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**ARTIFICIAL INTELLIGENCE  
AND SUSTAINABLE DEVELOPMENT  
IN INDIA'S NEW APPROACH TO A  
GLOBAL ECONOMY**

■ Dr. Ankit Mishra ■ Dr. Kush Kumar Nayak  
■ Er. Kranti Kumar Dewangan ■ Dr. Brijesh Khandelwal

***Artificial Intelligence and Sustainable Development  
in "India's New Approach to a Global Economy"***

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# **Artificial Intelligence and Sustainable Development in "India's New Approach to a Global Economy"**

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# Editors,

## Dr. Ankit Mishra



Dr. Ankit Mishra is an Associate Professor at ISBM University, Chhattisgarh, with a distinguished career in research and education, specializing in Electrical and Electronics Engineering, nanotechnology, and solar cell nano-design. With over eight years of academic and research experience, he has made significant contributions to his field, publishing more than 60 research papers and presenting at 30+ national and international conferences. His work, widely recognized and indexed in prestigious Scopus and UGC databases, is complemented by nine authored books and multiple book chapters, reflecting his dedication to advancing knowledge and fostering innovation.

An accomplished innovator, Dr. Mishra holds 30 patents, designs, and copyrights in cutting-edge fields such as nanoelectronics, lithium-ion batteries, AI hardware integration, and MEMS/NEMS technologies. His research portfolio spans diverse areas, including material science, optoelectronic sensors, drone chip design, and sustainable energy solutions. These projects underscore his commitment to addressing global challenges through groundbreaking technological advancements. Dr. Mishra's academic credentials include a PhD in Electrical Engineering, with a focus on perovskite solar cells, and an MTech in Nanotechnology, equipping him to explore and shape emerging scientific domains.

His efforts to nurture future engineers and researchers, coupled with his work in intellectual property development and renewable energy advocacy, demonstrate his unwavering commitment to innovation and excellence. Dr. Mishra strives to make a lasting impact on academia and the global technological landscape.

## **Dr. Kush Kumar Nayak**



Dr. Kush Kumar Nayak is an Assistant Professor at Amity Institute of Biotechnology, Amity University Chhattisgarh, Raipur since October 2016. His research interests primarily focus on biomaterials and biopolymers. He earned his PhD from the National Institute of Technology Raipur, India between December 2011 and April 2018.

Dr. Nayak has a strong publication record, with over 20 research articles published in esteemed national and international journals. He has also contributed to the scientific community through numerous presentations at conferences, proceedings, and invited talks. Additionally, he has authored one edited book and six book chapters.

Dr. Nayak's commitment to research and development is evident in his active involvement in the field of biomaterials and biomedical devices. He holds 12 patents and copyrights, showcasing his innovative approach and dedication to advancing scientific knowledge.



## **Er. Kranti Kumar Dewangan**



Kranti Kumar Dewangan serves as an Assistant Professor at Amity University, Chhattisgarh, Raipur, with a specialization in Computer Science and Engineering. With over 15 years of academic experience, he has been associated with various prestigious institutions, contributing significantly to the field of education and research. He holds an MCA from Pt. Ravishankar Shukla University, Raipur, and an M.Tech in Information Security from CSVTU, Bilai. Currently, he is pursuing a Ph.D. in Information Technology at the National Institute of Technology, Raipur, focusing on cutting-edge advancements in his field.

His research interests lie in the development of Artificial Intelligence (AI) and Deep Learning applications, as well as Information and Cyber Security systems. He has an impressive publication record, having authored over 30 research papers in esteemed SCI and Scopus-indexed journals and presented his work at prestigious IEEE conferences.

Kranti Kumar Dewangan's dedication to advancing technology and his expertise in AI, Deep Learning, and Cyber Security systems underscore his commitment to both academic excellence and the practical application of innovative solutions. His contributions to research and education continue to inspire students and professionals in the evolving field of Computer Science and Engineering.

## **Prof. (Dr.) Brijesh Khandelwal**



Prof. (Dr.) Brijesh Khandelwal, a distinguished academician and administrator, is currently serving as a Professor of Computer Science and Engineering at Amity School of Engineering and Technology, Amity University Uttar Pradesh, Lucknow Campus. He also holds the position of Deputy Director of Quality Assurance and Enhancement (QAE).

With a diverse academic background spanning Information Technology, Computer Science, Applied Economics, Management, and Insurance, Dr. Khandelwal's expertise is multifaceted. He holds advanced degrees, including a Master of Computer Applications and an MBA, along with dual PhDs in Applied Economics and Computer Science. Dr. Khandelwal is a Sun Certified Professional and holds a Licentiate certification in Life Insurance from the Insurance Institute of India, Mumbai.

Throughout his career, he has made significant contributions to academia through numerous patents, copyrights, and research publications in prestigious international and national journals and conferences. His involvement in the academic community extends to serving on the editorial and review boards of several esteemed journals.

## Guest Editors,

### Dr. Pranjali Sharma



Dr. Pranjali Sharma is an Associate Professor in the Department of Applied Mathematics at Shri Shankaracharya Institute of Professional Management and Technology, Raipur. With an impressive 22 years of teaching experience and over a decade of dedicated research, she has made significant contributions to the field of mathematics.

Her research interests encompass diverse areas, including fuzzy mathematics, fuzzy metric spaces, fixed-point theory, and more. Her expertise and passion for advancing knowledge in these specialized domains reflect her commitment to academic excellence and innovation.

Dr. Sharma's extensive experience in both teaching and research makes her a respected figure in her field, inspiring students and contributing to the growth of applied mathematics through her scholarly work.

## **Dr. Suresh Kumar Pattanayak**



Dr. Suresh Kumar Pattanayak is an Associate Professor, Proctor, and Head of the Department of Commerce (H), Commerce - Corporate Secretaryship, and BA Economics (H) at Amity Business School, Amity University, Raipur, Chhattisgarh. With over 20 years of academic experience and three years in industry, Dr. Pattanayak brings a wealth of knowledge and expertise to his multifaceted roles.

Holding three master's degrees (M. Com, M.Phil., and MBA) from recognized state universities, Dr. Pattanayak is a registered PhD supervisor at Amity University, having previously supervised four doctoral scholars at a state university. He has guided numerous master's degree students in completing major projects and remains actively involved in research. A member of the Indian Institute of Materials Management, Kolkata, Dr. Pattanayak has demonstrated his commitment to intellectual property development with four patents and copyrights to his credit.

Dr. Pattanayak's academic contributions include Edited the Book in A & V publications India. 23 research papers in national and international journals, 6 chapters in edited books with leading publishers such as IGI Global and Taylor & Francis, and five case studies in case study books. He has presented at over 10 international and 27 national conferences and has chaired technical sessions at international conferences. He contributes to academic rigour and excellence as an external observer for PhD scholars across universities.

His subject expertise spans Quantitative Techniques, Statistics, Operations Research, Econometrics, Research Methodology, Marketing Research, Taxation, Tax Planning, Financial Management, Corporate Finance, and more. Dr. Pattanayak's dedication to teaching, research, and academic leadership continues to inspire students and peers alike.



## **Dr. Payal Dubey**



Dr. Payal Dubey is an accomplished Assistant Professor at Amity Business School, Amity University, Raipur, Chhattisgarh. She earned her master's degree and PhD from Pt. Ravishankar Shukla University, Raipur, brings over a decade of academic experience to her role. As a PhD supervisor, she guided four doctoral candidates and mentored numerous undergraduate and master's degree students through major projects.

Dr. Dubey's contributions to academia extend beyond teaching and research. She is a member of the Editorial Board at Edvin Publications and edited the book for A & V publications in India. She holds two patents and copyrights, reflecting her involvement in intellectual property development. Her academic portfolio includes the publication of 17 research papers in national and international journals, four book chapters with prestigious publishers such as IGI Global and Taylor & Francis, and two cases in case study books. She has presented her research at over six international and 20 national conferences, as a chairperson for technical sessions, and as an external observer for major project viva.

Her subject expertise lies in core financial disciplines, including Financial Management, Corporate Finance, Statistics, and Financial Market Operations. Known for her depth of knowledge and commitment to academic excellence, Dr. Dubey stands out as a distinguished member of the academic fraternity, inspiring students and peers alike.



## *Preface*

Every aspect of human endeavour has seen unprecedented innovation and change since the advent of artificial intelligence (AI). AI has the potential to completely change the way we think about economic growth, sustainable development, and technical advancement in the context of India's global ambitions. To meet the challenges of the twenty-first century, integrating AI into a variety of fields is not just a choice—it is a must.

Insightful viewpoints from eminent scholars and professionals are compiled in this book, "Artificial Intelligence and Sustainable Development in India's New Approach to a Global Economy". It investigates how AI interacts dynamically and how it might improve India's standing in the world economy.

Each chapter emphasises the various ways AI is being used to address societal issues and promote sustainable development, from utilising AI-driven drones for agricultural innovation to transforming hospital diagnostics with AI-enhanced MRI scanners.

The chapters explore important topics such as how AI and nanotechnology may work together to create innovative treatments, how AI can help fight antibiotic resistance, and how AI can be used to promote sustainable rural development. They also clarified how AI may change workforce management, address environmental problems like plastic waste, and revolutionise mathematical modelling and education. AI's cross-disciplinary importance in creating a robust, inventive future is further highlighted by its integration with blockchain, cybersecurity, and biotechnology.

The goal of this book is to connect theoretical developments with real-world applications so that readers may understand AI's transformational potential in the Indian context. The authors offer provocative observations and case examples that show how AI might be used to solve practical problems while upholding sustainability and justice.

This book pays homage to India's increasing prominence as a centre of innovation and its capacity to use AI to advance society. It provides a thorough grasp of how AI might be a driver for sustainable progress in a globalised environment, making it an invaluable resource for scholars, legislators, business executives, and students alike.

We hope that this collection encourages readers to imagine a day when artificial intelligence (AI) is used to build a society that is inclusive, sustainable, and balanced in addition to promoting economic success.

**Editors**

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