COMP 478/6771 course planning - Fall 2024

Instructor: Prof. Yiming Xiao
** The course planning can be subject to changes.*

Week 1: Sep 2 ~ Sep 8
Introduction to Image processing
Tutorial1: Introduction to MATLAB

Week 2: Sep 9 ~ Sep 15
Review of matrix, vectors, probability theory, and Linear system
Tutorial2: Introduction to MATLAB image processing toolbox

Week 3: Sep 16 ~ Sep 22
Image enhancement I: pixel-wise operation
Assignment 1 (due Oct 1)
Tutorial3: Image manipulation and histogram operation; *spatial filtering (smoothing)*

Week 4: Sep 23 ~ Sep 29
****Image enhancement II: image filtering***
Tutorial4: spatial filtering (sharpening & edge detection)

Week 5: Sep 30 ~ Oct 6
****Image transformation in 2D: Fourier transformation***
Assignment 2 (due Oct 15)
Tutorial5: Fourier transformation
Course project announcement

Week 6: Oct 7 ~ Oct 13
****Filtering in frequency domain: homomorphic filtering, image reconstruction***
Tutorial6: Frequency domain filtering

Week 7: Oct 14 ~ Oct 20
Thanksgiving and midterm break (No class)
Submission of project proposals due for approval if different from listed ones

Week 8: Oct 21 ~ Oct 27
Midterm exame
Tutorial7: review & exercise

Week 9: Oct 28 ~ Nov 3
****Image restoration: Denoising, sharpening, deblurring***
Assignment 3 (due Nov 12)
Tutorial8: image restoration

Week 10: Nov 4 ~ Nov 10
****Edge detection***
Tutorial9: edge detection

Week 11: Nov 11 ~ Nov 17
Hough transformation, edge, otsu's method
Assignment 4 (due Dec 2)
Tutorial10: edge and line detection

Week 12: Nov 18 ~ Nov 24
Morphological operations
Tutorial11: Hough transform and morphological operation

Week 13: Nov 25 ~ Dec 1
Wavelet transformation
Tutorial12: wavelet transformation

Course project due Dec 2, 2024

****Final exams****