

COMP 478/6771 course planning - Fall 2022

Instructor: Prof. Yiming Xiao

Week 1: Sep 4 ~ Sep 10

Introduction to Image processing

Tutorial1: Introduction to MATLAB

Week 2: Sep 11 ~ Sep 17

Review of matrix, vectors, probability theory, and Linear system

Tutorial2: Introduction to MATLAB image processing toolbox

Week 3: Sep 18 ~ Sep 24

Image enhancement I: pixel-wise operation

Assignment 1 (due Oct 4)

Tutorial3: Image manipulation and histogram operation; *spatial filtering (smoothing)*

Week 4: Sep 25 ~ Oct 1

****Image enhancement II: image filtering***

Tutorial4: spatial filtering (sharpening & edge detection)

Week 5: Oct 2 ~ Oct 8

****Image transformation in 2D: Fourier transformation***

Assignment 2 (due Oct 18)

Tutorial5: Fourier transformation

Week 6: Oct 9 ~ Oct 15

****Filtering in frequency domain: homomorphic filtering, image reconstruction***

Tutorial6: Frequency domain filtering

Course project announcement

Week 7: Oct 16 ~ Oct 22

Midterm exam

Tutorial7: review & exercise

Submission of project proposals due for approval if different from listed ones

Week 8: Oct 23 ~ Oct 29

****Image restoration: Denoising, sharpening, deblurring***

Tutorial8: image restoration

Week 9: Oct 30 ~ Nov 5

****Edge detection***

Assignment 3 (due Nov 15)

Tutorial9: edge detection

Week 10: Nov 6 ~ Nov 12

****Hough transformation, edge, otsu's method***

Tutorial10: edge and line detection

Week 11: Nov 13 ~ Nov 19

****Morphological operations***

Assignment 4 (due Nov 29)

Tutorial11: Hough transform and morphological operation

Week 12: Nov 20 ~ Nov 26

****Wavelet transformation***

Tutorial12: wavelet transformation

Week 13: No 27 ~ Dec 3

Review period

Course project presentation

Course project due Dec 7, 2022

*****Final exams*****