_ TELECOM ESCUELA TÉCNICA VLC SUPERIOR DE UPV INGENIEROS DE TELECOMUNICACIÓN

UNIVERSITAT POLITÈCNICA DE VALÈNCIA

Advanced methods of artificial vision

Presentation

Faculty

- Aula 4P - 1.2
  - Rocío del Amor, madeam2.upv.es

Itinerario de especialización de Inteligencia Artificial

TEORÍA A Aula 4P - 1.2

	Lunes	*Martes*	*Miércoles*	*Jueves*	*Viernes*
15:00-16:00			SNPDL*	ADMEAV*	
16:00-17:00			SNPDL*	ADMEAV*	
17:15-18:15			RELEAR	RELEAR*	
18:15-19:15			RELEAR	RELEAR*	
19:15-20:15			ADMEAV	SNPDL	
20:15-21:15			ADMEAV	SNPDL	

*Sesión de Teoría o de Laboratorio según Calendario.

Prácticas Grupo A	*Horas*	*Miercoles 15:00-17:00*	*Jueves 15:00-17:00*	*Jueves 17:15–19:15*
ADMEAV Lab. Sonido e Imagen. Edif. 4P – 1ª P.	12		A1	

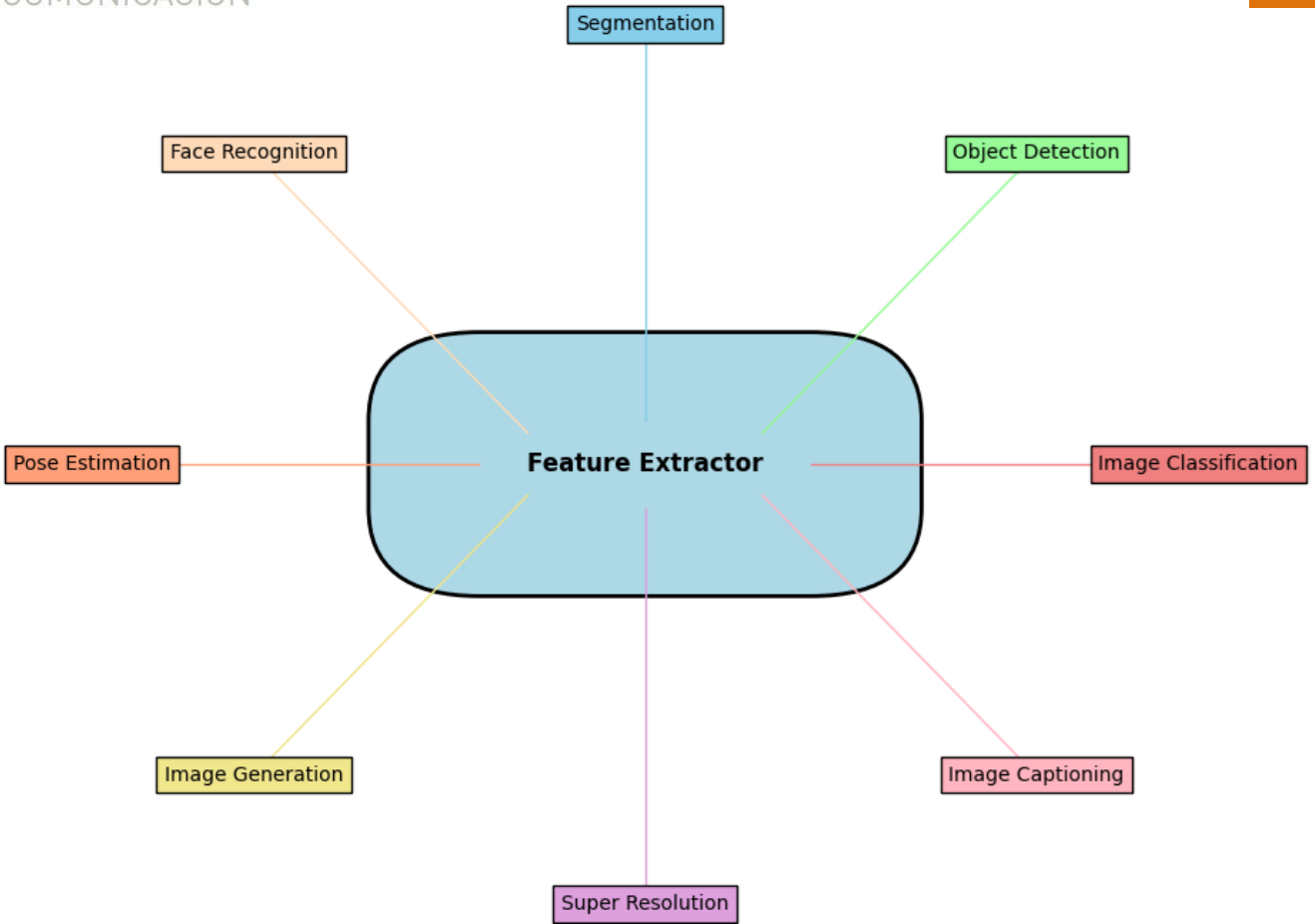
Syllabus

Advanced Methods Of Artificial Vision

Distribución

Unidad didáctica	Teoría Aula	Práctica Aula	Práctica Informática
Introduction to computer vision (Hand crafted feature extraction)	2	2	2
Fundamentals of convolutional neural networks	6	4	2
Transformer-based feature extraction	4	4	--
Large Vision Languaje Models	2	2	0
Advanced Learning Methodologies	2	2	2
Autoencoder-based models	2	2	--
Image segmentation	4	0	2
Object detection	4	2	2
Generative networks	4	--	2
Total horas:	**30**	**18**	**12**

Computer vision

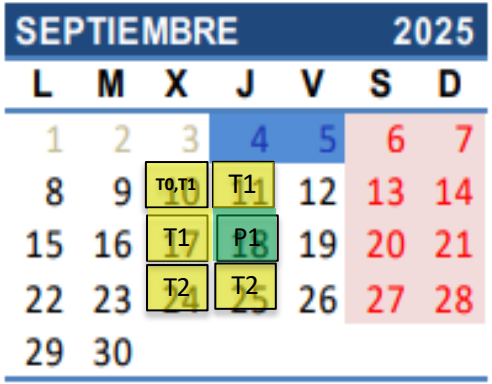


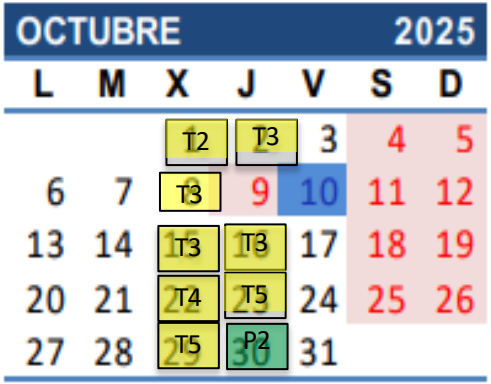
Syllabus

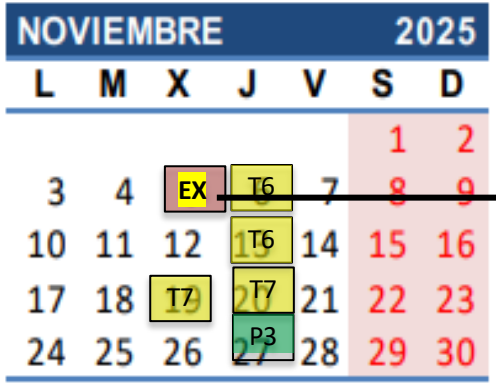
Theory:

T0. Presentation
T1. Hand-crafted feature extraction (P1)
T2. CNN-based feature extraction
T3. Transformer-based feature extraction
T4. Large Vision-Language Models
T5. Avanced Learning Methodologies (P2)
T6. Autoencoders
T7. Segmentation (P3)
T8. Object detection and tracking (P4)
T9. Generative adversarial networks (P5)

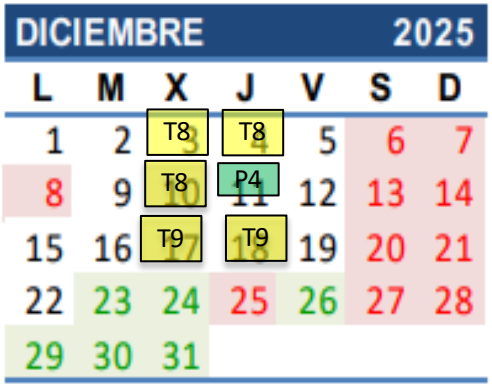
Syllabus

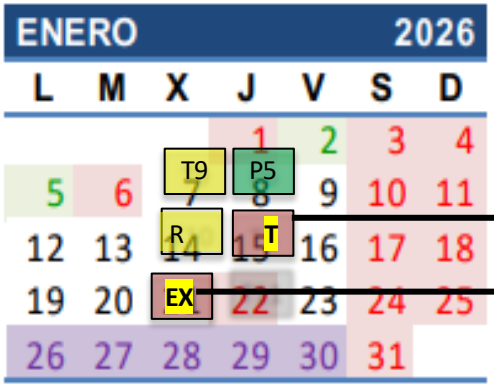






05/11/2025
Exam (T1-T5)





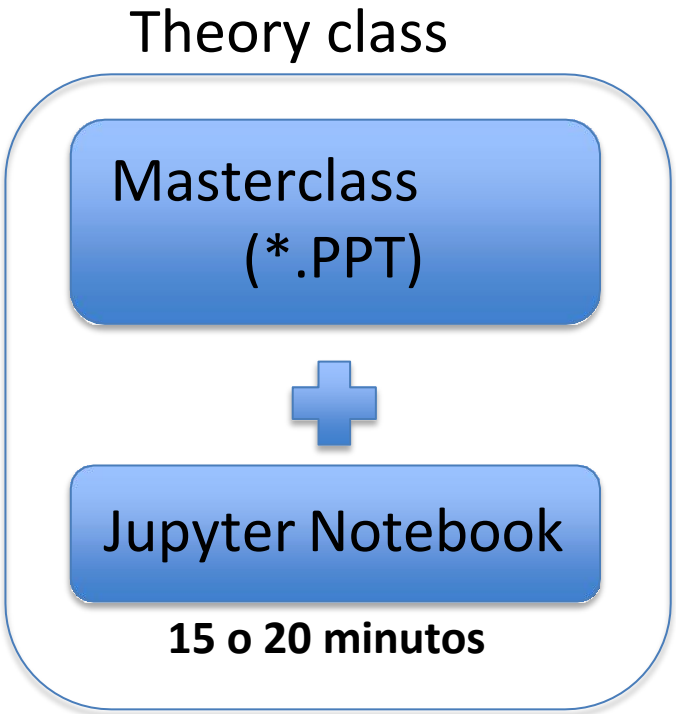
15/01/2025
Project presentation

21/01/2025
Exam (T6-T9)

Theoretical class structure

- The theory classes will be accompanied by a notebook in Python (Google Collab).

- Starting from the next session, it is essential that you all bring your computers with a Google Collab account.
  https://colab.research.google.com



Assesment

The assessment of the content will consist of two parts:

- **Participation and performance in lab sessions** (**20% of the mark**). They will be assessed through the work done in the laboratory class.

- **Theoretical-practical contents (40% of the mark).** They will be evaluated through two written tests, each accounting for 20% of the mark, one in the middle of the semester and another at the end.

- **Evaluation of the work (40% of the mark):** the code presented (**20%**) and an oral presentation of the same (**20%**) will be evaluated. The work may be recovered by improving it as necessary in order to pass the evaluation.

The final mark of the course, for all students, will be the maximum between the ordinary evaluation and the recovery.

References

- Deep learning (Goodfellow, Ian)
- Deep learning with Python (Chollet, François)
- Deep Learning: Foundations and Concepts (Bishop)