

EE637 Digital Image Processing

Spring 2020 - Lecture and Laboratory Schedule

Lecture # (Day)	Laboratory Due Dates	Topic
1. (Jan. 13)		Introduction
2. (Jan. 15)		CTFT and CSFT
3. (Jan. 17)		Rep/Comb Relations
*****Martin Luther King*****		
4. (Jan. 22)		Optical Imaging Systems
5. (Jan. 24)	Image Filtering Lab	Tomography Systems
6. (Jan. 27)		Tomographic Reconstruction
7. (Jan. 29)		Magnetic Resonance Imaging (MRI)
8. (Jan. 31)	2-D Random Processes	MRI and C Programming
9. (Feb. 3)		Discrete Transforms
10. (Feb. 5)		Sampling and Focal Plane Arrays
11. (Feb. 7)	Neighborhoods and Connect Comp.	2-D FIR and IIR Filtering
12. (Feb. 10)		2-D Random Processes and Spectral Estimation
13. (Feb. 12)		Filtered Random Processes and AR Models
14. (Feb. 14)	Pointwise Operations and Gamma	Eigen-Signal Analysis
15. (Feb. 17)		Edge Detection
16. (Feb. 19)		Connected Components and Segmentation
(Feb. 21)		EXAM
17. (Feb. 24)		Achromatic Vision and Contrast
18. (Feb. 26)		Gamma Correction
19. (Feb. 28)	Eigen Decomposition	MTF, and the CSF
20. (Mar. 2)		Color Matching Functions
21. (Mar. 4)		Color Cube and Chromaticity
22. (Mar. 6)		Chromaticity Coordinate Diagrams
23. (Mar. 9)		White point and Color Transforms
24. (Mar. 11)		sRGB and Standard Color Transforms
25. (Mar. 13)	Introduction to Colorimetry	Opponent Color Spaces
26. (Mar. 23)		Perceptually Uniform Color Spaces
27. (Mar. 25)		1-D Decimation and Interpolation
28. (Mar. 27)		2-D Decimation and Interpolation
29. (Mar. 30)		Image Restoration and Training-Based Methods
30. (Apr. 1)		Optimum Linear Filtering
31. (Apr. 3)	Image Restoration	Nonlinear and Median Filtering
32. (Apr. 6)		Robust and M-Estimators
33. (Apr. 8)		Machine Learning and Neural Networks
(Apr. 10)		EXAM
35. (April 13)		Stochastic Gradient Descent and Back Propagation
36. (April 15)		Python, Keras, and Tensorflow
37. (April 17)	Image Halftoning	Convolutional Neural Networks and Autoencoders
38. (Apr. 20)		Introduction to Source Coding
39. (Apr. 22)		Entropy and Lossless Coding
40. (Apr. 24)		Huffman and Block Entropy Coding
41. (Apr. 27)		Rate Distortion Theory
42. (Apr. 29)		Rate Distortion for Gaussian Sources
43. (May 1)	Deep Learning	Lossy Transform Coding and JPEG