Video Lectures

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⌄ Module 0

✓   0.0 - More About the Class [6:40]

✓   0.1 - What is Computational Photography I [12:01]

✓   0.2 - What is Computational Photography II: Dual Photography [7:29]

✓   0.3 - What is Computational Photography II: Panoramas [9:11]

✓   0.4 - Why Study Computational Photography [11:40]

✓   TA Intro [0:18]

✓   Tutorial 0.0(Optional) - Homework Assignments [6:05]

✓   Tutorial 0.1(Optional) - Intro to numpy and cv2 [17:04]

✓   Tutorial 0.2(Optional) - Example and References [6:15]

⌄ Module 1

✓   1.0 - Digital Images - What is a Digital Image?[11:05]

✓   1.1 - Image Processing and Filtering - Point Processes [9:14]

✓   1.2 - Image Processing and Filtering - Smoothing [12:40]

✓   1.3 - Image Processing and Filtering - Convolution and Cross-Correlation [11:12]

1.4 - Image Processing and Filtering - Gradients [15:12]

1.5 - Image Processing and Filtering - Edges [11:43]

Tutorial 1.0(Optional) - A note on Generalization [9:41]

Tutorial 1.1(Optional) - 1d Convolution and Code [6:13]

Tutorial 1.2(Optional) - Gaussian Kernels [8:53]

⌄ Module 2

2.0 - Cameras - Pinhole Camera and Optics [14:56]

2.1 - Cameras - Lenses and Impact, Properties of Focal Length on Photography [14:48]

2.2 - Cameras - Aperture, Shutter Speed Controls [14:12]

2.3 - Cameras - Sensors (and Film) [13:46]

⌄ Module 3

3.0 - Digital Images - Into the Frequency Domain [18:46]

3.1 - Digital Images - Merging and Blending Images [10:37]

3.2 - Digital Images - Merging and Blending Images using Image Pyramids [12:37]

3.3 - Digital Images - Cutting Images for Merging [10:55]

3.4 - Feature Detection and Matching [16:02]

3.5 - Making a Panorama [17:55]

3.6 - High Dynamic Range - Part 1 [7:46]

3.7 - High Dynamic Range - Part 2 [13:17]

✔   Tutorial 3.1 (Optional) - Reduce and Expand [15:00]

✔   Tutorial 3.0 (Optional) - Discrete Fourier Transform [18:28]

⌄ Module 4

✔   4.0 - Digital Video [9:18]

✔   4.1 - Video Textures - Part 1 [9:51]

✔   4.2 - Video Textures - Part 2 [13:32]

✔   4.3 - Light Fields - Part 1 [13:55]

✔   4.4 - Light Fields - Part 2 [13:35]

✔   4.5 - Conclusion [12:23]