האוניברסיטה העברית בירושלים THE HEBREW UNIVERSITY OF JERUSALEM



The Hebrew University of Jerusalem

Syllabus

Image and Video Compression - 67296

Last update 09-02-2023

HU Credits: 3

Degree/Cycle: 1st degree (Bachelor)

Responsible Department: Computer Sciences

Academic year: 0

Semester: 2nd Semester

<u>Teaching Languages:</u> Hebrew

Campus: E. Safra

Course/Module Coordinator: Yuval Kochman

Coordinator Email: yuvalko@cs.huji.ac.il

Coordinator Office Hours: By prior arrangement

Teaching Staff:

Prof Yuval Kochman

Course/Module description:

This class surveys the principles of high-quality image and video compression standards such as JPEG, MPEG and HEVC, making a connection to general compression principles.

Course/Module aims:

Learning outcomes - On successful completion of this module, students should be able to:

The students will be able to build basic encoders and decoders, and understand the importance of different elements.

Attendance requirements(%):

33

Teaching arrangement and method of instruction: Lectures and independent work.

<u>Course/Module Content:</u> Text compression - Huffman codes and run-length coding. Quantization of real numbers. Transforms: DFT and DCT Compression by prediction. Tradeoffs in designing. full compression system. Advanced topics.

<u>Required Reading:</u> none

<u>Additional Reading Material:</u> Wien / High Efficiency Video Coding HEVC: Coding Tools and Specification

<u>Course/Module evaluation:</u> End of year written/oral examination 0 % Presentation 0 % Participation in Tutorials 0 % Project work 0 % Assignments 0 % Reports 75 % Research project 0 % Quizzes 25 % Other 0 %

Additional information:

In parallel to class, students will gradually build software encoder and decoder, which will include the elements we learn.