Master's in Data Science

Course

Deep Learning

Description

Deep learning has emerged from the connectionist branch of machine learning, aided by the arrival of big data and increased computational power (e. g., parallelization using graphics processing units - GPUs). Deep learning has showed better performance than other approaches to solve problems that cope with large amounts of data as it is required, for example, in computer vision (image or video processing) or speech understanding. This course presents a theoretical and practical view of deep learning. The course presents first the foundations of artificial neural networks and different types of architectures (both shallow and deep networks). Then, the course presents learning techniques to train neural networks, with special attention to deep learning methods. The course also presents neural models for problem classes and application domains (e.g., computer vision and natural language processing). To complement the practical view, the student will use specialized software tools to train neural networks in practical problems.