

Machine Learning, Artificial Intelligence, and Data Science

Current Trends in Big Data, Deep Learning, Neural
Networks, and Predictive Modeling

Kshirod Sarmah
Hem Chandra Das *Editors*

Machine Learning, Artificial Intelligence, and Data Science: Current Trends in Big Data, Deep Learning, Neural Networks, and Predictive Modeling

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Preface

Artificial intelligence (AI), Data science (DS), machine learning (ML) as well as deep learning (DL) has emerged as the topmost technology that has become the major part of our day-to-day lives. The impact is more valuable due to integration of machine and AI technologies for the current information age. State-of-arts technologies and technical methodologies as well as algorithms trying to build more reliable and robust systems that provides uniform and easy access to these innovative technologies all around the world.

Artificial General Intelligence (AGI), which is the stepping stone to future Super AI, may be the fastest growing technologies in our culture today. Therefore, in this books we collect quality research paper and book chapters from lots of researchers and academician working in esteemed colleges ,institutions as well as reputed universities all over the India and aboard in all mentioned area of AI in a single book.

We offer our heartiest thank and gratitude to each and every contributing author for their hard work and innovative research contributions to make our book qualitative one. We also very much thankful to respective institutions, colleges as well as universities of all contributed authors. We are also grateful to Deep Science publication publication staff, and reviewers for helping to make this possible. In the long run, we would like to express our sincere gratitude to our esteemed advisors, Prof. Anjana Kakoti Mahanta and Prof. Utpal Bhattacharjee, for their helpful advice and kind assistance. We hope that this book will accelerated further research and discussion in the state-of-art developing fields of sub-domain of data science, machine learning, and artificial intelligence.

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Dr. Kshirod Sarmah, Assistant Professor of Computer Science, Pandit Deendayal Upadhyaya Adarsha Mahavidyalay Amjonga, Goalpara, Assam. Dr. Sarmah specializes in AI, Machine learning, Data Science, Image Processing, Computer Vision, Speaker Recognition, Deep learning architectures and has over 12 years of research and teaching experiences in neural networks, Generative AI and predictive modeling. He has previously authored several influential books on AI and machine learning systems design and publishing more than 30 research papers in various reputed international journals in this area.

Dr. Hem Chandra Das, Assistant Professor of Computer Science and Technology, Bodoland University, Kokrajhar, Assam. Dr. Das research focuses on ethical AI and responsible data science practices has over 12 years of research and teaching experiences in this area. He has published more than 20 research papers in various reputed international journals in the area. He has extensive experience editing technical volumes and has published widely on AI governance and algorithmic fairness.

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Editorial Message

It gives us immense pleasure to present this edited volume, *Machine Learning, Artificial Intelligence, and Data Science: Current Trends in Big Data, Deep Learning, Neural Networks, and Predictive Modeling*. This book is a collective effort to bring together pioneering research, contemporary insights, and emerging innovations that are shaping the modern landscape of intelligent systems.

The fields of Artificial Intelligence (AI), Machine Learning (ML), and Data Science are evolving at an unprecedented pace, driving transformation across every sector—from healthcare and finance to industry and education. Through this volume, we aim to provide readers with both a theoretical foundation and a practical perspective on current methodologies, architectures, and applications. Each chapter reflects the dedication of scholars and practitioners who are contributing to the advancement of intelligent technologies and their responsible deployment in society.

We express our heartfelt gratitude to all contributing authors, reviewers, and institutions for their invaluable support and scholarly input. We also thank Deep Science Publishing for their continued encouragement and commitment to promoting open access scientific knowledge. We believe this compilation will serve as a valuable reference for researchers, students, and professionals striving to understand and leverage the power of AI and data-driven innovation.

We hope this book inspires readers to explore new research frontiers, foster interdisciplinary collaboration, and contribute meaningfully to the growing ecosystem of intelligent computing.

Editors

Dr. Kshirod Sarmah

Dr. Hem Chandra Das

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