# DIGITAL EVOLUTION: AI AND THE SHAPING OF MODERN TECHNOLOGY

DISTOREC

Dr Satinder Kaur Gujral Dr D David Winster Praveenraj Ar. Balpreet Singh Madan Mrs. Varsha Atul Shukre Ms. Margie Acharya

# Digital Evolution: AI and the Shaping of Modern Technology



India | UAE | Nigeria | Uzbekistan | Montenegro | Iraq | Egypt | Thailand | Uganda | Philippines | Indonesia www.nexgenpublication.com

# Digital Evolution: AI and the Shaping of Modern Technology

Authored By:

Dr Satinder Kaur Gujral Principal Reena Mehta College of Arts Science Commerce and Management Studies, Bhayander (West), Maharashtra

#### Dr. D David Winster Praveenraj

Faculty, School of Business and Management Christ University, Bangalore

#### Ar. Balpreet Singh Madan

Assistant Professor, Department of Art & Design, School of Design, Architecture and Planning Sharda University, Greater Noida, India

Mrs. Varsha Atul Shukre

Assistant Professor, Department of Computer Science and Applications Dr. Vishwanath Karad MIT-World Peace University, Pune, India

#### Ms. Margie Acharya

Assistant Professor, GLS University

Copyright 2024 by Dr Satinder Kaur Gujral, Dr. D David Winster Praveenraj, Ar. Balpreet Singh Madan, Mrs. Varsha Atul Shukre and Ms. Margie Acharya

First Impression: July 2024

#### Digital Evolution: Al and the Shaping of Modern Technology

### ISBN: 978-81-19477-89-0

#### DOI: https://doi.org/10.5281/zenodo.13167854

#### Rs. 1000/- (\$80)

No part of the book may be printed, copied, stored, retrieved, duplicated and reproduced in any form without the written permission of the editor/publisher.

#### DISCLAIMER

Information contained in this book has been published by Nex Gen Publications and has been obtained by the authors from sources believed to be reliable and correct to the best of their knowledge. The authors are solely responsible for the contents of the articles compiled in this book. Responsibility of authenticity of the work or the concepts/views presented by the author through this book shall lie with the author and the publisher has no role or claim or any responsibility in this regard. Errors, if any, are purely unintentional and readers are requested to communicate such error to the author to avoid discrepancies in future.

Published by: Nex Gen Publications

# Preface

The impact of Artificial Intelligence (AI) on our daily lives and the wider technical landscape is immense in an era where technology is developing at a never-before-seen rate. "**Digital Evolution: AI and the Shaping of Modern Technology,**" a book, seeks to explain the intricate realm of artificial intelligence and its significant influence on contemporary civilization. Artificial Intelligence (AI) is transforming industries and changing how we interact with technology, ranging from healthcare to banking, entertainment to education.

We set out on this trip to investigate the revolutionary potential of AI with the goal of making its concepts understandable to anyone, regardless of technical expertise. Our mission is to address the ethical and societal ramifications of this technological revolution while offering a thorough grasp of artificial intelligence (AI), its applications, and its future advances.

We believe that readers who are interested in learning more about how AI is influencing our future will find this book to be a useful resource. We encourage you to join us as we explore the exciting area of artificial intelligence, regardless of whether you are a tech enthusiast, a professional in the industry, or just interested in learning more.

# Acknowledgement

Without the assistance and efforts of numerous people and organisations, this book would not have been feasible. First and foremost, we would want to express our sincere gratitude to our family and friends, whose steadfast support and tolerance served as the project's cornerstone.

We owe a huge debt of gratitude to the many scholars and specialists in AI who so kindly contributed their knowledge and experiences, enhancing the substance of this book. We would especially want to thank our editor, whose thorough attention to detail and helpful criticism considerably improved the calibre of our work.

We also want to thank open-source groups and technology breakthroughs for enabling accessibility to AI and promoting creativity. Their combined efforts have motivated us and a great number of others to learn more about the possibilities presented by AI.

We'd want to thank our readers' one more. We are motivated to keep learning and researching by your insatiable curiosity and desire to comprehend the growth of digital technology. With any luck, this book will pique your interest in artificial intelligence and inspire you to contribute to the development of technology.

> Dr Satinder Kaur Gujral Dr. D David Winster Praveenraj Ar. Balpreet Singh Madan Mrs. Varsha Atul Shukre Ms. Margie Acharya

# About the Authors



**Dr. Satinder Kaur Gujral** is the Principal of Reena Mehta College of Arts Science, Commerce and Management Studies affiliated to University of Mumbai. She has 15 years of academic experience. She is Doctorate in Commerce (Management) and has been associated with teaching of Commerce and Management Subjects. She has been recognized as a postgraduate teacher by University of Mumbai. Her research work includes Minor research projects submitted to University of Mumbai. She has contributed number of papers in Conferences, Journals and PhD. She has published 40 Research papers in reputed National and International Journals. She is also a Paper Setter, External Examiner and Moderator for University of Mumbai.

She has to her credits author & co-author to a number of books in the field of Commerce & Management. She has been appointed as an External Referee and Evaluated 8 Ph.D. Thesis. She is a Member of Indian Commerce Association, All India Principal Association and Editorial Board Member of International Journal in Management & Social Science. She has also been appointed as NAAC PEER Team Member.



**Dr. David** is a Faculty, Management Consultant, Soft Skills Trainer and a Motivational Speaker. He is into conduct of Management Development Programmes, Personality Development & Personal Effectiveness Programmes for executives at various levels. He is rendering consultancy services in Drafting & Implementation of Standard Operating Procedures, Design of Performance Management Systems, Drafting HR policies, Competency Mapping, Implementation of Quality Circles, arriving at Management Policies, Market Research, Advertising and Branding for varied industries out of which a major contribution is for the RMG Industry. Dr.David has a flair for adopting novel teaching methodologies and experiential learning toolsin delivery of courses and the various programmes he conducts. He has presented more than 50 papers and published more than 45 Research Articles out of which 22 are indexed in Scopus.



**Ar. Balpreet Singh Madan** is an Architect and Interior Designer having an overall experience of 15 years in the academics as well as in the practical field. He has delivered several prestigious projects for various PSUs, Government of India, Private Organizations, Embassies etc. in India and abroad. Being passionate about teaching and research, he has been actively involved in teaching the students of Architecture and Interior Design along with substantial contribution towards research work.



Mrs. Varsha Atul Shukre presently working as an Assistant Professor in Department of Computer Science and Applications at Dr. Vishwanath Karad MIT- World Peace University, Pune. She has about 11 years of experience including 1 year of Industry and 10 years of Academic experience. She has completed her M.Sc. (Electronic Science) in 2012 from Savitribai Phule Pune University and qualified National Eligibility Test (UGC-NET) for the eligibility of lectureship in 2013. At present She is pursuing her Ph.D. from Savitribai Phule Pune University. Her fields of interest include Embedded Systems, Internet of things, Optoelectronics, Analog Circuit Design, Digital Systems, and Microcontrollers. She has published 12 research papers in various national and International Journals including

conference proceedings. She has successfully completed many Faculty development programs and attended many conferences, workshops and seminars. She has an exceptional ability to inspire and empower students, fostering a love for learning, instilling critical thinking skills, and creating an inclusive and supportive educational environment.



**Ms. Margie Acharya** brings five years of extensive teaching experience as an Assistant Professor at GLS University, specializing in a broad range of subjects including Accounts, Finance, Marketing, Taxation, Human Resources, and Business Mathematics. Her deep knowledge and passion for finance are evident as she is currently pursuing a PhD in this field, focusing her research on key financial topics.

Before transitioning to academia, Ms. Acharya amassed substantial professional experience in Audit, Taxation, and Banking. This diverse background enables her to provide practical insights and real-world applications to her students, enriching their learning experience with valuable industry perspectives.

Ms. Acharya's research contributions are noteworthy, particularly her recent papers on Financial Self-Efficacy and the preferences of young investors in the stock market. These works reflect her commitment to exploring critical financial behaviors and trends, contributing to the broader understanding of investor psychology and market dynamics.

Her dual expertise in both practical finance and academic research makes her a valuable asset to GLS University. Ms. Acharya's dynamic approach to education, combining theoretical knowledge with handson experience, prepares her students to navigate and excel in the complex world of business and finance.

# Table of Contents

Preface	IV
Acknowledgement	V
About the Authors	VI - VIII
Table of Contents	IX - X
Title of Chapters	Page No.
Chapter - 1	1 - 26
The Dawn of AI and Digital Transformation	
Chapter - 2	27 – 54
Machine Learning and Data Science	
Chapter - 3	55 - 84
Deep Learning and Neural Networks	
Chapter - 4	85 - 118
AI in Healthcare	
Chapter - 5	119 – 143
Autonomous Systems and Robotics	
Chapter - 6	144 - 168
Natural Language Processing and Communication	

Chapter - 7	169 - 200
AI and Cybersecurity	
Chapter - 8	201 - 225
AI in Business and Industry	
Chapter - 9	226 - 249
Ethical, Social, and Legal Implications of AI	
Chapter - 10	250 - 273
The Future of AI and Emerging Technologies	

### **ABOUT THE AUTHORS**



#### Dr Satinder Kaur Gujral

Principal, Reena Mehta College of Arts Science Commerce and Management Studies, Bhayander (West), Maharashtra



#### Dr. D David Winster Praveenraj

**Ar. Balpreet Singh Madan** 

Faculty, School of Business and Management Christ University, Bangalore



Assistant Professor, Department of Art & Design, School of Design, Architecture and Planning Sharda University, Greater Noida, India



Mrs. Varsha Atul Shukre Assistant Professor, Department of Computer Science and Applications Dr. Vishwanath Karad MIT-World Peace University, Pune, India



**Ms. Margie Acharya** Assistant Professor, GLS University

#### **ABOUT THE BOOK**

The enlightening book "**Digital Evolution: AI and the Shaping of Modern Technology**" explores the field of artificial intelligence and how it has influenced modern technology. This book makes difficult AI topics understandable to readers of different backgrounds by breaking them down into simple language. It illustrates how artificial intelligence (AI) is changing many sectors and aspects of daily life, from healthcare to entertainment. It also discusses the moral and societal issues raised by AI, providing a fair assessment of both its advantages and disadvantages. This book is an in-depth resource for comprehending AI's place in our quickly evolving world, making it ideal for anybody with an interest in technology's future.



India | UAE | Nigeria | Uzbekistan | Montenegro | Iraq | Egypt | Thailand | Uganda | Philippines | Indonesia Nex Gen Publications || www.nexgenpublication.com || info@nexgenpublication.com