

Tutorial 4: Deep Learning: A renaissance of neural networks.

Abstract

Deep Learning is an important and emerging field that is getting an attention from all application domains. Current interest in deep learning can be considered a second era renaissance of neural networks. Until the late 90s, researchers were trying to identify reliable method to train very deep and better neural networks and with the development of simple yet important theoretical and algorithmic developments, the advances in hardware (GPUs), and advent of Big Data, Deep Learning fills the gap required for this transformation in machine learning.

Purpose of this short course is to introduce basics and applications of Deep Learning so that participants can have an idea about how to utilize deep learning techniques in Ocean applications. The tutorial will start from the very basics of machine learning, introduce neural networks and provide hands-on exercise with deep learning primitives. The intent is to provide an overview that will enable the participant interested in more details to investigate them through primary references provided. Examples of applications from image processing and acoustics domain will be provided so that the participant will obtain a basic understanding of the topic and its applicability.