DIGITAL IMAGE PROCESSING

Technical Teaching
ImProc
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ABSTRACT

The course aims at providing students with a basic knowledge and practice about the use of computer algorithms to perform image processing on digital images. The two main objectives attached to Digital Image Processing (DIP) are to improve the visual quality of images and to automatically extract semantic information from visual data (e.g. object recognition).

Teaching and Learning Methods: Each session is split into two parts: 1.5-hour lecture and 1.5-hour lab.

Course Policies: It is mandatory to attend lab. sessions.

BIBLIOGRAPHY

Fundamentals of Digital Image Processing Anil K. Jain

REQUIREMENTS

It would be good if you already have some knowledge about signal processing and Matlab, but it is not mandatory.

DESCRIPTION

Lectures include some basic recalls on important concepts of signals such as sampling, quantization, Fourier transform, Filtering (noise reduction, edge detection), etc; Some key elements in human vision, color images, image quality; The introduction of some useful tools and techniques like Hough Transform, Mathematical Morphology, Optical Flow; And finally some basic knowledge in Stereo vision and 3D.

Session labs. start with an introduction to Matlab Image and OpenCv.

Learning outcomes:

- Discover the key techniques used in image and video processing.
- Become familiar with the classical image processing tools and software.

Nb hours: 21.00 (12 hours of lecture and 9 hours of laboratory)

Grading Policy : Labs. (20%), Final Exam (80%)