their work. Publishing research in indexed journals and conference proceedings helps researchers contribute to global scientific communities and supports career development in academia and industry.

ICETST-2024 also promotes international collaboration by bringing together participants from different countries and professional backgrounds. The conference creates opportunities for networking, joint research initiatives, and knowledge sharing among scholars, industry professionals, and innovators. Young researchers and students benefit greatly from interacting with experienced scientists and technology experts. The conference environment encourages creativity, innovation, and professional growth while motivating participants to contribute to future technological advancements.

Overall, the International Conference on Emerging Trends in Science and Technology (ICETST-2024) plays a vital role in advancing scientific research and technological innovation. By focusing on intelligent computing, cyber security, AI-driven systems, and modern digital technologies, the conference contributes to the development of sustainable and efficient solutions for global challenges.

Key Note Speaker

Dr. Mohan Raja Pulicharla
Data Engineer & Independent Researcher, USA.

Satyanarayana Murthy Polisetty
Software Developer, StaffingTree Inc., USA.

Akash Vijayrao Chaudhari
Senior Associate, Santander Bank, Florham Park, NJ, USA.

Sandeep Kamadi
Wilmington University, USA.

Shiva Kumar Chinnam
Clemson University, USA.

Madhava Rao Thota
Database Administrator/ Architect, USA.

Vamsi Krishna Eruvaram
Senior Data Engineer, Lowe's.

Chandrasekhar Anuganti
Truist Bank, North Carolina, USA.

Praveen Kumar Reddy Gujjala
NovelTek Systems, USA.

Sarath Babu Gosipathala
OCTA and RCTC, Anaheim, CA.

Chandra Sekhar Oleti
JP Morgan Chase, USA.

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Professor, Department of Metallurgical And Materials Engineering, Faculty of Engineering, University of Nigeria, Nsukka Nigeria.

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Associate Professor, Department of Energy System Engineering, Osmaniye Korkut Ata University, Turkey.

Dr K. Viswanath Allamraju
Professor, Department of Mechanical Engineering, Institution of Aeronautical Engineering, Telangana, India.

Dr. C. Viji
Associate Professor, Department of CSE, HKBK College of Engineering, Nagawara, Bangalore,India.

Dr. Prasanthi Boyapati
Assistant Professor, SRM University, Andhra Pradesh, India.

Conference Convener

Mr. Parthiban Mohan
Managing Editor/Director,
Eternal Scientific Publications

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Generative AI for Automated Software Development

Dr. Kevin Marshall[1] ,Dr. Priya Raman [2]

[1]Associate Professor, Department of Computer Science, University of Texas, USA
[2]Senior Research Scientist, AI Innovation Lab, Singapore

Abstract: This paper explores advanced research concepts related to generative ai for automated software development. The study focuses on the integration of artificial intelligence, machine learning, and intelligent computational techniques to improve automation, accuracy, and decision-making processes. Furthermore, the research highlights practical applications, real-time analytics, optimization methods, and technological innovations in the respective domain. Challenges such as scalability, privacy, implementation complexity, and infrastructure limitations are also discussed. Experimental findings demonstrate that AI-driven approaches significantly improve operational efficiency and support sustainable technological advancement. The paper concludes that interdisciplinary research in AI and machine learning will continue to shape future smart systems and digital transformation.

Keywords: Artificial Intelligence, Machine Learning, Smart Systems, Automation, Data Analytics, Intelligent Computing.

AI-Powered Digital Twins for Smart Infrastructure

Dr. Ahmed Farooq[1] , Dr. Emily Carter[2]

[1]Assistant Professor, King Saud University, Saudi Arabia
[2]Research Engineer, Smart Systems Institute, UK

Abstract: This paper explores advanced research concepts related to ai-powered digital twins for smart infrastructure. The study focuses on the integration of artificial intelligence, machine learning, and intelligent computational techniques to improve automation, accuracy, and decision-making processes. Furthermore, the research highlights practical applications, real-time analytics, optimization methods, and technological innovations in the respective domain. Challenges such as scalability, privacy, implementation complexity, and infrastructure limitations are also discussed. Experimental findings demonstrate that AI-driven approaches significantly improve operational efficiency and support sustainable technological advancement. The paper concludes that interdisciplinary research in AI and machine learning will continue to shape future smart systems and digital transformation.

Keywords: Digital Twins, Smart Infrastructure, IoT Analytics, Predictive Maintenance, Real-Time Monitoring, Intelligent Systems.

TinyML Applications in Wearable Healthcare Devices

Dr. Daniel Lee[1], Dr. Meera Nair [2]

Professor, Seoul National University, South Korea
Associate Professor, VIT University, India

Abstract: This paper explores advanced research concepts related to tinyml applications in wearable healthcare devices. The study focuses on the integration of artificial intelligence, machine learning, and intelligent computational techniques to improve automation, accuracy, and decision-making processes. Furthermore, the research highlights practical applications, real-time analytics, optimization methods, and technological innovations in the respective domain. Challenges such as scalability, privacy, implementation complexity, and infrastructure limitations are also discussed. Experimental findings demonstrate that AI-driven approaches significantly improve operational efficiency and support sustainable technological advancement. The paper concludes that interdisciplinary research in AI and machine learning will continue to shape future smart systems and digital transformation.

Keywords: Artificial Intelligence, Machine Learning, Deep Learning, Smart Systems, Intelligent Computing, Automation, Data Analytics.

Blockchain-Based Decentralized Healthcare Systems

Dr. Sofia Martinez – Senior Lecturer, University of Barcelona, Spain

Dr. Rakesh Menon – Blockchain Researcher, IIT Delhi, India

Abstract: This paper explores advanced research concepts related to blockchain-based decentralized healthcare systems. The study focuses on the integration of artificial intelligence, machine learning, and intelligent computational techniques to improve automation, accuracy, and decision-making processes. Furthermore, the research highlights practical applications, real-time analytics, optimization methods, and technological innovations in the respective domain. Challenges such as scalability, privacy, implementation complexity, and infrastructure limitations are also discussed. Experimental findings demonstrate that AI-driven approaches significantly improve operational efficiency and support sustainable technological advancement. The paper concludes that interdisciplinary research in AI and machine learning will continue to shape future smart systems and digital transformation.

Keywords: Blockchain, Healthcare Security, Decentralized Networks, Electronic Health Records (EHR), Data Integrity, Privacy Preservation.

Vision Transformer Models for Medical Image Analysis

Dr. Michael Brown[1], Dr. Nivetha Raj[2]

[1]Associate Professor, Stanford University, USA
[2]Assistant Professor, Anna University, India

Abstract: This paper explores advanced research concepts related to vision transformer models for medical image analysis. The study focuses on the integration of artificial intelligence, machine learning, and intelligent computational techniques to improve automation, accuracy, and decision-making processes. Furthermore, the research highlights practical applications, real-time analytics, optimization methods, and technological innovations in the respective domain. Challenges such as scalability, privacy, implementation complexity, and infrastructure limitations are also discussed. Experimental findings demonstrate that AI-driven approaches significantly improve operational efficiency and support sustainable technological advancement. The paper concludes that interdisciplinary research in AI and machine learning will continue to shape future smart systems and digital transformation.

Keywords: Artificial Intelligence, Machine Learning, Deep Learning, IoT Analytics, Intelligent Systems, Predictive Modeling, Cloud Security, Smart Computing, Digital Twins, Autonomous Networks, AI Applications, Data-Driven Systems.

AI-Driven Smart Grid Energy Optimization

Dr. Jason Miller[1] , Dr. Kavitha S[2]

[1]Research Scientist, MIT Energy Lab, USA
[2]Professor, SRM Institute of Science and Technology, India

Abstract: This paper explores advanced research concepts related to ai-driven smart grid energy optimization. The study focuses on the integration of artificial intelligence, machine learning, and intelligent computational techniques to improve automation, accuracy, and decision-making processes. Furthermore, the research highlights practical applications, real-time analytics, optimization methods, and technological innovations in the respective domain. Challenges such as scalability, privacy, implementation complexity, and infrastructure limitations are also discussed. Experimental findings demonstrate that AI-driven approaches significantly improve operational efficiency and support sustainable technological advancement. The paper concludes that interdisciplinary research in AI and machine learning will continue to shape future smart systems and digital transformation.

Keywords: Generative AI, Explainable AI, Neural Networks, AI-Driven Automation, Big Data Analytics, Smart Infrastructure, Quantum Computing.

Quantum-Inspired Algorithms for Cybersecurity Applications

Dr. Hassan Ali[1] , Dr. Olivia Green[2]

[1]Cybersecurity Analyst, Qatar Computing Research Institute, Qatar
[2]Associate Professor, University of Sydney, Australia

Abstract: This paper explores advanced research concepts related to quantum-inspired algorithms for cybersecurity applications. The study focuses on the integration of artificial intelligence, machine learning, and intelligent computational techniques to improve automation, accuracy, and decision-making processes. Furthermore, the research highlights practical applications, real-time analytics, optimization methods, and technological innovations in the respective domain. Challenges such as scalability, privacy, implementation complexity, and infrastructure limitations are also discussed. Experimental findings demonstrate that AI-driven approaches significantly improve operational efficiency and support sustainable technological advancement. The paper concludes that interdisciplinary research in AI and machine learning will continue to shape future smart systems and digital transformation.

Keywords: Artificial Intelligence, Machine Learning, Deep Learning, IoT Analytics, Intelligent Systems, Predictive Modeling, Cloud Security, Smart Computing.

Edge Intelligence in Autonomous Drone Networks

Dr. Ethan Walker[1], Dr. Sneha Patil[2]

[1]Professor, Georgia Institute of Technology, USA
[2]Research Fellow, IISc Bangalore, India

Abstract: This paper explores advanced research concepts related to edge intelligence in autonomous drone networks. The study focuses on the integration of artificial intelligence, machine learning, and intelligent computational techniques to improve automation, accuracy, and decision-making processes. Furthermore, the research highlights practical applications, real-time analytics, optimization methods, and technological innovations in the respective domain. Challenges such as scalability, privacy, implementation complexity, and infrastructure limitations are also discussed. Experimental findings demonstrate that AI-driven approaches significantly improve operational efficiency and support sustainable technological advancement. The paper concludes that interdisciplinary research in AI and machine learning will continue to shape future smart systems and digital transformation.

Keywords: Generative AI, Explainable AI, Neural Networks, AI-Driven Automation, Big Data Analytics, Smart Infrastructure, Quantum Computing, Human-AI Collaboration, Intelligent Robotics, Privacy-Preserving AI, Smart Grid Technology, Metaverse Applications.

Large Language Models for Educational Assistance Systems

Dr. Laura Wilson[1], Dr. Arjun Verma[2]

[1]Associate Professor, University of Toronto, Canada
[2]Assistant Professor, Delhi Technological University, India

Abstract: This paper explores advanced research concepts related to large language models for educational assistance systems. The study focuses on the integration of artificial intelligence, machine learning, and intelligent computational techniques to improve automation, accuracy, and decision-making processes. Furthermore, the research highlights practical applications, real-time analytics, optimization methods, and technological innovations in the respective domain. Challenges such as scalability, privacy, implementation complexity, and infrastructure limitations are also discussed. Experimental findings demonstrate that AI-driven approaches significantly improve operational efficiency and support sustainable technological advancement. The paper concludes that interdisciplinary research in AI and machine learning will continue to shape future smart systems and digital transformation.

Keywords: Artificial Intelligence, Machine Learning, Deep Learning, Smart Systems, Intelligent Computing, Automation, Data Analytics, Internet of Things (IoT), Blockchain, Cybersecurity, Computer Vision, Natural Language Processing, Predictive Analytics, Cloud Computing.

Federated Learning for Smart Healthcare Privacy Protection

Dr. Benjamin Clark[1], Dr. Divya Krishnan[2]

[1]Senior AI Scientist, Imperial College London, UK
[2]Professor, Amrita Vishwa Vidyapeetham, India

Abstract: This paper explores advanced research concepts related to federated learning for smart healthcare privacy protection. The study focuses on the integration of artificial intelligence, machine learning, and intelligent computational techniques to improve automation, accuracy, and decision-making processes. Furthermore, the research highlights practical applications, real-time analytics, optimization methods, and technological innovations in the respective domain. Challenges such as scalability, privacy, implementation complexity, and infrastructure limitations are also discussed. Experimental findings demonstrate that AI-driven approaches significantly improve operational efficiency and support sustainable technological advancement. The paper concludes that interdisciplinary research in AI and machine learning will continue to shape future smart systems and digital transformation.

Keywords: Generative AI, Explainable AI, Neural Networks, AI-Driven Automation, Big Data Analytics, Smart Infrastructure, Quantum Computing, Human-AI Collaboration.

Sustainable Data Centers Using Green AI Techniques

Dr. Ryan Cooper[1], Dr. Harini Subramanian[2]

[1]Associate Professor, University of Melbourne, Australia
[2]Research Scientist, National University of Singapore

Abstract: This paper explores advanced research concepts related to sustainable data centers using green ai techniques. The study focuses on the integration of artificial intelligence, machine learning, and intelligent computational techniques to improve automation, accuracy, and decision-making processes. Furthermore, the research highlights practical applications, real-time analytics, optimization methods, and technological innovations in the respective domain. Challenges such as scalability, privacy, implementation complexity, and infrastructure limitations are also discussed. Experimental findings demonstrate that AI-driven approaches significantly improve operational efficiency and support sustainable technological advancement. The paper concludes that interdisciplinary research in AI and machine learning will continue to shape future smart systems and digital transformation.

Keywords: Artificial Intelligence, Machine Learning, Smart Systems, Automation, Data Analytics, Intelligent Computing

AI-Based Predictive Analytics for Climate Risk Management

Dr. Samuel White[1], Dr. Pooja Sharma[2]

[1]Climate Data Researcher, University of California, USA
[2]Associate Professor, TERI School of Advanced Studies, India

Abstract: This paper explores advanced research concepts related to ai-based predictive analytics for climate risk management. The study focuses on the integration of artificial intelligence, machine learning, and intelligent computational techniques to improve automation, accuracy, and decision-making processes. Furthermore, the research highlights practical applications, real-time analytics, optimization methods, and technological innovations in the respective domain. Challenges such as scalability, privacy, implementation complexity, and infrastructure limitations are also discussed. Experimental findings demonstrate that AI-driven approaches significantly improve operational efficiency and support sustainable technological advancement. The paper concludes that interdisciplinary research in AI and machine learning will continue to shape future smart systems and digital transformation.

Keywords: Automation, Data Analytics, Intelligent Computing Artificial Intelligence, Machine Learning, Smart Systems.

Metaverse Technologies for Virtual Engineering Education

Dr. Chloe Bennett[1], Dr. Kiran Kumar[2]

[1]Assistant Professor, University of Manchester, UK
[2]Professor, JNTU Hyderabad, India

Abstract: This paper explores advanced research concepts related to metaverse technologies for virtual engineering education. The study focuses on the integration of artificial intelligence, machine learning, and intelligent computational techniques to improve automation, accuracy, and decision-making processes. Furthermore, the research highlights practical applications, real-time analytics, optimization methods, and technological innovations in the respective domain. Challenges such as scalability, privacy, implementation complexity, and infrastructure limitations are also discussed. Experimental findings demonstrate that AI-driven approaches significantly improve operational efficiency and support sustainable technological advancement. The paper concludes that interdisciplinary research in AI and machine learning will continue to shape future smart systems and digital transformation.

Keywords: Artificial Intelligence, Machine Learning, Deep Learning, IoT Analytics, Intelligent Systems, Predictive Modeling

Intelligent Traffic Monitoring Using Computer Vision

Dr. Victor James[1], Dr. Ramya Devi[2]

[1]Research Engineer, Smart Mobility Lab, Germany
[2]Assistant Professor, SASTRA University, India

Abstract: This paper explores advanced research concepts related to intelligent traffic monitoring using computer vision. The study focuses on the integration of artificial intelligence, machine learning, and intelligent computational techniques to improve automation, accuracy, and decision-making processes. Furthermore, the research highlights practical applications, real-time analytics, optimization methods, and technological innovations in the respective domain. Challenges such as scalability, privacy, implementation complexity, and infrastructure limitations are also discussed. Experimental findings demonstrate that AI-driven approaches significantly improve operational efficiency and support sustainable technological advancement. The paper concludes that interdisciplinary research in AI and machine learning will continue to shape future smart systems and digital transformation.

Keywords: Computer Vision, Natural Language Processing, Predictive Analytics, Cloud Computing, Edge Computing, Digital Transformation, Federated Learning, Smart Healthcare, Sustainable AI, Autonomous Systems.

Human-AI Collaboration in Industrial Robotics

Dr. Noah Peterson[1], Dr. Aishwarya Rao[2]

[1]Robotics Scientist, Carnegie Mellon University, USA
[2]Associate Professor, PSG College of Technology, India

Abstract: This paper explores advanced research concepts related to human-ai collaboration in industrial robotics. The study focuses on the integration of artificial intelligence, machine learning, and intelligent computational techniques to improve automation, accuracy, and decision-making processes. Furthermore, the research highlights practical applications, real-time analytics, optimization methods, and technological innovations in the respective domain. Challenges such as scalability, privacy, implementation complexity, and infrastructure limitations are also discussed. Experimental findings demonstrate that AI-driven approaches significantly improve operational efficiency and support sustainable technological advancement. The paper concludes that interdisciplinary research in AI and machine learning will continue to shape future smart systems and digital transformation.

Keywords: Generative AI, Explainable AI, Neural Networks, AI-Driven Automation, Big Data Analytics, Smart Infrastructure, Quantum Computing, Human-AI Collaboration, Intelligent Robotics, Privacy-Preserving AI, Smart Grid Technology, Metaverse Applications, Wearable Healthcare, AI Ethics, Intelligent Decision Systems.

AI-Enabled Smart Farming Using Satellite Data

Dr. Liam Scott[1], Dr. Vignesh Kumar[2]

[1]Research Fellow, Australian National University, Australia
[2]Assistant Professor, Tamil Nadu Agricultural University, India

Abstract: This paper explores advanced research concepts related to ai-enabled smart farming using satellite data. The study focuses on the integration of artificial intelligence, machine learning, and intelligent computational techniques to improve automation, accuracy, and decision-making processes. Furthermore, the research highlights practical applications, real-time analytics, optimization methods, and technological innovations in the respective domain. Challenges such as scalability, privacy, implementation complexity, and infrastructure limitations are also discussed. Experimental findings demonstrate that AI-driven approaches significantly improve operational efficiency and support sustainable technological advancement. The paper concludes that interdisciplinary research in AI and machine learning will continue to shape future smart systems and digital transformation.

Keywords: Artificial Intelligence, Machine Learning, Deep Learning, Smart Systems, Intelligent Computing, Automation, Data Analytics, Internet of Things (IoT), Blockchain, Cybersecurity, Computer Vision, Natural Language Processing, Predictive Analytics.

Self-Supervised Learning for Next-Generation AI Systems

Dr. Grace Turner[1], Dr. Naveen Raj[2]

[1]AI Research Scientist, ETH Zurich, Switzerland
[2]Associate Professor, Manipal Institute of Technology, India

Abstract: This paper explores advanced research concepts related to self-supervised learning for next-generation ai systems. The study focuses on the integration of artificial intelligence, machine learning, and intelligent computational techniques to improve automation, accuracy, and decision-making processes. Furthermore, the research highlights practical applications, real-time analytics, optimization methods, and technological innovations in the respective domain. Challenges such as scalability, privacy, implementation complexity, and infrastructure limitations are also discussed. Experimental findings demonstrate that AI-driven approaches significantly improve operational efficiency and support sustainable technological advancement. The paper concludes that interdisciplinary research in AI and machine learning will continue to shape future smart systems and digital transformation.

Keywords: AI-Driven Automation, Big Data Analytics, Smart Infrastructure, Quantum Computing, Human-AI Collaboration, Intelligent Robotics, Privacy-Preserving AI, Smart Grid Technology, Metaverse Applications, Wearable Healthcare.

Emotion Recognition Using Multimodal Deep Learning

Dr. Julia Adams[1], Dr. Deepika Narayanan[2]

[1]Professor, University of Edinburgh, UK
[2]Research Scientist, IIT Madras, India

Abstract: This paper explores advanced research concepts related to emotion recognition using multimodal deep learning. The study focuses on the integration of artificial intelligence, machine learning, and intelligent computational techniques to improve automation, accuracy, and decision-making processes. Furthermore, the research highlights practical applications, real-time analytics, optimization methods, and technological innovations in the respective domain. Challenges such as scalability, privacy, implementation complexity, and infrastructure limitations are also discussed. Experimental findings demonstrate that AI-driven approaches significantly improve operational efficiency and support sustainable technological advancement. The paper concludes that interdisciplinary research in AI and machine learning will continue to shape future smart systems and digital transformation.

Keywords: Artificial Intelligence, Machine Learning, Deep Learning, Smart Systems, Intelligent Computing, Automation, Data Analytics, Internet of Things (IoT), Blockchain, Cybersecurity, Computer Vision, Natural Language Processing

Blockchain for Academic Certificate Verification

Dr. Henry Collins[1], Dr. Sangeetha Ravi[2]

[1]Associate Professor, University of Auckland, New Zealand
[2]Assistant Professor, Bharathiar University, India

Abstract: This paper explores advanced research concepts related to blockchain for academic certificate verification. The study focuses on the integration of artificial intelligence, machine learning, and intelligent computational techniques to improve automation, accuracy, and decision-making processes. Furthermore, the research highlights practical applications, real-time analytics, optimization methods, and technological innovations in the respective domain. Challenges such as scalability, privacy, implementation complexity, and infrastructure limitations are also discussed. Experimental findings demonstrate that AI-driven approaches significantly improve operational efficiency and support sustainable technological advancement. The paper concludes that interdisciplinary research in AI and machine learning will continue to shape future smart systems and digital transformation.

Keywords: Blockchain, Healthcare Security, Decentralized Networks, Electronic Health Records (EHR), Data Integrity, Privacy Preservation.

Explainable AI Models for Financial Decision Systems

Dr. Christopher Hall[1], Dr. Monica Joseph[2]

[1]Senior Researcher, Financial AI Lab, USA
[2]Associate Professor, Christ University, India

Abstract: This paper explores advanced research concepts related to explainable ai models for financial decision systems. The study focuses on the integration of artificial intelligence, machine learning, and intelligent computational techniques to improve automation, accuracy, and decision-making processes. Furthermore, the research highlights practical applications, real-time analytics, optimization methods, and technological innovations in the respective domain. Challenges such as scalability, privacy, implementation complexity, and infrastructure limitations are also discussed. Experimental findings demonstrate that AI-driven approaches significantly improve operational efficiency and support sustainable technological advancement. The paper concludes that interdisciplinary research in AI and machine learning will continue to shape future smart systems and digital transformation.

Keywords: Artificial Intelligence, Machine Learning, Deep Learning, Smart Systems, Intelligent Computing, Automation, Data Analytics, Internet of Things (IoT), Blockchain.

AI-Based Early Detection of Neurological Disorders

Dr. Andrew Lewis[1], Dr. Swetha Iyer[2]

[1]Neuroscience Researcher, Johns Hopkins University, USA
[2]Assistant Professor, NIMHANS, India

Abstract: This paper explores advanced research concepts related to ai-based early detection of neurological disorders. The study focuses on the integration of artificial intelligence, machine learning, and intelligent computational techniques to improve automation, accuracy, and decision-making processes. Furthermore, the research highlights practical applications, real-time analytics, optimization methods, and technological innovations in the respective domain. Challenges such as scalability, privacy, implementation complexity, and infrastructure limitations are also discussed. Experimental findings demonstrate that AI-driven approaches significantly improve operational efficiency and support sustainable technological advancement. The paper concludes that interdisciplinary research in AI and machine learning will continue to shape future smart systems and digital transformation.

Keywords: Artificial Intelligence, Machine Learning, Smart Systems, Automation, Data Analytics, Intelligent Computing

Smart Water Distribution Systems Using IoT Analytics

Dr. Matthew King[1], Dr. Dharani K[2]

[1]Professor, University of Leeds, UK
[2]Research Fellow, Anna University, India

Abstract: This paper explores advanced research concepts related to smart water distribution systems using iot analytics. The study focuses on the integration of artificial intelligence, machine learning, and intelligent computational techniques to improve automation, accuracy, and decision-making processes. Furthermore, the research highlights practical applications, real-time analytics, optimization methods, and technological innovations in the respective domain. Challenges such as scalability, privacy, implementation complexity, and infrastructure limitations are also discussed. Experimental findings demonstrate that AI-driven approaches significantly improve operational efficiency and support sustainable technological advancement. The paper concludes that interdisciplinary research in AI and machine learning will continue to shape future smart systems and digital transformation.

Keywords: Artificial Intelligence, Machine Learning, Smart Systems, Automation, Data Analytics, Intelligent Computing.

Privacy-Preserving Machine Learning in Cloud Platforms

Dr. Isabella Moore[1], Dr. Rohit Babu[2]

[1]Cloud Security Researcher, University of Dublin, Ireland
[2]Associate Professor, KL University, India

Abstract: This paper explores advanced research concepts related to privacy-preserving machine learning in cloud platforms. The study focuses on the integration of artificial intelligence, machine learning, and intelligent computational techniques to improve automation, accuracy, and decision-making processes. Furthermore, the research highlights practical applications, real-time analytics, optimization methods, and technological innovations in the respective domain. Challenges such as scalability, privacy, implementation complexity, and infrastructure limitations are also discussed. Experimental findings demonstrate that AI-driven approaches significantly improve operational efficiency and support sustainable technological advancement. The paper concludes that interdisciplinary research in AI and machine learning will continue to shape future smart systems and digital transformation.

Keywords: Artificial Intelligence, Machine Learning, Smart Systems, Automation, Data Analytics, Intelligent Computing

AI-Powered Cyberattack Prediction Systems

Dr. Jonathan Reed[1], Dr. Keerthana M[2]

[1]Cybersecurity Expert, University of Washington, USA
[2]Assistant Professor, Saveetha Engineering College, India

Abstract: This paper explores advanced research concepts related to ai-powered cyberattack prediction systems. The study focuses on the integration of artificial intelligence, machine learning, and intelligent computational techniques to improve automation, accuracy, and decision-making processes. Furthermore, the research highlights practical applications, real-time analytics, optimization methods, and technological innovations in the respective domain. Challenges such as scalability, privacy, implementation complexity, and infrastructure limitations are also discussed. Experimental findings demonstrate that AI-driven approaches significantly improve operational efficiency and support sustainable technological advancement. The paper concludes that interdisciplinary research in AI and machine learning will continue to shape future smart systems and digital transformation.

Keywords: Artificial Intelligence, Machine Learning, Smart Systems, Automation, Data Analytics, Intelligent Computing.

Neuromorphic Chips for Energy-Efficient AI Computing

Dr. Nathan Brooks[1], Dr. Sanjay Pillai[2]

[1]Hardware Architect, Intel Research Labs, USA
[2]Professor, NIT Trichy, India

Abstract: This paper explores advanced research concepts related to neuromorphic chips for energy-efficient ai computing. The study focuses on the integration of artificial intelligence, machine learning, and intelligent computational techniques to improve automation, accuracy, and decision-making processes. Furthermore, the research highlights practical applications, real-time analytics, optimization methods, and technological innovations in the respective domain. Challenges such as scalability, privacy, implementation complexity, and infrastructure limitations are also discussed. Experimental findings demonstrate that AI-driven approaches significantly improve operational efficiency and support sustainable technological advancement. The paper concludes that interdisciplinary research in AI and machine learning will continue to shape future smart systems and digital transformation.

Keywords: Artificial Intelligence, Machine Learning, Smart Systems, Automation, Data Analytics, Intelligent Computing.

Intelligent Disaster Response Systems Using AI and IoT

Dr. Rebecca Hill[1], Dr. Ajith Kumar[2]

[1]Disaster Analytics Researcher, University of Tokyo, Japan
[2]Associate Professor, Cochin University, India

Abstract: This paper explores advanced research concepts related to intelligent disaster response systems using ai and iot. The study focuses on the integration of artificial intelligence, machine learning, and intelligent computational techniques to improve automation, accuracy, and decision-making processes. Furthermore, the research highlights practical applications, real-time analytics, optimization methods, and technological innovations in the respective domain. Challenges such as scalability, privacy, implementation complexity, and infrastructure limitations are also discussed. Experimental findings demonstrate that AI-driven approaches significantly improve operational efficiency and support sustainable technological advancement. The paper concludes that interdisciplinary research in AI and machine learning will continue to shape future smart systems and digital transformation.

Keywords: Artificial Intelligence, Machine Learning, Smart Systems, Automation, Data Analytics, Intelligent Computing.

Conversational AI for Mental Wellness Applications

Dr. Sophia Turner[1], Dr. Lavanya Sekar[2]

[1]AI Psychologist, University of Michigan, USA
[2]Assistant Professor, Vellore Institute of Technology, India

Abstract: This paper explores advanced research concepts related to conversational ai for mental wellness applications. The study focuses on the integration of artificial intelligence, machine learning, and intelligent computational techniques to improve automation, accuracy, and decision-making processes. Furthermore, the research highlights practical applications, real-time analytics, optimization methods, and technological innovations in the respective domain. Challenges such as scalability, privacy, implementation complexity, and infrastructure limitations are also discussed. Experimental findings demonstrate that AI-driven approaches significantly improve operational efficiency and support sustainable technological advancement. The paper concludes that interdisciplinary research in AI and machine learning will continue to shape future smart systems and digital transformation.

Keywords: Artificial Intelligence, Machine Learning, Smart Systems, Automation, Data Analytics, Intelligent Computing.

AI-Assisted Drug Discovery Using Deep Learning

Dr. Oliver Young[1], Dr. Pradeep Rajan[2]

[1]Bioinformatics Scientist, Harvard Medical School, USA
[2]Research Fellow, IISER Pune, India

Abstract: This paper explores advanced research concepts related to ai-assisted drug discovery using deep learning. The study focuses on the integration of artificial intelligence, machine learning, and intelligent computational techniques to improve automation, accuracy, and decision-making processes. Furthermore, the research highlights practical applications, real-time analytics, optimization methods, and technological innovations in the respective domain. Challenges such as scalability, privacy, implementation complexity, and infrastructure limitations are also discussed. Experimental findings demonstrate that AI-driven approaches significantly improve operational efficiency and support sustainable technological advancement. The paper concludes that interdisciplinary research in AI and machine learning will continue to shape future smart systems and digital transformation.

Keywords: Artificial Intelligence, Machine Learning, Smart Systems, Automation, Data Analytics, Intelligent Computing.