AI-Driven Innovations and Multidisciplinary Perspectives

Research, Innovation and Society in the Digital Era



Dr. Priyanka
Dr. Sunita Nimbria

AI-Driven Innovations and Multidisciplinary Perspectives: Research, Innovation and Society in the Digital Era

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AI-Driven Innovations and Multidisciplinary Perspectives: Research, Innovation and Society in the Digital Era

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Preface

The rapid advancement of Artificial Intelligence (AI) and emerging digital technologies has created significant opportunities for research, innovation, and societal transformation across diverse disciplines. This edited volume, *AI-Driven Innovations and Multidisciplinary Perspectives: Research, Innovation, and Society in the Digital Era*, brings together scholarly contributions from academicians, researchers, scholars, and industry professionals to explore the transformative impact of AI and digital technologies.

The volume covers contemporary topics, including artificial intelligence, machine learning, deep learning, natural language processing, computer vision, data science, big data analytics, robotics, cybersecurity, blockchain technology, cloud computing, edge computing, and the Internet of Things (IoT). It also highlights applications of emerging technologies in computer science, mathematics, commerce, business management, education, healthcare, and other interdisciplinary fields. These contributions demonstrate how AI-driven approaches can improve efficiency, enhance decision-making, address complex challenges, and promote technological advancement. By integrating multidisciplinary perspectives, this volume aims to encourage innovative thinking, strengthen academic and professional collaboration, and explore practical solutions to contemporary problems. It emphasizes the importance of responsible technological development, digital transformation, and sustainable innovation in an increasingly interconnected world.

This book is intended as a valuable resource for academicians, researchers, postgraduate students, and industry professionals interested in artificial intelligence, emerging technologies, and interdisciplinary research. The contributions aim to inspire further investigation, stimulate academic discussions, and foster collaboration across disciplines. We express our sincere gratitude to all contributing authors, reviewers, and individuals whose valuable efforts have made this volume possible. We hope this book will inspire readers to explore new research directions and contribute to responsible innovation, multidisciplinary collaboration, and a sustainable future in the digital era.

Editors
Dr. Priyanka
Dr. Sunita Nimbria

Acknowledgement

The publication of this edited volume, *AI-Driven Innovations and Multidisciplinary Perspectives: Research, Innovation, and Society in the Digital Era*, is the result of collective scholarly efforts and academic collaboration. The editors express their sincere gratitude to all contributing authors for their valuable research contributions, innovative ideas, and commitment to advancing knowledge in Artificial Intelligence, Computer Science, and Mathematics and in various different fields.

Special thanks to my family for their constant encouragement, support, and blessings throughout this journey. I express my heartfelt gratitude to my mother for her unconditional care, motivation, and sacrifices, and to my brothers for their continuous support, inspiration, and belief in me. Their love and encouragement have been a great source of strength and motivation during the completion of this work.

We extend our heartfelt appreciation to the peer reviewers for their constructive feedback, insightful suggestions, and valuable efforts in maintaining the academic quality of this volume. Their contributions have helped strengthen the quality and relevance of the chapters included in this book.

We are grateful to the academic colleagues, institutional authorities, and well-wishers whose encouragement and cooperation supported the completion of this publication. Special thanks are extended to the team at **NEXGEN Publications** for their guidance, professional assistance, and support throughout the publication process.

Finally, we express our sincere thanks to all readers, researchers, academicians, and students who engage with this volume. We hope that this book will inspire further research, promote collaboration across Artificial Intelligence and diverse academic disciplines, and contribute meaningfully to future technological, scientific, and societal advancements.

Editors
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Dr. Sunita Nimbria

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M.Sc., Ph.D. in Computer Science and Applications, UGC NET (3 Times), HTET (2 Times). She is currently working as an Assistant Professor in the Department of Computer Science and engineering at Ch. Bansilal University (CBLU), Bhiwani, Haryana. She has academic and research experience in the field of Computer Science and Emerging Technologies, with expertise in Blockchain Technology, Cybersecurity, Artificial Intelligence, Internet of Things (IoT). She has published numerous research papers in UGC Care, Scopus-indexed, and peer- eviewed journals, including publications in reputed international journals and conference proceedings. She has also contributed several book chapters and holds a published patent in the area of blockchain-based e-commerce security systems.

Dr. Priyanka has actively contributed to academic research, peer review, faculty development programmes, workshops, and international conferences. She has served as a reviewer for reputed journals including Springer Nature and Scopus-indexed journals. She is also serving as an Editorial Board Member of various reputed journals, including the International Journal for Development of Science and Technology (IJDST) and has served as the Editor of several academic books. In addition to her research and teaching contributions, she has coordinated various AICTE-associated national-level FDPs and workshops on Generative AI, Application Development with AI, MATLAB Programming, and emerging computing technologies.

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ABOUT THE BOOK

AI-Driven Innovations and Multidisciplinary Perspectives: Research, Innovation, and Society in the Digital Era, edited by Dr. Priyanka Arora, presents a comprehensive collection of scholarly contributions exploring the transformative role of Artificial Intelligence (AI) and emerging digital technologies across diverse academic disciplines. The volume highlights the significance of technological innovation, interdisciplinary research, and intelligent solutions in addressing contemporary challenges and supporting societal development. The book covers a broad range of topics, including Artificial Intelligence, Machine Learning, Deep Learning, Natural Language Processing, Computer Vision, Data Science, Big Data Analytics, Intelligent Systems, Robotics, Cybersecurity, Blockchain Technology, Cloud and Edge Computing, and the Internet of Things (IoT). It also explores the applications of emerging technologies in Computer Science, Mathematics, Commerce, Business Management, Education, Healthcare, and other interdisciplinary domains.

Furthermore, the volume examines emerging themes such as Generative AI, Large Language Models, Reinforcement Learning, Explainable AI, Ethical and Responsible AI, Digital Transformation, Intelligent Automation, and Sustainable Computing. It also addresses the opportunities and challenges associated with technological advancement, including data privacy, cybersecurity, digital inclusion, and the responsible adoption of intelligent systems.

Bridging technological advancements with practical applications, this edited volume demonstrates how AI-driven innovations can enhance decision-making, improve efficiency, encourage interdisciplinary collaboration, and contribute to sustainable development. It emphasizes the relationship between research, innovation, and society in an increasingly interconnected digital world. Designed for academicians, researchers, postgraduate students, industry professionals, and other readers interested in emerging technologies, this book serves as a valuable resource for understanding current developments and future directions in AI-driven innovation. By bringing together diverse scholarly perspectives, the volume aims to inspire further research, strengthen academic collaboration, and contribute to a responsible, innovative, and sustainable future in the digital era.

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