Computer Vision 22/23 - Class Planning

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Date	Title and Contents (22/23)
15/09/2022 - TP	Title: Presentation Contents: ● Presentation of the details of the Curricular Unit
15/09/2022 – TP1 15/09/2022 – TP2	Title: Topics for the Project Contents: ● Presentation of the topics for the project to be carried out ● Formation of working groups for the project
22/09/2022 - TP	Title: TP1 - Image Formation Contents: ● Introduction to Computer Vision ● Human visual system ● Image capturing systems
22/09/2022 – TP1 22/09/2022 – TP2	Title: TP2 - Frequency Space Contents: ● Fourier Transform ● Frequency space ● Spatial convolution
29/09/2022 - TP	Title: TP3 - Digital Images Contents: ● Sampling and quantization ● Data structures for digital imaging
29/09/2022 – TP1 29/09/2022 – TP2	Title: TP4 - Color and Noise Contents: ● Color spaces ● Color processing ● Noise
06/10/2022 – TP	Title: TP5 – Single Pixel Manipulation Contents: ● Dynamic range manipulation ● Neighborhoods and connectivity ● Image aritmetics
06/10/2022 – TP1 06/10/2022 – TP2	Title: TP6 - Spatial Filters Contents: ● Spatial filters ● Filtering in the frequency domain

	● Edge detection ● Morphological filters
13/10/2022 – TP	Title: TP7 - Pattern Recognition Contents: ● Introduction to pattern recognition ● Statistical pattern recognition and machine learning ● Visual descriptors ● Local invariant descriptors
13/10/2022 – TP1 13/10/2022 – TP2	Title: TP8 - Statistical Classifiers Contents: ● Statistical classifiers ● Generalization ● k-NN ● Support vector machines ● Neural networks
20/10/2022 – TP	Title: TP9 - Introduction to deep learning Contents: ● What is deep learning? ● Convolutional neural networks ● Deep neural network architectures
20/10/2022 – TP1 20/10/2022 – TP2	Title: TP10 - Deep learning - Resources and examples Contents: ● Deep Learning Resources ● Examples
27/10/2022 – TP	Title: TP11 - Introduction to Segmentation Contents: ● Introduction to segmentation ● Thresholding ● Region-based segmentation ● Segmentation by clustering
27/10/2022 – TP1 27/10/2022 – TP2	Title: Support for project implementation
03/11/2022 – TP	FCUP Activities - Training in transversal skills (no classes)
03/11/2022 – TP1 03/11/2022 – TP2	FCUP Activities - Training in transversal skills (no classes)
10/11/2022 - TP	Title: TP12 - Advanced Segmentation Contents: ● Segmentation by fitting ● Active contours ● Semantic segmentation
10/11/2022 – TP1 10/11/2022 – TP2	Title: Support for project implementation
17/11/2022 - TP	Title: TP13 - Advanced Deep Learning Topics I Contents:

	● Auto encoders ● Deep learning for semantic segmentation
17/11/2022 – TP1 17/11/2022 – TP2	Title: Support for project implementation
24/11/2022 – TP	Title: TP14 - Advanced Deep Learning Topics II Contents: ● Class activation maps ● Generative adversarial networks
24/11/2022 – TP1 24/11/2022 – TP2	Title: Support for project implementation
01/12/2022 – TP	Holiday - Restoration of Independence
01/12/2022 – TP1 01/12/2022 – TP2	Holiday - Restoration of Independence
08/12/2022 – TP	Holiday - Immaculate Conception
08/12/2022 – TP1 08/12/2022 – TP2	Holiday - Immaculate Conception
15/12/2022 – TP	Title: Public presentations of the projects developed
15/12/2022 – TP1 15/12/2022 – TP2	Title: Public presentations of the projects developed

Classes taught by Prof. Miguel Coimbra
Classes taught by Prof. Hélder Oliveira