

Master VICO - Multimedia communication (MC) - Video Coding part

Courses sequence:

For MC Program (Multimedia communication, Video Coding part).

All the resources are disponible in line on the [extradoc].(<http://extradoc.univ-nantes.fr>).

Step 00: Program

- Presentation of the program
- (if necessary) Lab 0: GNU/Octave Introduction

Step 01: Basis

- Lecture 1: Basis on image coding [1h30]
 - Literature: Basis
- (if necessary) in autonomy: Video (Lecture, 1h30)

Step 02: DPCM

- Lab 1a: DPCM: principles [1h]
- Lab 1b: DPCM: coding of a grey level image (soft: GNU/octave, 0h30)

Step 03: MPEG1&2

- Lecture 2: MPEG1 & MPEG2 [1h30]
 - Literature: ME, MPEG
- (if necessary) in autonomy: Video (Lecture, 1h30)

Step 04: Block matching

- Labs 2a & 2b: Block matching, motion estimation (soft: GNU/octave, VCDemo, 1h30)

Step 05: H264

- Lecture 3: H.264/AVC [1h30]
 - Literature: H.264
- (if necessary) in autonomy: Video (Lecture, 1h30)

Step 06: HEVC

- Lecture 4: HEVC [1h30]
 - Literature: HEVC

Step 07: Lab

- Lab 3a: MPEG1 & 2 (soft: VCDemo, 1h)
- Lab 3b: H.264/AVC (soft: VCDemo, 0h30)

Step 08: Lab

- Lab 4: HEVC (soft: HM, 1h30)

Step 09: VQ

- Lecture 5: Vector Quantization [1h30]
 - Literature: VQ (LBG, TSLVQ)
- (if necessary) in autonomy: Video (Lecture, 1h30)

Step 10: Lab

- Labs 5a & 5b: VQ (LBG, TSLVQ, 1h30)

Step 11: Exam - duration 1:30

- An example of subject is in line.

Softwares for the labs:

You will need GNU/octave and VCDemo.

GNU/octave:

- [GNU/Octave](#) is a multi-platform soft.
- You will certainly need to install also these octave packages *image* et *signal*: `octave:1> pkg install -forge signal octave:1> pkg install -forge image`

Note that there is also an online version of GNU/octave: [octave-online](#) (but the allocated

memory size is very limited).

VCDEmo:

You can download the [VCDEmo archive](#)

The *VCDEmo.exe* works only with the Windows OS, there is an install program in the archive.

After, to configure VCDEmo (see in the menu: *Help -> Settings*), all the default directories (but the *Output* one) have to point to the one where you have unarchived the VCDEmo files. For the *Output Default Directory* you need to choose one for which you have writing access.

Note 1: (for linux users)

On linux you can install *wine* (32 bits):

- `sudo apt-get install wine`

Then launch the VCDEmo binary executable by using:

- `wine /path-to-the-VCDEmo-directory/VCDEmo.exe`

Or you can install a virtual machine (see next Note 2).

Note 2: (for Mac OS users [and OS accepting only 64 bits applications])

VCDEmo.exe does not run on Mac OS from Catalina version which permits only 64 bits applications.

One possibility is to install a virtual machine like [Virtual Box](#) in order to host Windows after.

Zoom:

If necessary, my [Vincent Ricordel's zoom virtual room](#)

Meeting ID: 204 075 9213

Password: 2468