

The AI Revolution: Igniting Multidimensional Growth

Editor

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Special Thanks to....

Prof. (Dr.) Preeti Sharma who has made significant contribution to the compilation of book entitled ***“The AI Revolution: Igniting Multidimensional Growth”*** and has authored several key chapters. The Editor considered her invaluable expertise and dedicated efforts in enhancing the scholarly content and depth of this publication. Her work has been instrumental in advancing the knowledge and understanding of the subject matter discussed in this book.

Foreword



I take great pleasure in introducing "The AI Revolution: Igniting Multidimensional Growth," which was written by a group of talented researchers and edited by Prof. N.D. Jasuja. In an age where technological advancements redefine the very essence of our existence, this book stands as a beacon illuminating the far-reaching impact of Artificial Intelligence (AI) on every facet of human endeavor.

Prof. Jasuja and his distinguished colleagues have skillfully collected a wealth of ideas, analyses, and inventions that are presented in this book. In first chapter, "Influence of AI on Technology: Innovative Approach," Prof. Jasuja challenges conventional thought and ushers us into a world of limitless possibilities. He sets the stage for an engaging investigation into the revolutionary potential of AI. Subsequent chapters delve into the practical applications of AI across vital sectors, offering invaluable perspectives on its role in revolutionizing industries. From its integration into food processing to its pivotal role in addressing global challenges in agriculture, each contribution underscores AI's capacity to drive efficiency, sustainability, and innovation. This book discusses the critical need for innovative

solutions when tackling urgent problems like resource optimisation and food security from an AI perspective. It also explores the topic of customised nutrition, illuminating how artificial intelligence (AI) has the potential to transform how we feed ourselves at a time where health and wellbeing are given top priority.

"The AI Revolution" serves not merely as a compendium of knowledge, but as a guiding compass navigating us towards a future shaped by AI-driven innovation. Prof. Jasuja and his collaborators deserve commendation for their invaluable contributions, which extend far beyond the confines of this volume, shaping the discourse that defines our collective trajectory. Let "The AI Revolution" be your guiding light, illuminating a path towards a future brimming with promise and potential..

Dr. S. L. Sihag
Chairperson
Nirwan University Jaipur

Foreword



Presenting the cutting-edge volume "The AI Revolution: Igniting Multidimensional Growth," which has been edited by the Prof. N.D. Jasuja, gives pleasure. This collection is a moving example of the enormous impact Artificial Intelligence (AI) has had throughout the spectrum of human life in an era where the rapid pace of technology advancement alters the fabric of our everyday lives.

Experts in the subject weave a complex tapestry of ideas, analyses, and inventions inside these pages. Prof. Jasuja opens the discussion with a chapter titled "Influence of AI on Technology: Innovative Approach." This chapter explores how AI is revolutionising technology, providing a cutting-edge viewpoint that breaks with conventional wisdom and ushers in a time of previously unimaginable possibilities. It also sheds light on how AI and knowledge-seeking are mutually beneficial, setting the stage for a paradigm change in how we see advancement and innovation in science. Further, It navigates the application of AI in crucial sectors, underscoring its potential to revolutionize industries. "Application of Artificial Intelligence in Food Processing Industry" unravels the intricacies of AI's integration into food processing,

promising enhanced efficiency, safety, and quality in an industry vital to global sustenance.

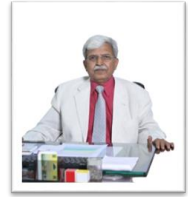
This volume addresses the pressing need for innovative approaches in agriculture, offering pragmatic solutions to global challenges such as food security and resource optimization through the lens of artificial intelligence. It provides a comprehensive perspective on leveraging AI to optimize nutrition, encapsulating the potential for personalized and mindful consumption in an era where health and well-being take center stage. "The AI Revolution" serves as a compass, guiding us towards the future and urging us to harness AI's potential across every domain. Prof. Jasuja and the esteemed contributors deserve our praise for offering invaluable insights and propelling our understanding of this transformative era. This book illuminates the path to multidimensional growth, its impact echoing beyond its pages and shaping the discourse that defines our collective tomorrow.

"The AI Revolution" is a clarion call to action. It equips us not just with knowledge but with the courage and foresight to navigate the uncharted territories of an AI-driven world. Let this book be your compass, guiding you towards a future brimming with possibilities.

Dr. R.K. Arora

*Vice-Chairperson & CEO
Nirwan University Jaipur*

Foreword



It is my distinct pleasure to present this groundbreaking volume, "The AI Revolution: Igniting Multidimensional Growth," meticulously curated by the Prof. N.D. Jasuja. In an era where the swift cadence of technological progress shapes the fabric of our daily lives, this compilation serves as a poignant testament to the profound influence of Artificial Intelligence (AI) across the spectrum of human existence.

The book unfolds a rich tapestry of insights, analyses, and innovations contributed by leading experts in the field. Prof. Jasuja, a luminary in his own right, spearheads the discourse with the inaugural chapter, "Influence of AI on Technology: Innovative Approach." It delves into the transformative effects of AI on technology, offering an avant-garde perspective that challenges conventions and propels us into an era of unprecedented possibilities. It also illuminates the symbiotic relationship between AI and the pursuit of knowledge, laying the groundwork for a paradigm shift in our understanding of scientific progress and innovation. Subsequent chapters navigate the application of AI in crucial sectors, underscoring its potential to revolutionize industries. "Application of Artificial Intelligence in Food

Processing Industry," unravels the intricacies of AI's integration into food processing, promising enhanced efficiency, safety, and quality in an industry vital to global sustenance.

This book also addresses the pressing need for innovative approaches in agriculture, offering pragmatic solutions to global challenges such as food security and resource optimization through the lens of artificial intelligence. It also provides a comprehensive perspective on leveraging AI to optimize nutrition, encapsulating the potential for personalized and mindful consumption in an era where health and well-being take center stage.

It's a compass navigating us towards the future, urging us to harness AI's potential across every domain. Prof. Jasuja and the esteemed contributors deserve our praise for offering invaluable insights and propelling our understanding of this transformative era. This book illuminates the path to multidimensional growth, its impact echoing beyond its pages and shaping the discourse that defines our collective tomorrow.

The AI Revolution is a clarion call to action. It equips us not just with knowledge, but with the courage and foresight to navigate the uncharted territories of an AI-driven world. Let this book be your compass, guiding you towards a future brimming with possibilities.

Prof. (Dr.) Arvind Agrawal

President (Vice-Chancellor)

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Acknowledgement

In extending my heartfelt appreciation, I seize this opportunity to express gratitude to the Nirwan University Jaipur family for their invaluable support and dedicated efforts that culminated in the completion of the book "The AI Revolution: Igniting Multidimensional Growth". The unwavering commitment to academic excellence and research has been a cornerstone in the success of this endeavor.

I would like to convey my sincere thanks to the Hon'ble Chairperson for their guidance and encouragement, which played a pivotal role in shaping the direction and ensuring the quality of the content within the book. The leadership provided by the Hon'ble Vice Chancellor and Hon'ble Vice Chairperson has been instrumental throughout this academic journey, and I extend my deepest appreciation for their unwavering support.

Special recognition is reserved for the Office of the Chairperson, particularly the esteemed OSD, whose support has been pivotal in ensuring the smooth coordination and execution of various aspects related to the book project. Their assistance has been invaluable in navigating the complexities of the endeavor.

I extend my gratitude to the esteemed Registrar, CoE, and the authors whose dedication and expertise have enriched the chapters with profound insights and knowledge. Their commitment to advancing research has significantly contributed to the overall merit of the book. My appreciation also goes to the Deans, Directors, and Faculty Members whose support and engagement

have played a crucial role in shaping the interdisciplinary nature of the content, elevating the quality of the research presented. I would like to express heartfelt thanks to the Social Media Team members for their vital role in disseminating information about the book and ensuring its outreach to a wider audience. Their efforts have been instrumental in fostering engagement and interest in the research topics covered.

The collective efforts of the Nirwan University Jaipur community have transformed "The AI Revolution: Igniting Multidimensional Growth" into a meaningful and collaborative venture. Once again, I extend my sincere thanks for the unwavering support and encouragement throughout this journey.

I am truly grateful for the collaborative spirit that defines Nirwan University Jaipur. Special acknowledgment is also due to Prof. (Dr.) Ravi Kant Modi, Member Secretary, Publication Board, Nirwan University Jaipur, for his very timely and efficient support. Additionally, my gratitude extends to Inspira Publications for their professional execution of this project.

Sincerely,
Prof. (Dr.) N.D. Jasuja

List of Contributors

Nakuleshwar Dut Jasuja, currently holding the position of Dean & Joint Registrar at Nirwan University Jaipur, boasts an illustrious academic career coupled with over 15 years of extensive experience in teaching, research, academic administration, and industry. His multifaceted professional journey has encompassed affiliations with renowned institutions such as the Indian Institute of Integrative Medicine (IIIM), University of Rajasthan and other NAAC A+ Accredited Universities. Prof. Jasuja has assumed diverse roles, exemplifying his commitment to academic excellence and institutional development. He has served as NAAC Coordinator, Convenor of the NEP Committee, distinguished member of the Institutional Development Committee at various HEIs. His versatile contributions have played a crucial role in shaping the academic landscape of the institutions. Beyond his administrative roles, Prof. Jasuja has demonstrated his prowess in research and innovation. His prolific research output includes the publication of 90 articles in international journals of high repute, and he has been granted several patents, supervised 13 Ph.D. Granted Major Research Projects from GOI and State Government In recognition of his outstanding research work on environmental issues, toxicology, and exposure science, Prof. Jasuja was honored with the prestigious Young Scientist Award in 2013. His dedication to advancing knowledge in the realm of Animal Science and Microbiology has not gone unnoticed. Prof. Jasuja received a Gold Medal from the Hon'ble Chief Minister of

U.P. during (iv) the All India Congress of Zoology at B.B.A. Central University, Lucknow. His commitment to excellence, coupled with his extensive contributions, marks him as a distinguished professional whose impact extends across academia, research, and industry. This accolade stands as a testament to his immense contributions to these fields.

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Ravi Kant Modi is currently working as an Professor & Dean in the Department of Commerce and Management, Nirwan University Jaipur, Rajasthan, India. He is a distinguished faculty member bringing with him an extensive 13 years of teaching experience. His contribution in research solidifies his position as a highly accomplished researcher and scholar. Beyond his academic accomplishments, He has also demonstrated his leadership skills as a Trained Associate NCC Officer since 2013, where he achieved the rank of a Captain. Additionally, he serves as a trained NSS officer and is actively involved in various community service initiatives. His dedication to research has been recognized through the prestigious Young Researcher Award, bestowed upon him on September 5, 2021. As an author, He has contributed to the academic community through his textbooks and edited books. Moreover, he has published over 40 papers in renowned National and International journals, including notable Scopus journals. His expertise in research is further exemplified by his position as an editorial board member for reputable journals.
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Preeti Sharma, currently serving as the Dean of the School of Applied and Basic Sciences, Nirwan University brings a wealth of expertise to her role. With a postgraduate degree in

Zoology and an additional MSc in Food Service Management and Dietetics, she has cultivated a diverse academic background. Prof. Sharma further solidified her academic prowess by completing a Ph.D. in Reproductive Toxicology from the University of Rajasthan. With a commendable 15 years of experience in Higher Education Institutions (HEIs), Prof. Sharma has held various key positions dealing with both academics and administration. Throughout her academic journey, she has consistently maintained a first-class record, indicative of her commitment to excellence in education and research. Beyond her academic achievements, Prof. Sharma possesses valuable exposure to the IT field, adding a multidimensional perspective to her contributions. Her research endeavors have resulted in the publication of more than 50 international articles, reflecting her dedication to advancing knowledge in her areas of expertise. In addition to her research contributions, Prof. Sharma actively engages in mentoring the next generation of scholars. She currently supervises 6 Ph.D. fellows, further contributing to the academic growth and development of aspiring researchers. The commitment of Prof. Sharma to excellence, coupled with her extensive experience and academic achievements, positions her as a valuable asset to the academic community. Her multifaceted background and leadership in both academics and administration underscore her dedication to fostering a culture of learning and research within the School of Applied and Basic Sciences at NUJ.

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Kunjee Lal Meena is a seasoned researcher with a background in engineering and academia. He has held various positions, including HOD and Associate Professor at Nirwan University

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Preeti Chaurasia is currently engaged in pursuing a PhD in the specialised domain of Environmental Microbiology under the supervision of Prof. (Dr.) N.D. Jasuja. She is M.Sc. in Microbiology from Purvanchal University, Jaunpur (Uttar Pradesh). She has also completed her M.Phil in Microbiology from Mewar University, Gangarar (Rajasthan). She has qualified ICAR-NET in Agricultural Microbiology. With the commitment and hard work of three years of research Mrs Chaurasia has come up with new findings focused on the bioremediation of textile effluents of the Sanganer region, Jaipur, Rajasthan. She has attended many National and International Conferences during her research career. She has earned the Senior Scientist award as well as an Outstanding Researcher award. To her assets, she has added the publication of two chapters in a Springer book named “Omics Insights in Environmental Bioremediation” and a review article in a Scopus-indexed reputed journal.

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Rashmi Singh, holds a postgraduate degree in Food Technology and Management, is currently pursuing Ph.D. in food technology at Nirwan University. Her academic journey is geared by a strong passion to deepen our knowledge of food technology and management principles. Rashmi brings a dedicated and serious approach to her work, showcasing unwavering commitment to her academic pursuits. Her pursuit of knowledge is not just a task but a genuine dedication, underlining her as a devoted and forward-thinking contributor in the field of food sciences and technology.

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Shraddha Mishra is a dedicated researcher specializing in Home Science, with a focus on Child Psychology and Development. Currently a research scholar at Nirwan University, Jaipur, she holds an MA in Home Science from Mahatma Gandhi Kashi Vidyapeeth, Varanasi. With a B.Ed from VBS Purvanchal University, Jaunpur, and an M.Ed from University of Lucknow, her educational background is extensive. Throughout her academic journey, Shraddha has displayed a keen interest in understanding child psychology and development. Her research, published in reputable outlets like Taylor & Francis and UGC indexed international and national journals, offers valuable insights to the field. With her strong educational foundation and passion, Shraddha Mishra is poised to significantly contribute to Home Science and child development.

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Preface

Welcome to "The AI Revolution: Igniting Multidimensional Growth," a comprehensive exploration into the transformative influence of Artificial Intelligence (AI) across diverse spheres of our existence. In an era characterized by unprecedented technological advancements, this book delves into the profound impact that AI has on technology, science, innovation, food processing, agriculture, and nutrition.

As we stand on the precipice of a new technological epoch, the chapters within this volume aim to unravel the complexities and possibilities presented by the AI revolution. This compilation brings together the insights and expertise of distinguished contributors who are at the forefront of AI research, development, and application. The journey begins with "Influence of AI on Technology: Innovative Approach" by Prof. Jasuja, where the avant-garde perspectives set the tone for the subsequent exploration.

This book transcends being merely a compilation of scholarly works; it serves as a roadmap guiding us through the uncharted territories of the AI revolution. The insights contained within these pages are designed to inspire curiosity, wisdom, and foresight, fostering a collective understanding that propels us into a future where the multidimensional growth ignited by the AI revolution becomes a tangible reality.

I trust that this book kindles curiosity, encourages contemplation, and makes a modest contribution to the continuous pursuit of knowledge.

- Prof. (Dr.) N.D. Jasuja

Professor & DSW

School of Basic and Applied Sciences

Nirwan University Jaipur, Rajasthan

The AI Revolution: Igniting Multidimensional Growth



Embarking on the journey of editing "The AI Revolution: Igniting Multidimensional Growth" has been a deeply enriching experience, allowing me to traverse the expansive landscapes where Artificial Intelligence (AI) intersects with various facets of our world. In this anthology, each chapter unfolds as a narrative, weaving together the threads of innovation, practical application, and the profound impact of AI on our collective future.

First chapter, "Influence of AI on Technology: Innovative Approach," serves as the opening canvas, where myself and Prof. Pramod K Raghav delve into the symbiotic dance between AI and technology. Through this exploration, I aim to capture the essence of how AI serves not only as a disruptor but also as a creative force propelling technology into uncharted territories.

Collaborating with Prof. Ravi Kant Modi in the chapter "Impact of AI on Science and Innovation: A Novel Perspective" allowed us to transcend traditional boundaries and reimagine the role of AI in scientific inquiry. Together, we navigate the uncharted waters where AI acts as a catalyst, reshaping the contours of innovation in science.

The third chapter, "Application of Artificial Intelligence in Food Processing Industry," penned alongside Rashmi Singh and Prof. Preeti Sharma, is a practical exploration into how AI is revolutionizing the food processing sector. We illuminate the transformative potential of AI in enhancing efficiency and quality in an industry that sustains us daily.

In "AI Solutions for Agricultural Sustainability," I collaborate with Preeti Chourasia and Prof. Preeti Sharma to shed light on the pressing issue of agricultural sustainability. We uncover how AI offers innovative solutions, paving the way for a more resilient and sustainable agricultural ecosystem.

The fifth chapter, "Mindful Bytes: A Holistic View of Nutrition in the AI Era," co-authored with Prof. Preeti Sharma and Rashmi Singh, takes a holistic stance on nutrition, blending AI insights with a mindful approach. This chapter unfolds as a narrative journey into how AI can contribute to promoting health and well-being through informed nutritional guidance.

Dr. Kunjee Lal Meena takes the pen in the sixth chapter, "The AI Education Revolution: Opportunities and Challenges," offering a profound exploration of how AI is reshaping the educational landscape. Dr. Meena presents a nuanced analysis of the potential and challenges that lie within the transformative impact of AI on education.

The last chapter, "AI-Driven Nutritional Guidance: Transforming Patient Wellness," co-authored with Shraddha Mishra, delves into the intersection of AI and healthcare. Together, we showcase the potential of AI-driven nutritional guidance in contributing to patient wellness, illustrating the transformative role of technology in the healthcare sector.

As the editor of this book, I am honored to present a collection that not only reflects the current state of the AI revolution but also serves as a compass guiding us towards a future where the multidimensional growth ignited by AI is harnessed responsibly for the greater good. It is my sincere hope that these chapters resonate with readers, inspiring contemplation and dialogue on the boundless possibilities that lie ahead in the AI era.

- Prof. (Dr.) N.D. Jasuja

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