

**INTERNATIONAL CONFERENCE PROCEEDINGS ON
EMERGING TRENDS IN MULTIDISCIPLINARY RESEARCH AND TECHNOLOGY**

16th August 2025

Organized by



**UNIVERSITY OF EDENBERG
LUSAKA, ZAMBIA**



VIVEKANANDA COLLEGE

DEPARTMENT OF COMMERCE AND RESEARCH CENTRE

(Reaccredited with B+ Grade by NAAC)

(Affiliated to Manonmaniam Sundaranar University, Tirunelveli)
Agastheeswaram, Kanyakumari, Tamilnadu, India - 629701

Editors

Dr. Samson Davidson

Dr. D. Anto Pravin Singh

Dr. E. Joseph Rubert

Dr. M. Sowmiya



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Multi Spectrum Rural Skill Development and Social Education

Kanyakumari, Tamilnadu, India

Editors

Dr.Samson Davidson

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PERFACE

It is with great pleasure and a deep sense of academic responsibility that we present the preface for the International Conference on Emerging Trends in Multidisciplinary Research and Technology (ICETMRT – 2025). This conference marks a significant milestone in promoting dialogue and collaboration across diverse domains of knowledge, hosted collaboratively by the University of Edgenberg, Zambia,Africa., Vivekanandha College,Agatheswaram,Kanyakumari,Tamilnadu,India and Multi Spectrum Rural Skill Development and Social Education, India initiative. In an era defined by rapid technological transformation, complex global challenges, and the convergence of academic disciplines, there is an increasing need to foster integrative thinking and cross sectoral collaboration. Multidisciplinary research is no longer a theoretical concept, it is a necessity. Whether we speak of climate change, public health, digital innovation, rural upliftment, or educational reform, real-world problems demand holistic and inclusive approaches. This conference serves as a timely platform where researchers, educators, scientists, technologists, policy-makers, and students converge to share insights, challenge conventions, and shape new directions in research and practice. The central theme of this conference. The emerging trends in multidisciplinary research and technology encourages participants to move beyond traditional boundaries of specialization and embrace a culture of innovation that spans across science, engineering, humanities, education, social sciences, and rural development. It is this spirit of openness and curiosity that defines the true essence of this event. One of the distinctive highlights of this conference is its emphasis on rural skill development and social education areas that often remain on the periphery of mainstream academic discourse. By integrating community-oriented goals with high-level academic inquiry, we aim to ensure that research serves not only the advancement of knowledge but also the upliftment of marginalized communities and the betterment of society as a whole. This inclusive vision aligns with national and global priorities of sustainable and equitable development. The papers and presentations featured in this conference proceedings reflect an impressive range of scholarly excellence and innovative thinking. Each submission has undergone rigorous peer review to ensure quality, originality, and relevance. The topics covered span multiple disciplines and represent both theoretical advances and practical applications. We express our heartfelt gratitude to the organizing committee, reviewers, and technical team whose relentless efforts and commitment made this conference a success. Our sincere thanks go to all the keynote speakers, invited guests, session chairs, and panelists for their valuable contributions. We are especially thankful to all the participants—authors, researchers, students, and institutions—whose presence and input enriched the quality and impact of this conference. It is our hope that the knowledge shared through this platform will inspire continued exploration, meaningful collaborations, and impactful outcomes. We believe that this conference is not an end, but a beginning—a spark that will ignite new research paths and long-lasting academic partnerships.

Editors

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Chancellor's Message



Dr. Gunasekar Ariyamuthu

Chancellor

University of Edenberg

Lusaka, Zambia, Africa

It gives me immense pleasure to extend my warm greetings and best wishes to all the distinguished participants, scholars, and organizers of the International Conference on Emerging Trends in Multidisciplinary Research and Technology, jointly hosted by the University of Edenberg, Zambia, Africa, Vivekananda College, Agathesswaram, Kanyakumari, India and the Multi Spectrum Rural Skill Development and Social Education, Kanyakumari, India initiative. In today's rapidly evolving world, the boundaries between disciplines are continually dissolving, paving the way for innovative, integrative, and impactful research. This conference is a testament to the power of collaboration and knowledge-sharing across diverse academic domains. It offers a vital platform for academicians, scientists, technologists, and community leaders to explore emerging ideas, showcase groundbreaking research, and inspire solutions to some of the world's most pressing challenges. The inclusion of rural skill development and social education as a key focus highlights the deep-rooted commitment to inclusive and sustainable progress. Empowering rural communities through skill-based education and multidisciplinary approaches ensures that the benefits of technology and research reach every corner of society. I congratulate the organizing committee for their vision and dedication in bringing together such a prestigious and impactful forum. I am confident that this conference will foster meaningful dialogue, forge new partnerships, and ignite transformative ideas for the future.

Wishing the conference grand success and all participants an enriching experience.

Warm regards,

Dr. Gunasekar Ariyamuthu, Chancellor

University of Edenberg, Zambia, Africa.

Principal's Message



Dr.P.Makesh
Principal
Vivekananda College
Agatheswaram, Kanyakumari, Tamilnadu, India

It is with great honor and enthusiasm that I welcome all participants, resource persons, and delegates to the International Conference on Emerging Trends in Multidisciplinary Research and Technology, jointly organized by the University of Edgenberg, Vivekananda College, and the Multi Spectrum Rural Skill Development and Social Education initiative.

This conference serves as a dynamic platform to bring together scholars, researchers, and practitioners from diverse disciplines to engage in meaningful dialogue, share innovations, and foster collaborative solutions. In an age where challenges are complex and interconnected, multidisciplinary research has become not just relevant, but essential. At Vivekananda College, we are deeply committed to academic excellence, innovation, and social responsibility. The inclusion of themes related to rural skill development and social education resonates with our institutional mission of empowering communities through education and applied research. We believe that bridging the gap between technology and society is vital for sustainable progress. I commend the efforts of all organizing institutions and extend my heartfelt appreciation to the contributors and participants whose presence and ideas will undoubtedly make this conference a grand success. May this gathering of minds lead to new insights, lasting collaborations, and meaningful impact.

Wishing everyone a fruitful and inspiring conference.

Warm regards,
Dr.P.Makesh -Principal,
Vivekananda College,India

Convener's Message

It gives me immense pleasure to welcome you all to the International Conference on Emerging Trends in Multidisciplinary Research and Technology, a collaborative endeavor by the University of Edenberg, Vivekananda College, and the Multi Spectrum Rural Skill Development and Social Education initiative.

In today's interconnected world, research must transcend traditional boundaries. Multidisciplinary approaches offer holistic perspectives to address real-world challenges be it in science, technology, humanities, or community development. This conference aims to create a vibrant intellectual space where ideas converge, knowledge is shared, and innovation is inspired.

We are particularly proud of the inclusion of rural skill development and social education as part of this academic dialogue. These dimensions reflect our collective commitment to inclusive growth, social equity, and community empowerment ensuring that the fruits of research reach the grassroots.

This conference is the result of months of collaboration, planning, and dedication by a passionate team of academicians and professionals. I express my deepest gratitude to all keynote speakers, paper presenters, session chairs, and participants for contributing to the success of this event.

May this conference serve as a beacon of knowledge, opening new pathways for collaboration and impactful research.

With warm regards,

Convener

Dr.Samson Davidson, Dean, University of Edenberg, Zambia,Africa.

Dr.R.Dharmaragini, Head-Dept. of Commerce, Vivekananda,India

Dr.E.Joseph Rubert, Diretcor, MSRSDSE, India

Dr.R.Sivanesan, Vice Principal, St.Alphonsa Arts & Science College, India

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**Artificial Intelligence in Banking Industry: Applications, Challenges, and Future
Directions**

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Abstract

Artificial Intelligence (AI) has emerged as a transformative technology in the banking sector, enabling automation, predictive analytics, fraud detection, and personalized services. This paper examines the role of AI in enhancing operational efficiency, improving customer engagement, and mitigating risks within banking. It begins with a comprehensive literature review on AI-driven financial technologies, followed by a detailed analysis of its key applications, including fraud detection, credit scoring, risk management, and customer service. A conceptual framework is proposed to illustrate the AI adoption process in banking. Real-world case studies, such as JPMorgan Chase's COIN platform and HSBC's AI-powered fraud prevention systems, highlight practical implementations and outcomes. Despite its immense potential, AI adoption poses significant challenges, including ethical concerns, data privacy, algorithmic bias, and regulatory compliance issues. The paper concludes by outlining future opportunities for AI in banking, emphasizing the need for responsible innovation and robust governance frameworks to ensure ethical and sustainable implementation.

Keywords: Artificial Intelligence, Banking Industry, Fraud Detection, Machine Learning, Risk Management

1. Introduction

The banking industry is undergoing a rapid digital transformation driven by the convergence of advanced technologies such as Artificial Intelligence (AI), big data analytics, and cloud computing. Among these innovations, AI stands out as a game-changer, offering unprecedented capabilities to automate operations, improve decision-making, and enhance customer experiences. Traditionally, banking has been characterized by manual processes and human judgment; however, the increasing complexity of financial transactions and the growing threat of cyber fraud have necessitated the adoption of AI-driven solutions (Accenture, 2023).

AI applications in banking range from automating routine processes to implementing advanced risk modeling and predictive analytics. The technology enables banks to analyze massive datasets, identify patterns, and generate insights that were previously unattainable using conventional methods. According to PwC (2022), AI adoption in financial services could contribute up to \$1 trillion annually to the global banking industry by 2030.

This paper aims to explore how AI is transforming the banking sector by reviewing existing literature, identifying key applications, analyzing implementation strategies through case studies, and addressing ethical and regulatory challenges. The study also provides a conceptual framework for AI integration in banking and outlines future directions for research and practice.

2. Literature Review

The literature on AI in banking reflects a growing interest in the integration of machine learning, natural language processing (NLP), and robotic process automation (RPA) within financial institutions. Early research focused on the potential of AI to automate back-office operations, while recent studies highlight its strategic importance in fraud detection, credit scoring, and customer relationship management (Deloitte, 2022).

2.1 AI and Operational Efficiency

AI-driven automation reduces processing time for loan applications, customer onboarding, and compliance checks. Robotic Process Automation (RPA) minimizes manual errors, allowing employees to focus on higher-value tasks.

2.2 Fraud Detection and Risk Management

Fraud remains a major challenge in banking. AI algorithms can detect unusual patterns in real time, reducing fraudulent transactions. Research by Capgemini (2023) indicates that AI-based fraud detection systems have reduced losses by up to 40% in several global banks.

2.3 Customer Experience Enhancement

AI-powered chatbots and virtual assistants are increasingly being deployed to handle customer queries, reducing wait times and improving satisfaction (Accenture, 2023). These systems leverage NLP to understand customer intent and deliver personalized responses.

2.4 Challenges in AI Adoption

Despite the benefits, studies point to significant challenges, including data security, ethical concerns, and algorithmic transparency. Regulatory frameworks such as GDPR in Europe and similar laws in other regions impose strict requirements on the handling of customer data, creating compliance hurdles for AI adoption (PwC, 2022).

3. Applications of AI in Banking

AI technologies are applied in multiple banking operations:

- **Fraud Detection:** AI-based anomaly detection helps identify fraudulent transactions in real time.
- **Credit Scoring:** Machine learning models provide more accurate credit assessments than traditional methods.
- **Customer Service:** AI chatbots enhance customer engagement by providing instant responses.
- **Risk Management:** Predictive analytics helps banks assess risks and comply with regulatory requirements.

4. Methodology and Conceptual Framework

This research adopts a qualitative approach, synthesizing data from scholarly journals, financial reports, and case studies. The conceptual framework illustrates the AI adoption process, which includes:

- **Data Collection:** From internal and external sources.
- **Model Development:** Using machine learning algorithms.
- **Deployment:** Integration with core banking systems.
- **Monitoring:** Continuous performance evaluation and compliance checks.

(Insert Diagram: AI Adoption Framework in Banking)

5. Case Studies and Analysis

Case 1: JPMorgan Chase – COIN Platform

JPMorgan implemented the COIN platform to automate contract review, reducing the review time for 12,000 contracts from 360,000 hours to seconds.

Case 2: HSBC – Fraud Detection Systems

HSBC deployed AI-based anomaly detection, resulting in a significant reduction in false positives and enhanced fraud prevention measures.

6. Challenges and Ethical Issues

AI adoption in banking raises critical challenges, including:

- Data Privacy: Compliance with data protection regulations.
- Algorithmic Bias: Risk of discriminatory outcomes if training data is biased.
- Lack of Transparency: Black-box AI models hinder interpretability and regulatory acceptance.

7. Future Scope

The future of AI in banking lies in developing explainable AI models, integrating blockchain for secure and transparent transactions, and leveraging quantum computing for complex risk modeling.

8. Conclusion

AI is revolutionizing the banking industry by enhancing efficiency, reducing fraud, and improving customer engagement. However, the success of AI adoption depends on addressing ethical, regulatory, and operational challenges through robust governance and responsible innovation.

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