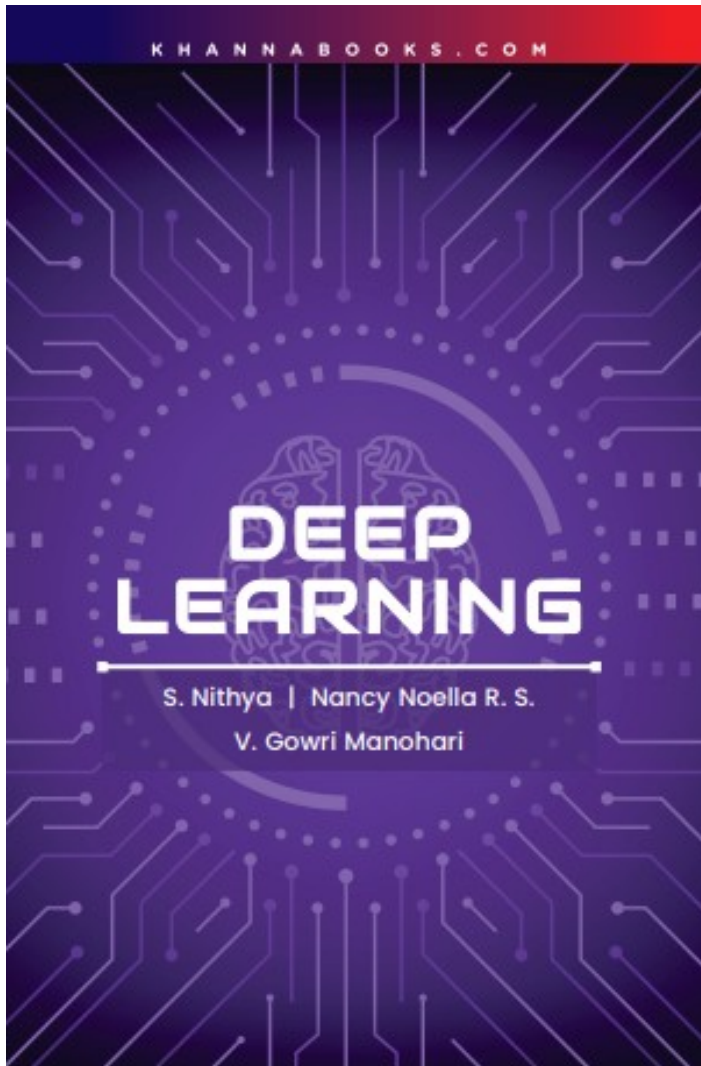




Deep Learning

Author :	Nancy Noella R. S.
ISBN 13 :	978-93-55388-19-3
ISBN 10 :	93-55388-19-5
E-ISBN 13 :	978-93-55388-19-3
Edition :	First
Pages :	104
Type of book :	Paperback
Year :	2026
Language :	English
Publisher :	Khanna Publishing House
M.R.P :	Rs 148.00
Categories :	Sathyabama Series
Condition Type :	New
Country Origin :	India

Product Description

Deep Learning This textbook, *Deep Learning*, serves as a comprehensive and structured introduction to the transformative field of Artificial Intelligence, focusing specifically on modern Deep Learning (DL) methodologies. It is explicitly designed to meet the academic needs of students enrolled in computer science programs, covering the Sathyabama University Syllabus, while simultaneously acting as an invaluable resource for researchers and practitioners seeking to deepen their technical knowledge. The book's core theme revolves around mastering the application of Artificial Neural Networks (ANNs) to extract complex patterns from massive datasets. Its primary objective is to effectively bridge the crucial gap between fundamental theoretical concepts and their practical utility in real-world scenarios. The content guides the reader progressively, starting from foundational Machine Learning concepts—including linear models like SVM and Perceptrons—to the intricate architectures of modern deep networks. Key topics covered include the inner mechanics of neural networks, advanced training processes like backpropagation, various optimization techniques (e.g., SGD, Adam), and advanced models such as Convolutional Neural Networks (CNNs), Recurrent Neural Networks (RNNs), and Generative Adversarial Networks (GANs). To ensure practical mastery, each chapter is reinforced with hands-on exercises, code implementations, and case studies. By emphasizing both theoretical rigor and practical implementation, this text equips readers with the skills needed to apply DL to revolutionary areas such as natural language processing, image recognition, and healthcare. **Salient**

Features:

- **Foundational Concepts:** Structured coverage of Machine Learning fundamentals, including Linear Models, Support Vector Machines (SVM), and Perceptron, before diving into deep network architectures.
- **Core Network Mechanics:** Detailed explanations of Neural Network training processes, focusing on Loss Functions, Backpropagation, and Stochastic Gradient Descent principles.
- **Advanced Architectures:** Dedicated analysis of state-of-the-art models like Convolutional Neural Networks (CNNs), Recurrent Neural Networks (RNNs), and the latest Transformers and Generative Adversarial Networks (GANs).
- **Practical Optimization:** Thorough discussion on Hyperparameter Optimization, Batch Normalization, and various Stochastic Optimization algorithms (e.g., AdaGrad, Adam) to maximize model performance and training efficiency.
- **Dimensionality Reduction:** Explores essential techniques like Principal Component Analysis (PCA), Linear Discriminant Analysis (LDA), Manifold Learning, and Autoencoders for effective data



Table of Contents

- Introduction to Machine Learning (ML)
 - Introduction to Deep Learning
 - Dimensionality Reduction
 - Optimization and Generalization
 - Case Study and Applications
-

Author

Nancy Noella R. S., Associate Professor, Dept of CSE, Sathyabhama Institute of Science and Technology **S. Nithya**, Associate Professor, Dept of CSE, Sathyabhama Institute of Science and Technology **V. Gowri Manohari**, Associate Professor, Dept of CSE, Sathyabhama Institute of Science and Technology
