



NEURAL NETWORKS
THEORY, TECHNOLOGY,
AND APPLICATIONS
PATRICK K SIMPSON

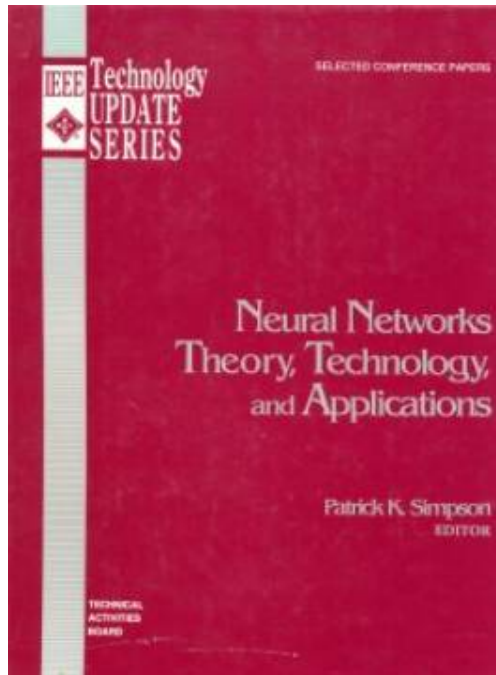


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Artificial neural networks (ANN) or connectionist systems are computing systems vaguely inspired by the biological neural networks that constitute animal brains. Such systems "learn" to perform tasks by considering examples, generally without being programmed with task-specific rules. For example, in image recognition, they might learn to identify images that contain cats by analyzing example images that have been manually labeled as "cat" or "no cat" and using the results to identify cats in other Master Deep Learning and Neural Networks Theory and Applications with Python and PyTorch! Including NLP and Transformers. In this section, you will deeply understand the theories of how neural networks and the backpropagation algorithm works, in a friendly manner. We will walk through an example and do the calculations step-by-step. We will also discuss the activation functions used in Neural Networks, with their advantages and disadvantages! Section 2 - Loss Functions. In this section, we will introduce the famous loss functions that are used in Deep Learning and Neural Networks. Abstract: The Artificial Neural Network (ANN) is a functional imitation of simplified model of the biological neurons and their goal is to construct useful "computers" for real-world problems and reproduce intelligent data evaluation techniques like pattern recognition, classification and generalization by using simple, distributed and robust processing units called artificial neurons. A brief overview of the ANN theory, models and applications is presented. Potential areas of applications are identified and future trend is discussed. Keywords: Black Box Modeling, Neural Network models, Neural Network applications.

I. INTRODUCTION. In recent years there has been a confluence of.