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SYMPOSIUM PROCEEDINGS

International Symposium on Advancements and Security in Real World Use Cases of AI, Data & Cloud

Powered by

Research & Development Consortium
SITER Academy, Norway

Dept. of CSE (Cyber Security), School of Computing
Vel Tech Rangarajan Dr. Sagunthala R&D Institute
of Science and Technology, Chennai, India

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FOREWORD

In the wake of rapid digital transformation, academic and professional communities worldwide are increasingly focused on technologies shaping our future. With this vision, the International Symposium on Advancements and Security in Real World Use Cases of AI, Data and Cloud was conceptualized and organized by SITER Academy, Norway and VelTech Rangarajan Dr.Sagunthala R&D Institute of Science and Technology, Chennai.

True to our commitment to academic innovation, the symposium highlighted real-world applications and security frameworks across Artificial Intelligence, Data Technologies, and Cloud Computing. The event featured a blend of keynote speeches, project presentations, and discussions centered on industrial impact and technological responsibility.

Participants from diverse backgrounds—including students, scholars, and industry professionals—presented contributions across areas such as Generative AI, Data Analytics, Healthcare Prediction, Cybersecurity, and Cloud Infrastructure. These works demonstrated the crucial role of AI, data, and cloud in sectors like health, education, finance, and governance.

Distinguished keynote speakers from the USA, Ireland, Oman, Malaysia, China, and Brunei shared valuable insights on global challenges and opportunities in the AI and cloud ecosystems. Their expertise added global value to the symposium and encouraged forward-thinking dialogue.

Numerous research projects and prototypes were presented across sessions. The academic rigor, innovative thinking, and use-case driven approaches demonstrated by the participants significantly enhanced the quality of this symposium. This year saw notable growth in submission quality and participation diversity, reaffirming the importance of nurturing platforms that promote academic collaboration and applied research.

We are grateful to all authors, speakers, presenters, and attendees for their contributions. Our sincere thanks to the Review Committee, Session Chairs, and the Organizing Team at SITER Academy for their dedication. We also appreciate the continued partnership with the European Journal of Ingenious Technology and Engineering (EJITE) for publishing these proceedings.

We hope this volume serves as a valuable reference and inspires continued innovation in AI, Data, and Cloud technologies. "Last but not the least," we express heartfelt thanks to all participants for contributing your valuable time, insights, and expertise to this symposium.

With best wishes,

Editorial Committee
International Symposium 2025
SITER Academy
Bergen, Norway

Project Abstracts

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[1] **Title of Paper: Leveraging Azure AI for Real-Time News Headline Sentiment Analysis**

Author(s): Dr. R. Sivaramakrishnan, Dr. R. RoselinKiruba
Affiliation: Vel Tech Rangarajan Dr.Sangunthala R&D Institute of Science and Technology

Abstract: *Headlines, as one of the most important features of news articles, not only summarize the content but also capture attention, influence public perception, and steer conversations. The emotion behind the news headline is analysed using Natural Language Processing (NLP) to infer the tone as positive, negative, or neutral. Such emotional analysis is essential in today's information-rich world, as readers often form opinions based on mere headlines, which can result in gross misunderstandings or emotional exploitation. Current headline sentiment tools, even with their foundational capabilities, face challenges in context, sarcasm detection, and interpreting culturally nuanced language. To address these issues, this paper proposes a news headline sentiment classification system utilizing Microsoft Azure's AI-powered Language and Cognitive Services for precise and scalable results. The proposed system identifies the emotional tone of over 200,000 headlines published in the HuffPost News Category Dataset on Kaggle. The solution offers simultaneous processing of large text collections and real-time sentiment analysis through an intuitive dashboard. This technology is useful in many fields, such as media monitoring, understanding public opinion, detecting bias, and supporting better decision-making in journalism, finance, and politics. The experimental results demonstrate that the model outperforms existing approaches in terms of accuracy and other key performance metrics.*

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[2] **Title of Paper: AI Model for Automated Microaneurysms detection in retinal Fundus images using Microsoft Azure**

Author(s): Mr. Shahul Hameed C, Mrs S. Steffi
Affiliation: Vel Tech Rangarajan Dr.Sangunthala R&D Institute of Science and Technology

Abstract:

Diabetic retinopathy (DR) is a cause of vision loss and blindness, and early detection of red lesions, particularly microaneurysms (MAs), is crucial to prevent its progression. This project focuses on the early detection of red lesions, particularly microaneurysms (MAs) using computer vision and cloud-based AI services. The main objective is to identify microaneurysms (MAs) from images using Microsoft Azure's Custom Vision service. The model was trained on a curated Five publicly accessible datasets are employed, including DIARETDB1, MESSIDOR, e-ophtha-MA, ROC, and IDRiD. A user-friendly frontend was built using Python and Streamlit, allowing users to upload Retinal images and get real-time predictions. This work demonstrates the power of low-code AI tools in medical applications.

[3] **Title of Paper: Power BI-Driven Academic Analytics for Student Performance Prediction**

Author(s): Dr. Sumithra M, Sangamithrai K
Affiliation: Vel Tech Rangarajan Dr.Sangunthala R&D Institute of Science and Technology

Abstract: *In the rapidly evolving educational landscape, data-driven decision-making has become essential for enhancing academic outcomes. This project presents the development of a Power BI dashboard specifically designed to monitor and analyse student performance. Leveraging publicly available datasets, such as those hosted on Kaggle, the dashboard offers educators a user-friendly interface to evaluate academic achievement, attendance trends, and departmental effectiveness.The data is pre-processed and transformed using Power Query, enabling the creation of a structured table modelled into a star schema for efficient reporting. Key academic metrics - including average grades, attendance rates, pass/fail ratios, and inter-departmental comparisons – are calculated using DAX measures. The dashboard employs a range of interactive visualizations, including cards, bar charts, line graphs, and slicers to facilitate intuitive exploration of the data.This solution empowers academic stakeholders with actionable insights, enabling the identification of student performance patterns and the more strategic allocation of resources. Its dynamic visual capabilities support drill-down analysis across time periods, departments, and individual students, making it a valuable tool for informed academic planning and intervention.*

[4] **Title of Paper: Enhancing Security in Learning Management Systems (LMS) Using Azure Monitor**

Author(s): Dr. T Venketbabu
Affiliation: Vel Tech Rangarajan Dr.Sangunthala R&D Institute of Science and Technology

Abstract: *Learning Management Systems (LMS) serve as critical platforms for delivering educational content, facilitating online collaboration, and managing assessments. However, as cyber threats evolve, ensuring the security and integrity of these systems becomes increasingly challenging. This project investigates the integration of Azure Monitor, Microsoft's comprehensive cloud monitoring solution, to enhance security in LMS platforms by detecting, analyzing, and mitigating potential threats in real time. Monitoring online learning management systems is mandatory to ensure accessibility, track user engagement, and analyze course completion rates. The proposed solution leverages Azure Monitor's advanced security features, including log analytics, threat detection, and automated alerting, to monitor user activities, system vulnerabilities, and unauthorized access attempts. By implementing Azure Monitor, LMS administrators gain enhanced visibility into security vulnerabilities and can swiftly respond to cyber threats before they escalate. This project demonstrates how cloud-based monitoring tools can support LMS security, ensuring seamless, uninterrupted, and secure e-learning experiences for institutions and students worldwide.*

[5] **Title of Paper: Real-Time Plant Disease Detection System Using Deep Learning and Azure Cloud**

Author(s): Mr. Ashok Kumar V, Mr. Shahul Hameed C
Affiliation: Vel Tech Rangarajan Dr.Sangunthala R&D Institute of Science and Technology

Abstract: *AgriScanAI is a real-time AI-powered cloud-based and mobile solution that uses deep learning and Azure services to assist farmers in early plant disease detection. Undiagnosed diseases frequently cause large crop losses for farmers, which affects their livelihood and food security. In addition to providing immediate, AI-driven results and suggested fertilizers or pesticides, this product makes it possible to detect diseases early through mobile image capture. Over 70,000 photos from 38 different plant disease classes were used to train the model, which was then optimized with MobileNet for offline deployment on mobile devices. The solution offers an affordable, scalable system that can function in areas with poor connectivity by combining serverless functions, Blob Storage, and Azure Machine Learning. AgriScanAI is a revolutionary development in agricultural intelligence that helps small scale farmers connect with the digital world and enhancing crop yield and sustainability.*

[6] **Title of Paper: Resume Tracking System using Generative AI**

Author(s): Dr. N. R Rajalakshmi
Affiliation: Vel Tech Rangarajan Dr.Sangunthala R&D Institute of Science and Technology

Abstract: *The proposed work introduces a resume Application Tracking system for extracting essential information from resumes using state-of-the art large language models (LLMs) of Azure Open AI. This system is designed to streamline the recruitment process by automating key tasks such as resume parsing, keyword extraction, sentiment analysis, and candidate ranking. By leveraging LLMs, the system simplifies the workflow for HR professionals and recruiters, enabling efficient management of large volumes of job applications. The core functionality of the system lies in its ability to automatically parse and analyze resumes, extracting relevant keywords and phrases, evaluating the sentiment expressed in the content, and ranking candidates based on their suitability for specific job roles. Experimental evaluations have demonstrated the effectiveness and accuracy of this approach, highlighting its capability to significantly reduce the time and effort involved in candidate screening and selection. Moreover, the proposed system is scalable and adaptable to job applications across various industries and job categories. By automating repetitive tasks and providing valuable insights into candidate qualifications and suitability, this resume tracker represents a significant advancement in recruitment technology. It empowers HR professionals and recruiters to make informed decisions more efficiently, ultimately improving the overall recruitment process and enhancing organizational productivity.*

[7] **Title of Paper: Automated Balance Sheet Digitization using Microsoft Azure**

Author(s): Mrs. Panneerselvi R
Affiliation: Vel Tech Rangarajan Dr.Sangunthala R&D Institute of Science and Technology

Abstract: *A Snapshot that provides the company's financial health can be analyzed using the Balance Sheet. Manual analysis of these financial statements is a time-consuming process prone to human error, hindering timely strategic decision-making. This project presents a fully automated, serverless pipeline on Microsoft Azure to address this challenge by rapidly digitizing balance sheets and calculating key financial ratios. The workflow begins when a document is uploaded to Azure Blob Storage, which triggers an Azure Function. This function orchestrates the process, leveraging Azure AI Document Intelligence to accurately extract financial figures such as total assets, current liabilities, and shareholders' equity. Subsequently, the function calculates critical health indicators like the current ratio and debt-to-equity ratio. The final structured data and calculated metrics are stored in Azure Cosmos DB, creating a clean, queryable dataset. This pipeline transforms a laborious manual task into an efficient, accurate, and scalable process, enabling stakeholders to gain immediate financial insights for data-driven planning.*

[8] **Title of Paper: Automated Invoice Processing with Azure AI Document Intelligence**

Author(s): Mr. V Ramasamy
Affiliation: Vel Tech Rangarajan Dr.Sangunthala R&D Institute of Science and Technology

Abstract: *Modern organizations need automated invoice processing to increase operational efficiency and decrease manual labor. This project investigates using Azure AI Document Intelligence to expedite invoice data extraction and processing. To automatically find and extract important invoice data elements like invoice number, vendor name, date, line items, and total amounts from both structured and unstructured invoices, Azure's prebuilt and custom document models are used. In order to provide smooth data validation, storage, and reporting, the project connects with downstream systems. By use of intelligent automation, the system guarantees data correctness, minimizes human mistakes, and drastically cuts processing time. Furthermore, it facilitates scalability by managing substantial document quantities with minimal configuration. This project presents a workable, cloud-based method that shows how artificial intelligence may revolutionize conventional invoice processing procedures. According to the project, using Azure AI Document Intelligence for financial document automation directly improves company agility, increases compliance, and lowers operating expenses.*

[9] **Title of Paper: End-to-End Data Analysis on Cardiovascular Health Using Microsoft Fabric**

Author(s): Dr. Uma Mageswari R, Mrs. U. Hemavathi, Dr. Angeline Lydia
Affiliation: Vel Tech Rangarajan Dr.Sangunthala R&D Institute of Science and Technology

Abstract: *Chronic diseases such as diabetes, heart disease, and hypertension are among the most pressing health challenges worldwide. Early detection and continuous monitoring are critical in managing these conditions effectively. This project introduces an AI-driven solution built using Microsoft Fabric, aimed at predicting and monitoring chronic diseases through integrated health data analytics. The proposed system ingests electronic health records (EHRs), wearable device data, lab reports, and lifestyle information into a centralized OneLake storage platform. Using Data Factory and Dataflows Gen2, this data is cleaned, processed, and analyzed within Microsoft Fabric's Lakehouse architecture. Advanced machine learning models are developed and deployed using Fabric Notebooks and AutoML, enabling accurate prediction of disease risk levels based on real-time and historical data. The solution includes real-time monitoring dashboards powered by Power BI, which present dynamic risk assessments and visualizations. The dashboards enable clinicians and healthcare managers to proactively monitor patient health trends, identify high-risk individuals, and intervene before conditions worsen. By combining the scalability and performance of Microsoft Fabric with the power of AI and real-time visualization, this product offers a comprehensive platform for proactive healthcare management. It is designed to integrate easily with existing hospital systems and ensure data security and compliance with healthcare regulations. The solution will not only aid in reducing long-term healthcare costs but also improve patient outcomes through timely prediction, monitoring, and intervention.*

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[10] **Title of Paper: AI model for Indian Dance Classification using Microsoft Azure**

Author(s): Dr. Challapalli Jhansi Rani, Dr RSM Lakshmi Patibandla
Affiliation: Koneru Lakshmaiah Education Foundation

Abstract: *Indian classical dance forms are a vital part of the country's rich cultural heritage, yet automated classification of these styles remains a challenge due to their nuanced visual differences. This project addresses this gap by leveraging Microsoft Azure's Custom Vision, a low-code AI tool, to classify eight major Indian classical dance forms: Bharatanatyam, Kathak, Kathakali, Odissi, Manipuri, Mohiniyattam, Sattiriya and Kuchipudi. Existing approaches in computer vision rely heavily on complex models and extensive coding, limiting accessibility. Moreover, datasets for classical dance forms are scarce and imbalanced. To overcome these challenges, a curated dataset was compiled, and a user-friendly web interface was developed using Streamlit, enabling real-time image-based classification. The model achieved high accuracy in identifying dance styles, demonstrating the effectiveness of cloud-based AI in cultural preservation and education. Compared to traditional deep learning approaches, this solution offers ease of deployment, scalability, and accessibility, highlighting the potential of low-code platforms in democratizing AI for cultural applications.*

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[11] **Title of Paper: Automated Sentiment Analysis System for Amazon HD Camera Reviews Using Microsoft Azure**

Author(s): Dr RSM Lakshmi Patibandla, Dr. Challapalli Jhansi Rani.
Affiliation: Koneru Lakshmaiah Education Foundation

Abstract: *Sentiment analysis, a key component of opinion mining, involves extracting subjective information to determine the emotional tone behind textual content. The system leverages Azure-based tools along with machine learning techniques to classify reviews at the emotional level, identifying sentiments such as joy, anger, sadness, and surprise. Unlike conventional models that focus solely on polarity (positive, negative, neutral), our approach provides enhanced emotional depth and contextual sensitivity. Data preprocessing, feature extraction, and sentiment classification are carried out using Azure's Text Analytics API and custom-trained models to improve accuracy. The system is scalable, cloud-integrated, and adaptable to various domains. Experimental results on Amazon product reviews demonstrate reliable performance, indicating its practical utility for e-commerce platforms in boosting customer engagement, supporting targeted marketing strategies, and enabling personalized recommendations based on emotional insights.*

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- Prof. Dr. SP Chockkalingam, Vel Tech Rangarajan Dr. Sagunthala R&D Institute of Science & Technology Chennai, India.
- Prof. Dr. Rajendran T, Head, Dept. of CSE (Cyber Security) VelTech University India.

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