IMAGE PROCESSING

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About myself

- Full name: **Le Thanh Ha**

- 2005-2010: Ph.D at Korea University, Korea
- 2010-now:
  - Assoc. Prof. at University of Engineering and Technology (UET), VNUH
  - Head of **Human Machine Interaction Laboratory**

- Expertise: Computer vision, Image/video processing and analysis, Machine learning

HMI
HUMAN MACHINE INTERACTION LABORATORY

GIỚI THIỆU LAB VÀ HƯỚNG NGHIÊN CỨU

NỘI DUNG MÔN HỌC

Course content

1. Introduction to Digital Image Processing
   - The concepts and applications

2. Fundamental of Digital Images
   - Electromagetic Spectrum of Light & Image Formation in human eyes.
   - Image Acquisition.
   - Sampling and Quantization
   - Basic relationships between pixels.

Content

3. Intensity Transformation & Spatial Filtering
   - Some basic transformations
   - Histogram processing
   - Hough transforms
   - Convolution operator
   - Spatial filtering (Smoothing, Sharpening, Edge detection)
   - …

Content

4. Filtering in Frequency Domain
   - Fourier transform
   - Image smoothing and sharpening in frequency domain.

5. Image Restoration & Reconstruction

Content

6. Image compression
   - Spatial redundancy
   - DCT transform
   - Information Measurement (Entropy)
   - Coding methods: Huffman, Golomb, Arithmetic, Run-length, …

Content

8. Special topics in Image Processing
   - Video processing
   - Computer Vision

Projects
   - Students individually present given papers
     + PPT Slide and presentation
     + Making report
     + Implementation

Textbook

- Giáo trình Xử lý ảnh – Nhà xuất bản Đại học Quốc Gia.

- Textbook: “Digital Image Processing”, R. C. Gonzalez, R. E. Woods, Third Edition.

Course Evaluation

- Assignment: 5%
- Attendance: 5%
- Project: 30%
- Final exam: 60%

Any question