DeepScience

Multidisciplinary Research: Innovations in Science, Arts, and Commerce

Sisir Kumar Rajbongshi, Kshirod Sarmah, Rajdeep Ghosh, and Dharmeswar Tarang *Editors*

Multidisciplinary Research: Innovations in Science, Arts, and Commerce

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DeepScience

Published, marketed, and distributed by:

Deep Science Publishing, 2025
USA | UK | India | Turkey
Reg. No. MH-33-0523625
www.deepscienceresearch.com
editor@deepscienceresearch.com
WhatsApp: +91 7977171947

ISBN: 978-93-7185-157-2

E-ISBN: 978-93-7185-737-6

https://doi.org/10.70593/978-93-7185-737-6

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Citation: Rajbongshi, S. K., Sarmah, K., Ghosh, R., & Tarang, D. (Eds.). (2025). *Multidisciplinary Research: Innovations in Science, Arts, and Commerce*. Deep Science Publishing. https://doi.org/10.70593/978-93-7185-737-6

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ISBN: 978-93-7185-157-2 | E-ISBN: 978-93-7185-737-6 | DOI: https://doi.org/10.70593/978-93-7185-737-6

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Editorial Message

"*Education is an ornament in prosperity and refuge in adversity" -Aristotle*

In the third decade of the new millennium, India is endorsed as a rising super power. Research is an important aspect in the present scenario of Higher Education. The thinking involved in research makes people to develop problem solving skills by way of inquisition and exploration.

The progress of a country depends on its Research and Development (R & D) sector contributing to various aspects of social, economic and technological process. Our nation is still lagging behind in the R & D sector as compared to other countries like USA, China, Japan and the European Countries. We are yet to achieve the optimum levels of Research. So we have to give more importance on the basis of research.

We are happy to publish this edited volume, **"Multidisciplinary Research: Innovations in Science, Arts, and Commerce,"** the first edition, from the department of Computer Science, PDUAM, Amjonga .
This first edition brings together the efforts of scholars, researchers, and educators from different parts of the country as well as outside the country also. The articles are from diverse disciplines from arts to science, ICT to literature, who share a common vision — to bridge the gap between traditional knowledge and modern technological innovation. In this book we have tried to focus on that kind of spirit of innovative thinking and interdisciplinary approach.

We want to take the opportunity to thank to all our authors at this moment for showing their faith on us. Also thank to Deep Science publication for accepting our request to publish in their reputed publishing. We hope that this book will be beneficial for all. In near future we would like to publish second edition in the same title with different articles.

— The Editors
Department of Computer Science, Pandit Deendayal Upadhyaya Adarsha Mahavidyalaya (PDUAM), Amjonga, Goalpara, Assam, India

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Preface

In the department of computer science, we have a good environment of research, innovation as we have a full man power. Since the establishment of Department of Computer Science, PDUAM Amjonga in 2017, our department has been trying to conduct seminars, conferences lecture series, awareness program etc. Since then the department is trying to provide quality education focusing in the academic side as well as in innovative side also. One of the visions of Computer Science department, PDUAM Amjonga was to do some good quality research oriented works for better society. As a result of this thinking this edited book "*Multidisciplinary Research: Innovations in Science, Arts and Commerce*" is going to published.

In this edition, we have received more than 80 articles. Out of them we have selected 41 articles for publication. The contributions have been divided into Artificial Intelligence and ICT, Mathematics, Physical and Life Sciences, Commerce and Economics, Social Sciences, and Arts and Culture. This kind of interdisciplinary approach is the need of the time.

The book tries to inspire researches with innovations in young minds which can become accessible to students, academicians, researchers and professionals.

We want to thank our respected advisors -***Prof. Anjana Kakoti Mahanta*** (Department of Computer Science, Gauhati University), ***Prof. Helen K Saikia*** (Department of Mathematics, Gauhati University), and ***Prof. Utpal Bhattacharjee*** (Department of Computer Science & Engineering, Rajiv Gandhi University) — for their valuable guidance and encouragement since one year and also throughout the preparation of this book. Their expertise, experience and knowledge will enrich the quality of our book.

We would like to acknowledge all the **contributors** for their articles, and also the **reviewers** for their valuable comments and feedback, all the well wishers of PDUAM, Amjonga, and **Deep Science Publishing** for their support. At the end we would like to thank the authority, **Pandit Deendayal Upadhyaya Adarsha Mahavidyalaya, Amjonga**, for hosting and supporting this initiative.

We believe this publication will inspire future scholars to engage in multidisciplinary research and contribute to a knowledge-driven society.

Editors

Dr. Sisir Kumar Rajbongshi
Dr. Kshirod Sarmah
Dr. Rajdeep Ghosh
Dharmeswar Tarang

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ISBN: 978-93-7185-157-2 | E-ISBN: 978-93-7185-737-6 | DOI: https://doi.org/10.70593/978-93-7185-737-6

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Dr. Sisir Kumar Rajbongshi *is an accomplished Assistant Professor in the Department of Computer Science at PDUAM, Amjonga (Goalpara, Assam), and previously served as Head of Department. He completed his M.Sc., and Ph.D. in Computer Science and Information Technology respectively at Gauhati University. With a rich research portfolio, Dr. Rajbongshi focuses on Fuzzy Algebra, Discrete Mathematics, Boolean Computing, and Data Mining. He is also the author of the textbook Fundamentals of Computer Science (2019), Computer Fundamentals & C-Programming and has written multiple research and book chapters on fuzzy set theory and related topics. Recent academic contributions include book units on process-scheduling algorithms and relational database models published in 2023 through Gauhati University's Centre for Distance and Open Education. Beyond writing, Dr. Rajbongshi has dedicated years to teaching—from guest lecturing at Gauhati University's IDOL to serving permanently at PDUAM since 2017—and has participated in numerous national and international workshops and faculty development programs on educational technology, e-content development, AI tools.*

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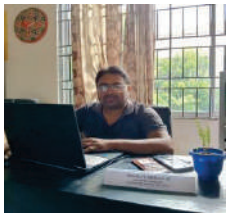

Dr. Rajdeep Ghosh *an esteemed Assistant Professor in the Department of Computer Science at PDUAM, Amjonga, Goalpara, Assam. He holds a B.Tech and M.Tech in Information Technology and a Ph.D. in Computer Science and Engineering. Dr. Ghosh has served as Assistant Professor at Vellore Institute of Technology, Bhopal and Gauhati University Institute of Science and Technology, contributing extensively to teaching, research, and academic development. His primary research interests include machine learning, optimization algorithms, and brain–computer interfaces. Dr. Ghosh has published numerous research articles in reputed international journals such as* IEEE Sensors Journal, Expert Systems with Applications (Elsevier), *and* IET Signal Processing, *along with book chapters from leading publishers like Wiley. He has also successfully led and contributed to sponsored research projects funded by NPIU–MHRD and holds a* ***German patent*** *for innovative EEG signal processing methods.*

Mr. Dharmeswar Tarang *an esteemed Assistant Professor and currently serving as HoD in the Department of Computer Science at PDUAM, Amjonga, Goalpara, Assam. He has been awarded Bachelor of Science (BSc) Degree from Gauhati University (Dimoria College, Khetri) in 2011*

ISBN: 978-93-7185-157-2 | E-ISBN: 978-93-7185-737-6 | DOI: https://doi.org/10.70593/978-93-7185-737-6

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