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Special Issue on

Mathematical Modelling for Intelligent Systems and Its Real-Time Applications

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FOREWORD

The 4th International Conference on Information Management & Machine Intelligence was held at Poornima Institute of Engineering and Technology, Jaipur on 23-24 December 2022.

We are pleased to present this special issue on "Mathematical Modelling for Intelligent and Smart Systems" (containing the papers presented at the conference), which aspires to showcase the research and advancements in the development of mathematical modelling techniques in various domains. Mathematical modelling has become an essential activity in the study of simulating physical phenomena through computational processes, enabling us to predict the behaviour of artifacts within their environments. In recent years, machine learning (ML) and artificial intelligence (AI) have emerged as powerful tools in data science and decision-making processes. Mathematical approaches, such as ML, have proven instrumental in developing concise decision models, producing quick approximations, and forecasting changing phenomena based on known samples. The integration of mathematical modelling and machine learning has significantly improved machine intelligence and its applicability in diverse domains.

This special issue has explored the intersection of mathematical modelling and intelligent systems, focusing on the utilization of ML and AI in fields such as biomedical data interpretation, pattern reorganization, security and privacy, image processing, cloud computing, pandemic and disaster management, natural language processing, agriculture, smart cities, business models, malware detection and avoidance, virtual personal assistants, stock market prediction, healthcare, e-commerce, and many more.

Researchers from various disciplines and geographic regions were invited to contribute their work to this special issue. By sharing their

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research, insights, and advancements, we aim to foster collaboration and knowledge exchange among academia, industry, and society at large. The ultimate goal is to leverage mathematical modelling for intelligent and smart systems in deliver enhanced efficiency, effectiveness, and convenience in our daily lives.

In the conference more than 400 papers were presented, out of which 67 were received in this track and finally 22 were accepted and are being published in this Special Issue.

We would like to express our gratitude to all the authors, reviewers, and editorial staff who have contributed to make this special issue possible. Their dedication and expertise have been invaluable in curating a collection of articles that demonstrate the latest developments and applications of mathematical modelling in intelligent and smart systems.

The guest editors of this Special Issue would like to express their gratitude to authors for sharing their valuable research and publication partner for their approval regarding the special issue of the esteemed journal. Guest editors especially thank Prof. B. K. Dass, Chief Editor, who supported us in bringing out the Special Issue in, *Journal of Interdisciplinary Mathematics*, published by TARU PUBLICATIONS, New Delhi.

We hope that this special issue will serve as a valuable source for researchers, practitioners, and policymakers, providing them with insights into the potential of mathematical modelling in addressing complex challenges and shaping the future of intelligent and smart systems.

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