## **Contents**

Foreword ---- V

Preface --- VII

Acknowledgments --- XIII

List of contributors ---- XVII

Saurabh Tiwari, Sukanta Kumar Baral, Richa Goel

- 1 Application of AR and VR for supply chain: a macro perspective approach —— 1
- B. Rajalingam, R. Santhoshkumar, P. Deepan, P. Santosh Kumar Patra
- 2 An intelligent traffic control system using machine learning techniques —— 19

Avani K. V. H., Deeksha Manjunath, C. Gururaj

3 Proficient implementation toward detection of thyroid nodules for AR/VR environment through deep learning methodologies —— 35

Vijayarajan Ramanathan, Gnanasankaran Natarajan, Sundarayadiyazhagan Balasubramanian

4 Convergence of AR/VR with IoT in manufacturing and their novel usage in IoT —— 77

Deepa B. G., Senthil S., Zaiba S., Danish D. S., Kshitiz Tripathi, Alessandro Bruno

5 Proficiency of Metaverse using virtual reality for industry and users perspective —— 99

Vijay Joshi, Sukanta Kumar Baral, Manish Pitke, Rocky J. Dwyer

6 Retailing and e-commerce riding on technology: augmented reality and virtual reality —— 127

Ipseeta Satpathy, B. C. M. Patnaik, S. K. Baral, Majidul Islam

7 Inclusive education through augmented reality (AR) and virtual reality (VR) in India —— 147



Aditya Singh, Siddharth Mishra, Shubham Jain, Sandeep Dogra, Anubhav Awasthi, Nihar Ranjan Roy, Kunwar Sodhi

8 Exploring practical use-cases of augmented reality using photogrammetry and other 3D reconstruction tools in the Metaverse —— 163

Shreya Soman, Neeru Sidana, Richa Goel

9 An empirical analysis of conspicuous consumption of luxury cosmetic products via augmented reality technology concerning India's workforce —— 187

Abhiraj Malia, Prajnya Paramita Pradhan, Biswajit Das, Ipseeta Satpathy, Sambit Lenka

10 Application of virtual reality and augmented reality technologies to boost the technical capabilities for a constructive and effective learning in education for a performing virtual eco-system: a design thinking approach —— 203

Ambika N., Mansaf Alam

11 Role of augmented reality and virtual reality in sports —— 221

Bibborr

12 Space traffic management: a simulation-based educational app for learners —— 237

Raj Gaurang Tiwari, Ambuj Kumar Agarwal, Mohammad Husain

13 Integration of virtual reality in the e-learning environment —— 253

Shantanu Trivedi, Saurabh Tiwari

14 The resurgence of augmented reality and virtual reality in construction: past, present, and future directions —— 275

Editors' biography ---- 293

Index ---- 295