

MAIA - MedicAl Imaging and Applications
Advanced Image Analysis

Lectures on Advanced Color Image Processing

March/2018

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<http://bioimlab.inesctec.pt/>



Outline of these lectures - Week 1

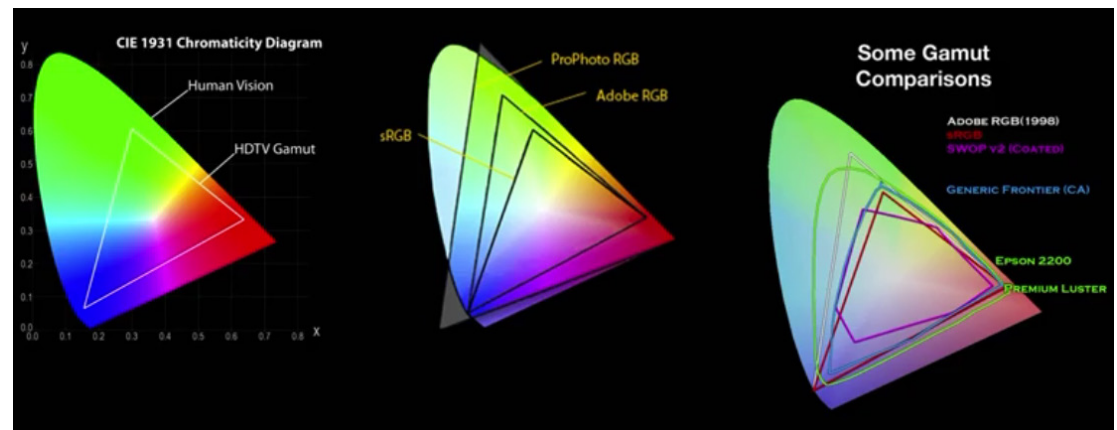
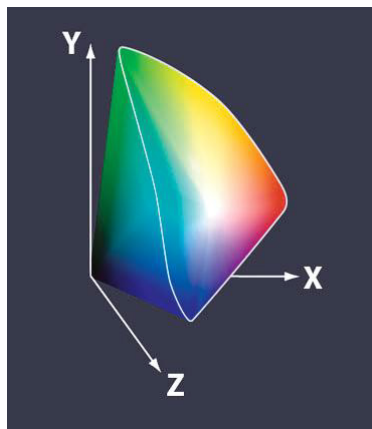
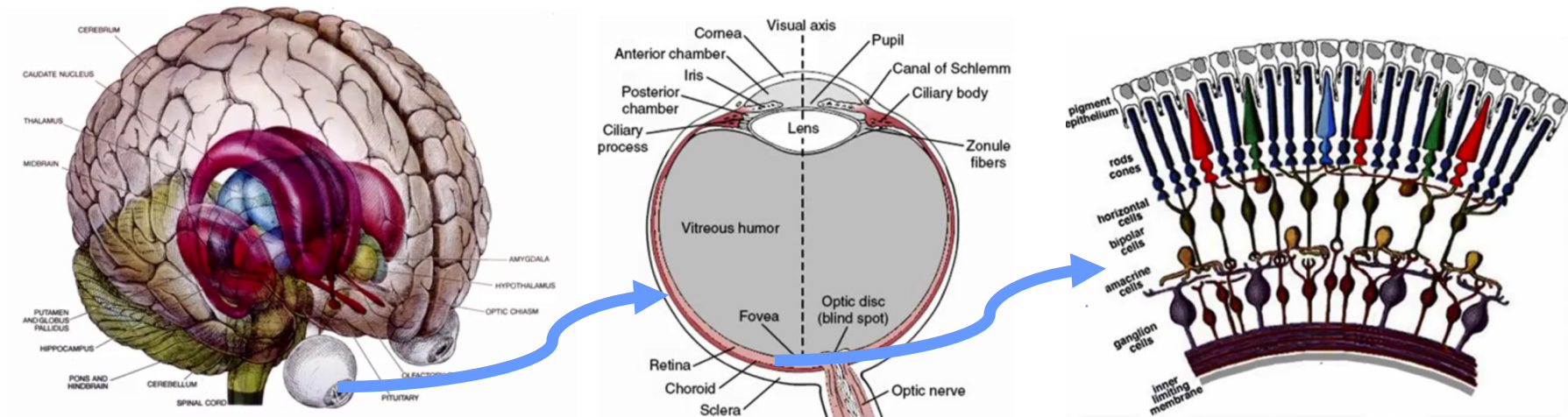
- B1 - Human Vision System: The Retina and the Brain
 1. Basics of Human Perception.
 2. Perception and Color. Measuring Color.
 3. Color Spaces. Perceptually Uniform Color Spaces.
 4. Intro to Numpy and Scikit-Image
 5. Application: Color Image Segmentation. Superpixels.
 6. Introduction to Color Constancy and Retinex.
 7. Introduction to Computational Image Processing.
 8. Application: A first example - Image Composition.
- B2 - Digital Image Processing: The Camera
 1. The Image Acquisition Pipeline.
 2. Cameras: Lenses, Exposure, Focus, White Balance, Sensors, Output.
 3. Unconventional Image Acquisition: Panorama.
 4. Application: Panorama Creation.

Outline of these lectures - Week 2

- B3 - Advanced Color Image Processing I
 1. Global Color and Illumination: the Von Kries model.
 2. Algorithms for Global Color Illuminant Estimation.
 3. Illumination, Color, and Retinex.
 4. Retinex and its different implementations.
- B4 - Advanced Color Image Processing II
 1. Application: Fog Removal. Connections with Retinex and Illumination Compensation.
 2. Application: To Be Defined – Hands-on Scikit-Image
- B5 - Seminar on Advanced Retinal Image Analysis

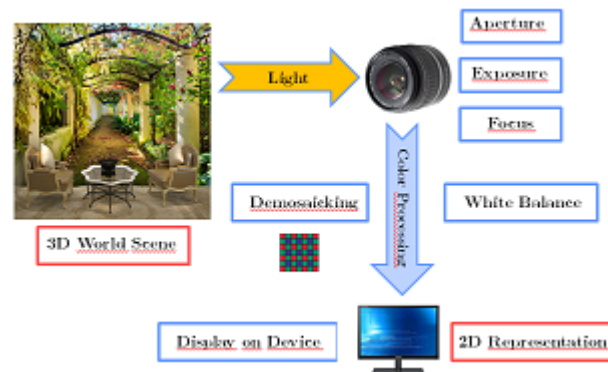
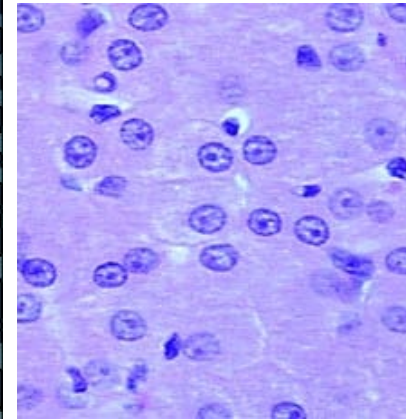
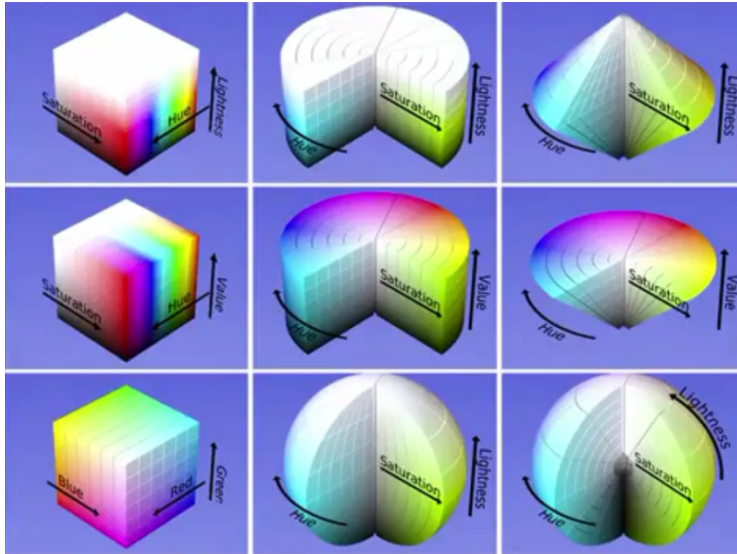
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B1 - Human Vision System: The Retina and the Brain



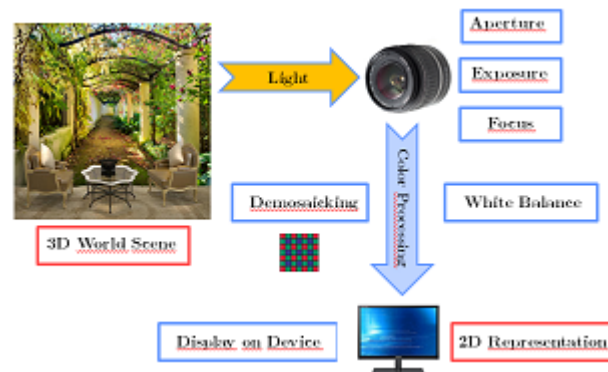
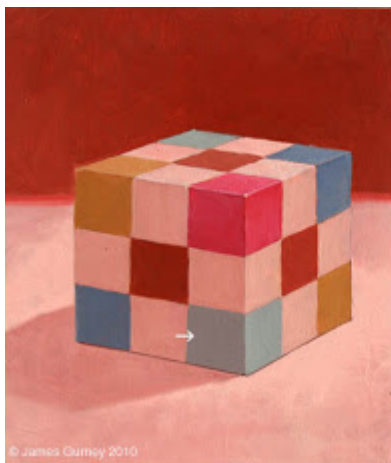
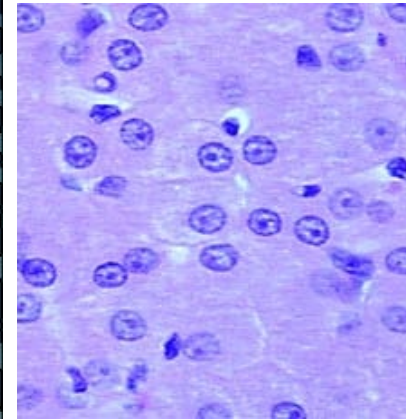
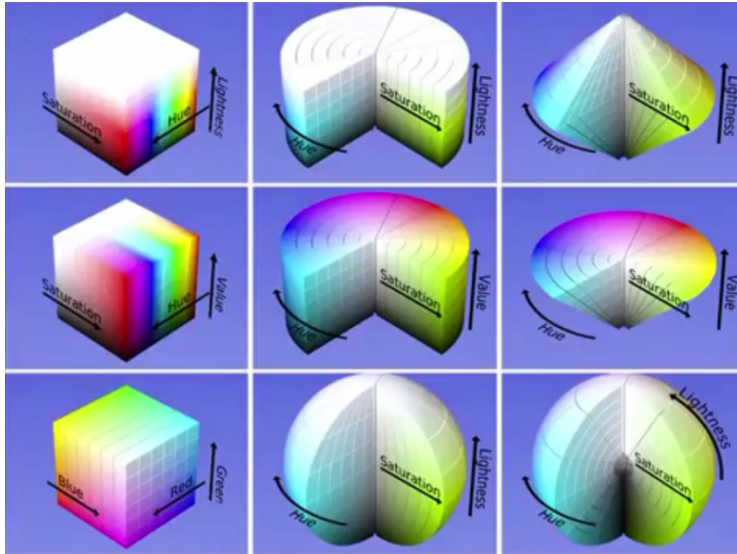
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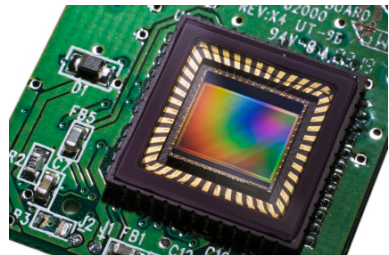
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B1 - Human Vision System: The Retina and the Brain



Outline of these lectures

B2 - Digital Image Processing: The Camera



Outline of these lectures

B3 & 4 - Advanced Color Image Processing II



Outline of these lectures

B3 & 4 - Advanced Color Image Processing



Outline of these lectures

B3 & 4 - Advanced Color Image Processing



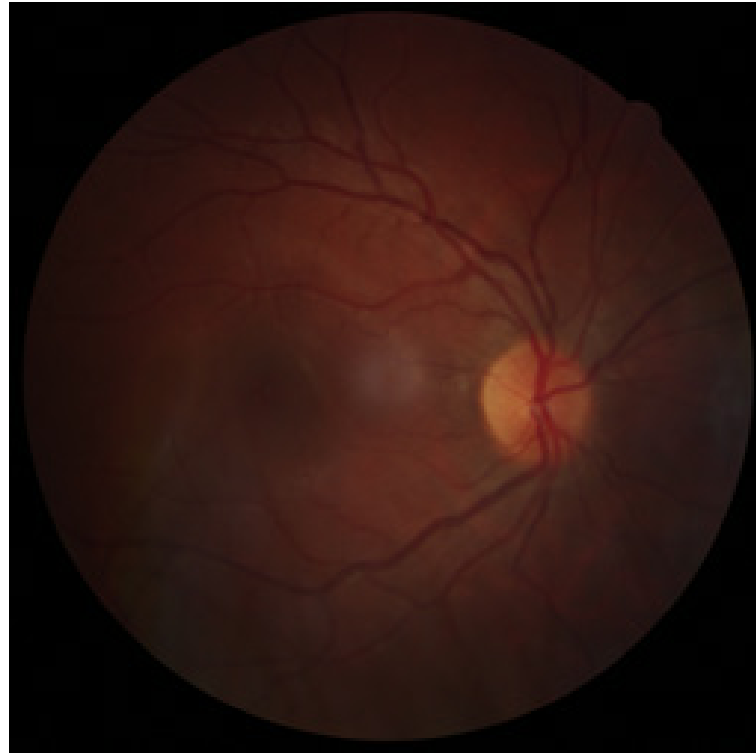
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B3 & 4 - Advanced Color Image Processing



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