COURSE DETAIL

INTRODUCTION TO DATA PROCESSING AND REPRESENTATION
Country Israel
Host Institution Israel Institute of Technology, Technion/Neubauer
Program(s) Technion-Institute of Technology
UCEAP Course Level Upper Division
UCEAP Subject Area(s) Computer Science
UCEAP Course Number 105
UCEAP Course Suffix
UCEAP Official Title INTRODUCTION TO DATA PROCESSING AND REPRESENTATION
UCEAP Transcript Title INTRO DATA PROCESS
UCEAP Quarter Units 4.50
UCEAP Semester Units 3.00

Course Description

This course focuses on the basic methods for processing and analyzing data with deterministic and probabilistic tools. It is a preliminary course for deep learning and convolutional neural networks. The course explains how to digitize signals and data in a computer, how to represent them in different bases, and how to use these representations efficiently for various signal processing tasks. Topics include signal quantization and sampling for bit-allocation, system and data representations including but not limited to the Fourier representation, optimality of the Fourier representation, functional maps, convolutions, compression, dimensionality reduction, principal component analysis, restoration of blurred deterministic or randomly distributed data with or without random noise via filtering. Signals and systems are analyzed in the continuous and discrete settings.

Language(s) of Instruction
English

Host Institution Course Number
236201

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INTRODUCTION TO DATA PROCESSING AND REPRESENTATION

Host Institution Campus

Host Institution Faculty
Graduate School

Host Institution Degree
Joint

Host Institution Department
Computer Science

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