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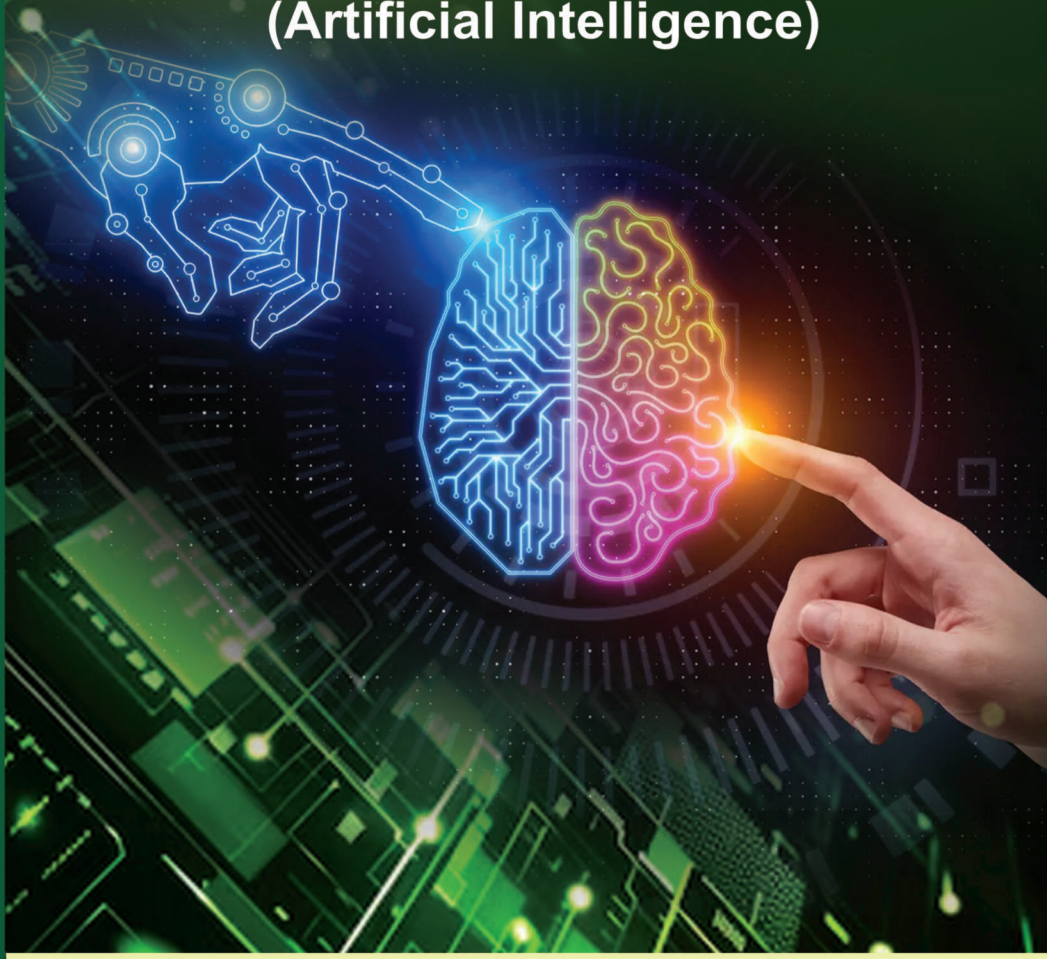
MULTIDISCIPLINARY ASPECTS OF AI

(Artificial Intelligence)



Editors:

Dr. Amrita Dutta | Dr. Satya Upadhyaya

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PREFACE

The International Conference on Multidisciplinary Aspects of AI was a significant milestone in fostering dialogue and collaboration among scholars, practitioners, and enthusiasts from diverse disciplines converging on the ever-evolving field of Artificial Intelligence (AI). Organized jointly by Netaji Nagar College and Calcutta Girls' College, the conference served as a dynamic platform for the exchange of ideas and research that spanned the multifaceted dimensions of AI. This book, titled **Multidisciplinary Aspects of AI (Artificial Intelligence)**, is a culmination of the rich discussions, innovative research papers, and thought-provoking insights presented during the event.

The field of AI is no longer confined to computer science and technology alone; its transformative impact extends to education, healthcare, business, the arts, governance, and even ethical and societal frameworks. Recognizing this interdisciplinary potential, this conference aimed to bridge the gap between theoretical advancements and practical applications of AI across various domains. The selected papers in this volume explore a diverse array of themes, including machine learning algorithms, natural language processing, AI ethics, robotics, human-computer interaction, and the socio-economic implications of AI deployment.

The significance of AI in addressing contemporary global challenges cannot be overstated. As we navigate a world increasingly defined by digital transformation, AI has become a cornerstone of innovation, offering solutions for issues ranging from climate change and pandemic management to equitable resource distribution and smart urban planning. Simultaneously, it raises critical questions about privacy, accountability, bias, and the ethical use of technology. The discussions in this conference underscored the importance of a multidisciplinary approach to AI research—one that is inclusive, reflective, and forward-thinking.

This book reflects the collaborative spirit of the conference, featuring contributions from esteemed academicians, researchers, and professionals who have generously shared their knowledge and expertise. The chapters delve into foundational theories, real-world case studies, and speculative analysis that together provide a comprehensive overview of the current AI landscape and its future trajectory. Each contribution has been meticulously curated to ensure academic rigor while remaining accessible

to readers from diverse backgrounds, fostering a deeper understanding of AI's multifaceted nature.

We are profoundly grateful to all the authors for their contributions, which are the backbone of this publication. Their dedication to advancing knowledge and pushing the boundaries of their respective fields has been inspiring. Special thanks are also due to the organizing committees of Netaji Nagar College and Calcutta Girls' College, whose tireless efforts ensured the success of the conference. The seamless coordination, insightful panel discussions, and vibrant exchange of ideas would not have been possible without their hard work and commitment.

We extend our heartfelt gratitude to our editorial team, including Dr. Amrita Dutta and Dr. Satya Upadhyaya, whose unwavering focus and guidance have shaped this book. Their vision and expertise have been instrumental in transforming the outcomes of the conference into a cohesive and impactful volume.

As editors, we hope that this book will serve as a valuable resource for students, researchers, and practitioners who seek to understand and contribute to the multidimensional field of AI. May it inspire new inquiries, innovative solutions, and collaborative endeavors that harness the power of AI for the betterment of society?

Thank you to all contributors (authors), participants, and supporters who have made this initiative a success. Together, let us continue to explore the boundless potential of AI and its capacity to shape a brighter, more inclusive future.

EDITORS

Place: Kolkata
Date: 12.12.2024

Dr. Amrita Dutta
Dr. Satya Upadhyaya

ACKNOWLEDGEMENT

We extend our sincere gratitude to all those who contributed to the success of the 2days International Conference on **Multidisciplinary Aspects of AI, organized by Netaji Nagar College and Calcutta Girls' College.** The conference has been a remarkable platform for sharing knowledge, ideas, and insights on the diverse and ever-evolving field of Artificial Intelligence, and it would not have been possible without the contributions of various individuals and institutions.

We are honored to have had the privilege of receiving invaluable guidance and support from our Chief Patron, **Md. Nadimul Haque, President** of Calcutta Girls' College and Honourable Member of Rajyasabha. His unwavering dedication to education and academic progress has been a constant source of inspiration for all of us. His leadership and encouragement have made this conference a resounding success.

Our sincere thanks go to the Honorable Chief Guest, **Professor (Dr.) Debasis Das, Registrar** of the University of Calcutta, for gracing us with his presence and delivering an insightful address. His deep understanding of the subject matter and his vision for the future of academia and technology in India have enriched the discussions and elevated the conference.

We also express our heartfelt thanks to **Dr. Dabir Ahmed,** a member of the Governing Body of Calcutta Girls' College, for his support and guidance throughout the preparation and execution of the conference. We are grateful for the presence of **Prof. Maitreyee Bhattacharya and Dr. Indranil Kar,** whose contributions and participation in the event added tremendous value to our discussions.

A special note of gratitude is due to our esteemed **International Resource Persons. Dr. Satyaki Roy,** Assistant Professor of Biostatistics at The University of Alabama in Huntsville, **USA**, and **Sneha Roychowdhury,** Researcher at The University of Sheffield, **UK**, have generously shared their expertise, broadening our understanding of the intersection between AI and their respective fields. Their involvement was integral to the success of the event.

We also extend our thanks to our **National Resource Person, Dr. Palas Kumar Saha,** Assistant Professor in the Department of Archaeology and Ancient Indian Culture at Tripura University. His insights into the

application of AI in diverse fields were thought-provoking and helped to deepen our appreciation of the subject's vast potential.

Our **State-level Resource Persons** have also made significant contributions to the event. **Dr. Parimal Sarkar**, Assistant Professor at Netaji Subhas Open University, **Prof. (Dr.) Biswapati Jana,** Department of Computer Science, Vidyasagar University, and **Dr. Maumita Sengupta,** Associate Professor and HOD of the Department of Education and Humanities at Techno India University, have enriched the conference with their profound knowledge and research. Their participation has been a key factor in the success of the conference.

We would like to extend our gratitude to all the contributors, authors, paper presenters, and researchers who participated in the conference. Your dedication and commitment to academic excellence have been the backbone of this event.

Our deepest thanks to the **Organizing Secretaries**: **Dr. Debashis Biswas, Dr. Bhajan Chandra Barman** and **Dr. Shatarupa Sen Gupta**, whose tireless efforts in coordinating every aspect of the event have been crucial to its success. We also appreciate the hard work of the **Joint Convenors, Dr. Shyamasree Rajguru, Prof. Prem Kumar Ghosh**, and **Dr. Sumita Roy,** for their invaluable support and leadership in making this conference a success.

We are also grateful to the **Organizing Members, Dr. Lekhraj Balmiki, Dr. Sumita Roy, Arkajyoti Jana, and Gopal Adhikari,** whose contributions were instrumental in ensuring the smooth functioning of the conference.

Our sincere thanks to **Amitrakshar Publishers - Kolkata** for publishing the conference book, which will serve as a reference for future studies and research in the multidisciplinary aspects of AI.

Thank you to all the students, scholars, faculty members, and everyone who made this conference a great success. Your enthusiasm and participation have made this event memorable, and we look forward to future collaborations in the field of Artificial Intelligence.

EDITORS

Place: Kolkata — *Dr. Amrita Dutta*

Date: 12.12.2024 — *Dr. Satya Upadhyaya*

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