Editorial

The *Journal of Engineering Research and Sciences (JENRS)* is pleased to present a selection of scholarly contributions that address emerging challenges in data management, fluid mechanics, enterprise information systems, and healthcare analytics. The studies featured in this issue demonstrate the increasing convergence of advanced computational methods, artificial intelligence, mathematical modeling, and real-time analytics to improve system performance, operational efficiency, and decision-making across diverse application domains. Together, these contributions reflect the growing role of intelligent technologies and analytical frameworks in solving complex problems faced by industry and society.

The rapid growth of cloud-based data ecosystems has intensified the need for intelligent and autonomous optimization strategies capable of managing storage, query performance, and data quality simultaneously. One contribution introduces the AI-Driven Autonomous Data Lake Optimization System (AIDALOS), an innovative framework that combines reinforcement learning, anomaly detection, and physical optimization techniques within a unified architecture. By allowing quality monitoring signals to directly influence partitioning strategies, compression selection, and query optimization decisions, the proposed system achieves significant improvements in storage efficiency and query execution performance. The study highlights the value of integrating data quality assurance with physical optimization processes, offering a practical pathway toward self-managing cloud data infrastructures [1].

Fundamental advances in fluid mechanics continue to provide valuable insights into the behavior of complex materials under varying physical conditions. A theoretical investigation of modified Stokes' problems for incompressible Newtonian fluids with pressure-dependent viscosity derives exact analytical solutions for velocity and shear stress distributions while accounting for gravitational effects. Expressed through standard Bessel functions, the obtained solutions reveal distinctive flow characteristics that differ substantially from those of ordinary fluids, including faster flow behavior and unique stress distributions. In addition to enriching the theoretical understanding of non-standard fluid behavior, the study provides practical estimates of the transition time required to reach steady-state conditions, offering useful guidance for experimental investigations and engineering applications [2].

The increasing complexity of modern enterprise operations has elevated error management from a technical concern to a strategic organizational priority. A comprehensive review of dynamic error management in SAP environments examines the evolution of error detection and resolution mechanisms from traditional reactive approaches to adaptive, intelligence-driven frameworks. Through the analysis of contemporary literature and practical implementations, the study demonstrates how hybrid systems that combine rule-based methodologies with artificial intelligence can significantly enhance error detection accuracy and response efficiency. The findings emphasize the importance of integrating technological innovation, process adaptation, and human expertise to create resilient enterprise systems capable of supporting real-time business operations and sustained competitive advantage [3].

Healthcare organizations continue to face substantial financial challenges arising from claim denials and inefficiencies within the revenue cycle. Addressing this issue, a study explores the integration of machine learning-based denial prediction models with real-time business intelligence dashboards to enable proactive intervention before claim submission. Utilizing Medicare and CMS datasets alongside Random Forest algorithms and interactive Power BI visualizations, the proposed framework identifies high-risk claims and supports timely corrective actions. The results demonstrate the effectiveness of predictive analytics in reducing denial rates, improving revenue performance, and enhancing operational efficiency. The study further

illustrates how combining advanced analytics with user-friendly visualization tools can transform reactive processes into proactive decision-support systems with applications extending beyond the healthcare sector [4].

The research presented in this issue underscores the transformative impact of intelligent analytics, advanced mathematical modeling, and adaptive decision-support systems across a broad range of disciplines. From autonomous cloud infrastructure optimization and theoretical fluid dynamics to enterprise reliability and healthcare revenue management, these studies contribute valuable knowledge and practical solutions to contemporary challenges. It is anticipated that the findings reported herein will stimulate further innovation, interdisciplinary collaboration, and the development of robust technologies that support sustainable progress in science, engineering, and industry.

References:

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