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Special Issue on

Optimization and Operational Research in Emerging Technologies

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FOREWORD

This special issue titled "*Optimization and Operational Research in Emerging Technologies*" is an outcome of the 5th International Conference on Intelligent Systems and Machine Learning (ICISML), held at NIT Meghalaya, India, on May 16–17, 2025, which brought together leading researchers, academicians, and practitioners from across the globe.

The conference received an overwhelming response, with 125 paper submissions, out of which 22 high-quality papers were accepted after rigorous peer review. These selected contributions form the foundation of this special issue, reflecting both the depth of theoretical advancements and the breadth of practical applications.

The rapid growth of technologies such as Artificial Intelligence (AI), Internet of Things (IoT), healthcare informatics, and blockchain has created both unprecedented opportunities and complex challenges. These domains demand innovative approaches for improving efficiency, ensuring scalability, enhancing decision-making, and delivering sustainable solutions. Optimization and operational research form vital foundations, uniting theory and practice to model complex systems, design efficient algorithms, and enhance decision-making. Their integration with AI, reinforcement learning, IoT, blockchain, and healthcare demonstrates transformative impact on emerging technologies and sustainable innovation.

The accepted works cover a wide spectrum, ranging from machine learning and deep learning models for optimization, to IoT resource allocation, healthcare logistics, blockchain consensus mechanisms, and multi-objective optimization in smart cities and supply chains.

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Collectively, these contributions highlight the pivotal role of optimization and operational research in shaping the technological innovations of today and tomorrow.

We would like to extend our sincere gratitude to the authors for submitting their valuable research, and to the reviewers for their rigorous and constructive evaluations. We are particularly thankful to Professor B. K. Dass, Chief Editor, for his constant support and encouragement during the publication process in the *Journal of Information and Optimization Sciences*, published by Taru Publications, New Delhi.

We hope this special issue offers valuable insights for researchers, practitioners, and policymakers, inspiring innovation and advancing optimization in emerging technologies.

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