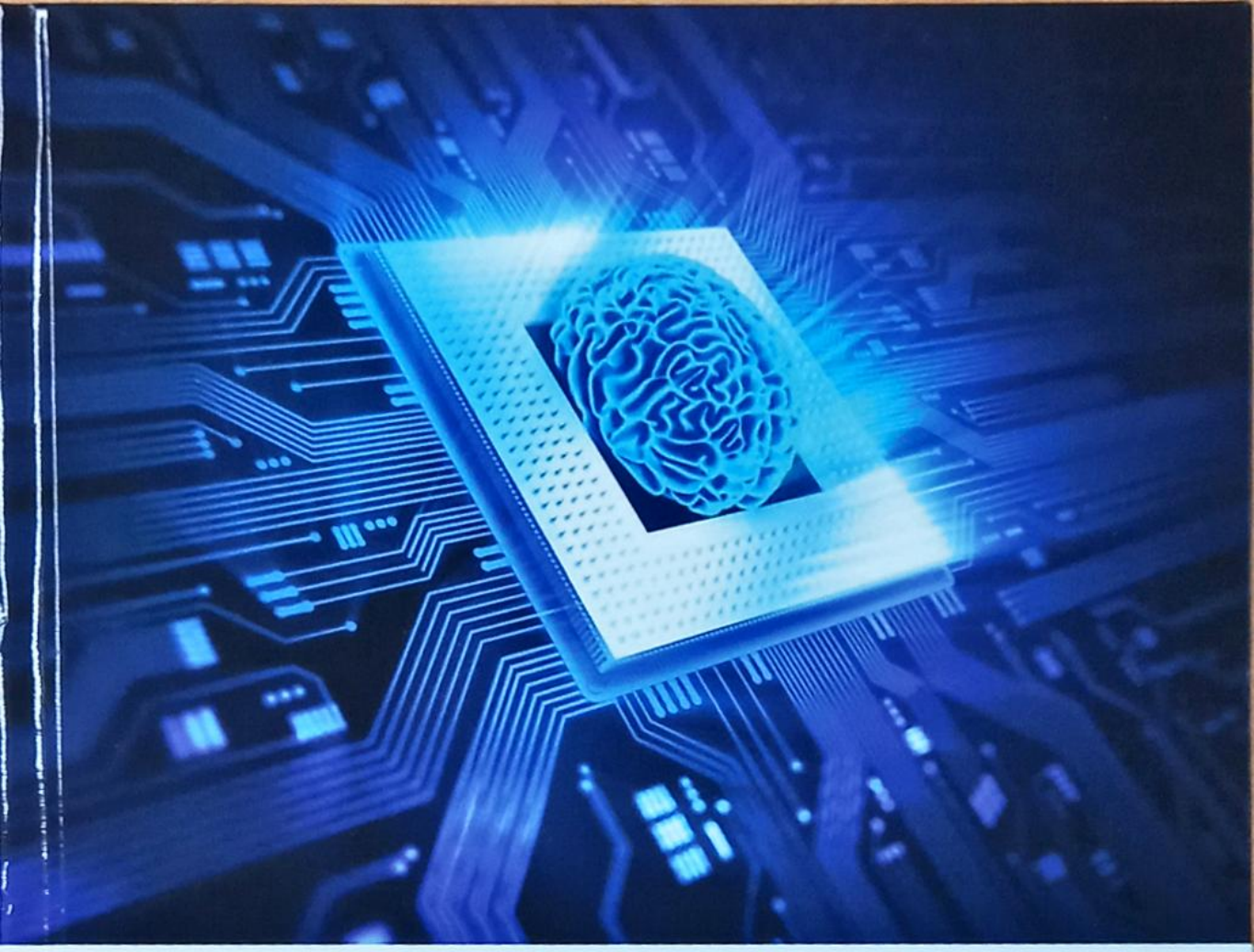

3GE COLLECTION ON COMPUTER SCIENCE

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3G E-LEARNING

90 Church Street
FL 1 #3514
New York, NY 10008
United States of America
www.3ge-learning.com
email: info@3ge-learning.com

Authored and Edited by 3G E-learning LLC, USA

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3GE COLLECTION ON COMPUTER SCIENCE

Deep Learning Technologies

Deep learning has emerged as a new area of machine learning research. It tries to mimic the human brain, which is capable of processing and learning from the complex input data and solving different kinds of complicated tasks well. It has been successfully pragmatic to several fields such as images, sounds, text and motion. Deep learning is a developing part of machine learning (ML) research. It contains multiple hidden layers of artificial neural networks. The deep learning methodology applies nonlinear transformations and model abstractions of high level in large databases. The recent advancements in deep learning architectures within different fields have already delivered significant contributions in artificial intelligence. The techniques developed from deep learning research have already been impacting the research of natural language process. Deep learning discovers intricate structure in large data sets by using the back propagation algorithm to indicate how a machine should change its internal parameters that are used to compute the representation in each layer from the representation in the previous layer. Deep convolutional nets have brought about breakthroughs in processing images, video, speech and audio, whereas recurrent nets have shone light on sequential data such as text and speech.

This book presents state of the art topics on deep learning, its applications and recent development in natural language processing. The book also presents how and in what major applications deep learning algorithms have been utilized.

Recently, machine learning and data mining have become the center of attention and the most popular topics among research community. These combined fields of study analyze multiple possibilities of characterization of databases. During the past several years, the deep learning techniques have already been impacting a wide range of machine learning and artificial intelligence. It is thought that moving machine learning closer to one of its original goals. Deep learning has becoming a new field of machine learning, and has gained extensive interests in different research area. It has shown some advantages over the traditional machine learning methods in some fields. Although deep learning works well in many machine learning tasks, it works equally poorly in some areas as the other learning methods. Besides most of the deep learning investigations are empirical, solid theoretical foundations of deep learning need to be established. Deep learning has been applied to natural language processing with some success.

Deep Learning Technologies provides an overview of general deep learning methodology and its applications to a variety of signal and information processing tasks. This book shows how faculty can help students develop skills in research, problem solving, critical thinking, and knowledge management by using web-based collaboration tools.

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email: info@3ge-learning.com