
一零八學年度第一學期

Course : Digital Image Processing 數位影像處理 (264585)

Credits : 3 學分

Instructor : 白敦文 老師

Class hours : Mon. 16:10~17:00 Wed. 16:10~18:00 Place : 宏裕科技大樓 334

Web : 國立臺北科技大學 i 學園 (<https://ischool.ntut.edu.tw/>)

Textbook : Digital Image Processing

Authors : Rafael C. Gonzalez & Richard E. Woods (開發圖書公司) 4th Edition

References : Digital Image Processing by Azriel Rosenfeld and Avinash C. Kak

PreRequirement : Introduction to Signals and Systems

Syllabus :

1. Introduce to Image Processing
 - Computer Imaging Systems
 - Human Visual Perception
 - Image Representation
2. Introduction to Image Analysis
 - Preprocessing Techniques
 - Edge/Line Detection
 - Image Segmentation
 - Discrete Transform
 - Feature Extraction
3. Image Enhancement in Spatial Domain
 - Grayscale Modification
 - Image Sharpening Filters
 - Image Smoothing Filters
4. Image Enhancement in Frequency Domain
 - Fourier Transform
 - Image Sharpening Filters
 - Image Smoothing Filters
 - Homomorphic Filtering
5. Introduction to Image Restoration
 - Spatial Filters for Noise Removal
 - Frequency Filters for Noise Removal
6. Color Image Processing
 - Color Models
 - Pseudo-color Image Processing
 - Color Transformation
7. Compression Algorithms
 - Image Compression Models
 - Different Compression Algorithms

Softwares : MATLAB(registered trademark of MathWorks, INC.) for homeworks

Java, VB, or VC++ for projects

Office hours : Wednesday 14:00~16:00 PM @ INS. 514

Grade : HW (15%) Quiz+Project(25%) Mid. (30%) Final (30%)

Email : twp@csie.ntut.edu.tw