Handbook On Fundamentals And Methods Of Machine And Deep Learning (VOLUME-1)

Editor

Dr. Rajesh D

Member of IEEE and ACM

&

Co-Editor

Sri Bhargav Krishna Adusumilli

Member of IEEE

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About the Book

"Handbook on Fundamentals and Methods of Machine and Deep Learning" delves into the core principles, techniques, and innovations in artificial intelligence. This book explores the key methodologies that drive machine learning and deep learning, from classical approaches to cutting-edge neural network models. Divided into comprehensive sections, the book covers supervised, and reinforcement learning before moving on to delve into deep learning topics, such as convolutional and recurrent neural networks. Each chapter is meticulously structured to provide a theoretical foundation, followed by practical insights and real-world applications. Case studies are included to showcase how machine learning and deep learning methods are transforming sectors such as healthcare, finance, and natural language processing. Additionally, readers will find resources to help them code algorithms and build models independently. This handbook is intended for those interested in artificial intelligence, from beginners seeking foundational knowledge to experts aiming to enhance their understanding. With a clear, accessible approach, this book strives to be a valuable resource for anyone aspiring to attach the power of machine and deep learning in a practical, impactful way.

Preface

In the age of unprecedented technological advancement, machine learning and deep learning have emerged as transformative forces, reshaping industries, science, and daily life. This handbook, "Handbook on Fundamentals and Methods of Machine and Deep Learning," was created to guide both beginners and experienced practitioners through the essential concepts and methodologies that define this rapidly evolving field. Author aim is to present a balanced combination of theoretical knowledge and practical applications to help readers develop a robust understanding of these topics. This book begins with the basics, making it accessible to those new to machine learning while gradually transitioning into more complex deep learning architectures and applications. Each chapter is designed to build upon foundational ideas, introducing key algorithms, techniques, and implementation practices across a wide range of real-world scenarios. The emphasis is on learning by doing, with hands-on exercises that reinforce core principles and promote critical thinking. This handbook serves as a reliable companion for students, professionals, and researchers, providing clarity in complex areas and inspiring confidence in developing machine and deep learning solutions for diverse challenges.