

Course Syllabus

Term: Spring 2019

Course Title: Introduction to Digital Image Processing

Instructor:

Dr. Ming-Sui (Amy) Lee
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Lecture: Wednesday 2:20 p.m.~ 5:10 p.m. @ CSIE 101

Website: https://ceiba.ntu.edu.tw/1072_DIP

Teaching Assistants:

楊馥寧
Office Hours: 14:00 ~ 16:00, Monday
Office: CSIE Building, Room 532
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Textbook:

William K. Pratt: Digital Image Processing, 3rd Edition, John Wiley & Sons Inc., 2001.

Reference Books:

1. D. E. Dudgeon and R. M. Mersereau: Multidimensional Digital Signal Processing, Prentice Hall, 1984.
2. Anil K. Jain: Fundamentals of Digital Image Processing, Prentice Hall, 1989.
3. J. S. Lim: Two-Dimensional Signal and Image Processing, Prentice Hall, 1990.
4. Rafael C. Gonzalez and Richard E. Woods: Digital Image Processing, Prentice Hall, 2010.
5. Ronald N. Bracewell: Two-Dimensional Imaging, Prentice Hall, 1995.
6. Kenneth R. Castleman: Digital Image Processing, Prentice Hall, 1996.

Homework:

There will be 5~6 assignments. All require computer programming. No late homework will be accepted. Plagiarism is strictly prohibited.

Grading Policy:

1. Homework: 40%
2. Midterm Exam: 30%
3. Term Project: 30%

Tentative Schedule:

- I. Introduction and Digital Image Fundamentals
- II. Image Enhancement in Spatial Domain
- III. Edge Detection
- IV. Geometrical Modification
- V. Morphological Processing
- VI. Digital Halftoning and Inverse Halftoning
- VII. Texture Analysis
- VIII. Document Processing
- IX. Image Sampling and Transforms
- X. Image Enhancement in Frequency Domain
- XI. Color Image Processing
- XII. Image Compression