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

Host Institution Course Title
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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