UNIVERSITÀ DEGLI STUDI DI MILANO-BICOCCA

COURSE SYLLABUS

Visual Information Processing and Management

2122-2-F1801Q148

Aims

The course provides the theoretical and practical foundations for the reproduction , processing, and recognition of images and for the management of image and video archives.

Contents

The student will acquire specific skills that will allow him/she to understand the imaging chains of digital cameras, scanners, displays, and printers; to design and implement image processing and image analysis algorithms; to evaluate algorithm effectiveness. The student will also acquire the skills needed to design (also using deep learining approaches), develop and integrate SW modules for the analysis, recognition, retrieval and browsing of images and videos in multimedia information systems.

Detailed program

• Basic principles of image processing and reproduction in digital cameras, scanners, monitors and printers.

 • Algorithms for adaptive image processing (contrast enhancement, noise reduction, artifact removal, image composition,...)

• Methods for the subjective and objective evaluation of image quality.

• Object and scene recognition and classification (hand crafted and deep learning approaches)

• Indexing and retrieval methods of visual information in multimedia information systems.

Prerequisites

Teaching form

Classroom lessons and exercitations with discussion of use cases. The class is in Italian, while slides and notes are in English.

In the period of the COVID-19 emergency the frontal or laboratory lessons will be mainly synchronous via WEBEX.

Textbook and teaching resource

Articles and Notes given by the Professor.

Semester

first semester

Assessment method

Diiscussion of a project that can be done in a group of up to two people, with individual evaluation.

Office hours

just after the lessons and by request