

Artificial Intelligence and Machine Learning Applications in Modern Digital Ecosystems:

Research, Innovation, Trust and Transformation



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First Impression: April 2026

Artificial Intelligence and Machine Learning Applications in Modern Digital Ecosystems: Research, Innovation, Trust and Transformation

ISBN: 978-93-49359-53-6

Rs. 799/- (\$80)

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Published by:
Empyreal Publishing House

Preface

Welcome to the first issue of "**Artificial Intelligence and Machine Learning Applications in Modern Digital Ecosystems: Research, Innovation, Trust, and Transformation**". This volume is the **official proceedings of the Two Days National Seminar on “Artificial Intelligence and Machine Learning”**. Seminar bringing together insightful research, scholarly perspectives, and contemporary academic discourse. This publication reflects enduring commitment to knowledge creation, research advancement, and academic excellence.

This book is a platform for exploring and sharing groundbreaking technology research. We're excited to present a collection of papers that show the wide range and depth of current research in Machine learning and AI.

This book explores the transformative role of Artificial Intelligence and modern web technologies in shaping the digital age. It examines AI's impact on employment, education, business models, cybersecurity, mental wellness, and consumer trust, while also addressing ethical, social, and economic implications. The chapters highlight practical applications such as hyperparameter optimization, fake job detection, AI-powered systems, blockchain security, and AI-assisted scientific research. Emphasis is placed on human–AI collaboration, trust-building, digital entrepreneurship, and innovation in sectors including MSMEs, social media, frontend development, and sustainable investment. Together, these studies present a comprehensive view of how AI and intelligent systems are redefining technology, industry, and society.

We extend our sincere thanks to the authors for their invaluable contributions and to our dedicated editors:

Dr. Sangeeta Shashikant Shinde

Dr. Sonali Sagar Gholve

Dr. Swati Pramod Mane

Asst. Prof. Fatima Allamshah Tamboli

The quality and relevance of this book have been significantly influenced by their dedication to upholding rigorous academic standards.

We are deeply grateful to the publishers for their assistance in bringing this book to reality, as well as to each and every one of the contributors for their significant contributions.

We are continually investigating and documenting novel technological innovations, and we are excited about your participation. We encourage you to engage with the research in "**Artificial Intelligence and Machine Learning Applications in Modern Digital Ecosystems: Research, Innovation, Trust, and Transformation**", contribute to the discussions, and help us expand what's possible. This platform is not merely a publication; it is a team effort that has the potential to shape the future of technology.

Acknowledgements

Publishing the first edition of "**Artificial Intelligence and Machine Learning Applications in Modern Digital Ecosystems: Research, Innovation, Trust, and Transformation**" was a collaborative effort, and we owe a huge thank you to everyone who helped make it a reality. This book stands on the shoulders of its contributors, whose innovative research and dedication to technological progress are truly remarkable. Their insights are invaluable and essential to expanding knowledge in these critical fields.

We would like to express our heartfelt gratitude and indebtedness to Mr. Sanjay Nahar, President of Sarhad, Mrs. Sushma Nahar, Secretary of Sarhad, Mr. Shailesh Wadekar, Trustee of Sarhad, Mr. Anuj Nahar, Trustee of Sarhad, and Principal Dr. Sangeeta Shinde for their invaluable and meticulous support at each and every stage of work.

A special note of thanks goes to our publisher. Their expertise and continuous support were key to getting this journal off the ground. Their dedication to quality and meticulous work transformed our vision into a successful publication.

Thank you to our readers and all supporters. Your interest in this book fuels our passion for exploring the future of M and AI and new technologies. We are excited to continue this journey with you and appreciate your ongoing support.

Thank you all for your invaluable contributions and support.

Warm regards,

Dr. Sangeeta Shashikant Shinde

Dr. Sonali Sagar Gholve

Dr. Swati Pramod Mane

Asst. Prof. Fatima Allamshah Tamboli

About the Editors



Principal Dr. Sangeeta Shashikant Shinde is an eminent academic leader, economist, and researcher with over two decades of distinguished service in higher education. As Professor and Principal of Sarhad College of Arts, Commerce and Science, she has consistently advanced academic excellence, research culture, and institutional development in alignment with NEP 2020.

A Ph.D. in Economics with specialization in Monetary Economics, Banking, and Public Finance, she is a recognized PG Teacher and Ph.D. Guide under Savitribai Phule Pune University. Her scholarly portfolio includes 18 published books as author, co-author, and editor, along with significant research contributions in reputed national and international journals.

Recipient of prestigious honours such as the Dr. Sarvepalli Radhakrishnan Shikshanratna Puraskar and Maharashtra Ideal Award, Dr. Shinde is widely respected for her academic leadership and intellectual contributions.

As the Convenor and Editor of the National Seminar, she presents this volume as the official proceedings of the seminar bringing together insightful research, scholarly perspectives, and contemporary academic discourse. This publication reflects her enduring commitment to knowledge creation, research advancement, and academic excellence.

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She is working at Sarhad Sarhad College as Head of the Computer Department. She has a total of 15 years of experience in Computer Science. She has attended 48 conferences, seminars, and workshops in addition to publishing more than 44 research articles

at national and international conferences. She Organised different National conferences and International conferences. She is an editorial board member of International Journal IJRMST, IJETSS and IJERCS. She edited 11 books and 1 Journal last year. She has experience working as a resource for faculty development workshops and programs at the university level. She worked as a registered MKCL's OnCET trainer. She was awarded as AAASH Skill development Trainer appreciation Feb 2026,2025 and Feb 2024, Green world and Jadhvar Foundation Best Teacher award Sept 2025, Swapnapurti education Best Teacher Award, Special appreciation award for Best Teacher Sept 2024, Shishak Ratna National Level Award-Best Teacher Award, Chandrakant Yashwant Dangat Patil Shikshan va Krida Mandal Pune, Best Teacher Award” by Sarhad College of ACS, Pune, , Innovative teacher Award” by Himakshara Rashtriya Parishad, Shri Saibaba Nari Asmita Award” , Dedication Award” by Sarhad College , Pune. Best Teacher Award” by Sarhad College of ACS, Pune, (2017-18).



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She is currently working as Assistant Professor in Electronic Science and IQAC Coordinator at Sarhad College of Arts, Commerce, and Science, Katraj, Pune, with a total of 15 years of teaching experience and 1 year of industry experience. She authored 5 books and edited Electronics laboratory books of various courses as well. She has actively contributed to academia by publishing and presenting research papers at national and international conferences, as well as in reputed journals, including UGC Care-listed and peer-reviewed publications. As a dedicated researcher, she serves as an Editorial board member of International Journal of Emerging Research in Computer Science and Review Member of the Journal of Emerging Technologies and Innovative Research (JETIR).

She has worked as a resource person for state level conferences, various faculty development programs and workshops. She has been awarded by various awards including “Rajyastariya Aadarsh Shikshak Puraskar 2025” by Swapnapurti Education, Pune, “Best Teacher Award” (2023) by Chandrakant Yashwant Dangat Patil Shikshan va Krida Mandal, Pune, “Rashtriya Sarvpalli Radhakrushnan ShikshakRatna Puraskar” by Sahara Education and Welfare Foundation, Maharashtra etc.



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M.Sc. (Computer Science), NET, SET, Advanced Diploma in Cyber Security Management

Asst. Prof. Fatima Alamshaha Tamboli currently serves as the Head of the Department of Computer Application at Sarhad College of Arts, Commerce, and Science, as well as the Head of the Advanced Diploma in Cyber Security Management at Sarhad Institute of Management and Technology. With over 14 years of academic and professional experience in the field of computer science and cybersecurity, she has made significant contributions to both teaching and institutional development.

Asst. Prof. Tamboli holds a Master’s degree in Computer Science and has qualified both NET and SET examinations. In addition, she has completed an Advanced Diploma in Cyber Security Management, strengthening her expertise in this crucial and evolving domain.

Her dedication to education and excellence has earned her several prestigious accolades, including the Dedication Award (2021–22) from Sarhad College of Arts, Commerce and Science, Raja Ram Mohan Roy Outstanding Teacher Award (2021), and the Dr. S. Radha Krishnan Aadarsh Shikshak Samman Award (2019).

Her academic leadership and commitment to student success continue to inspire both colleagues and learners alike.

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ISBN 978-93-49359-53-6



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