academic year 2025-2026

welcome session & master presentation

mcv.uab.cat

Maria Vanrell

Welcome session

1. aim of the master
2. about computer vision
3. about the master
4. about the partners
    - UAB-CVC
    - UOC
    - UPC
    - UPF
    - UB
5. about the students

aim of the master

What?

To give to the students updated knowledge on Computer Vision

from basic techniques to state-of-art methods

Why?

Computer Vision is an AI technology whose development and applicability is exponentially growing

new jobs, start-up opportunities, PHD studentships

How?

Joining the expertise in the field of 5 universities which are living in Barcelona

a big concentration of companies and research institutions

Welcome session

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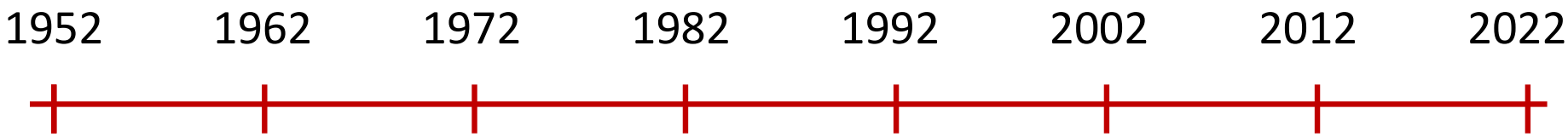
2. about computer vision
3. about the master
4. about the partners
    - UAB-CVC
    - UOC
    - UPC
    - UPF
    - UB
5. about the students

about computer vision

close to 75 years of research in the field



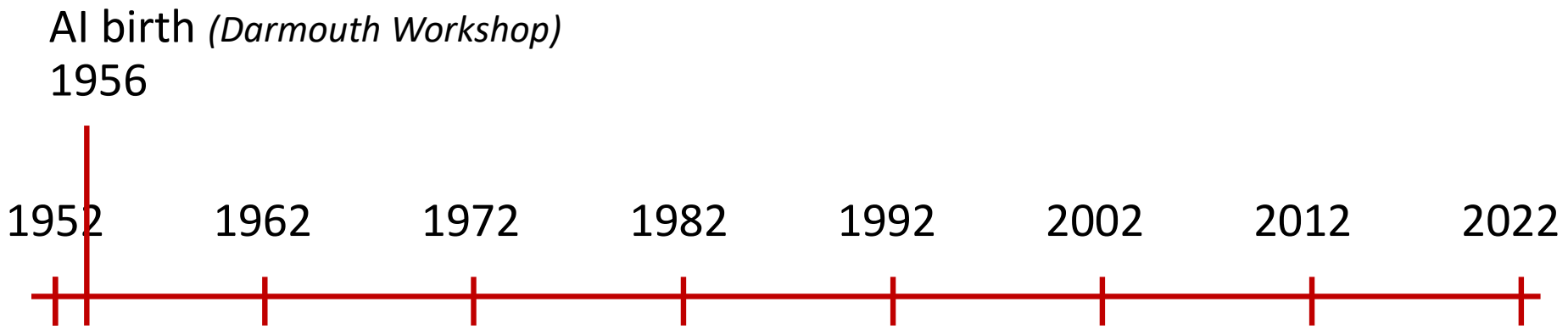
CV raise in parallel with AI, 1950s …

From Wikipedia:
"[...] The Dartmouth Summer Research Project on Artificial Intelligence was a 1956 summer workshop widely considered [1][2][3] to be the founding event of artificial intelligence as a field.

The project lasted approximately six to eight weeks and was essentially an extended brainstorming session. Eleven mathematicians and scientists originally planned to attend; not all of them attended, but more than ten others came for short times. […]"

Published list of attendees

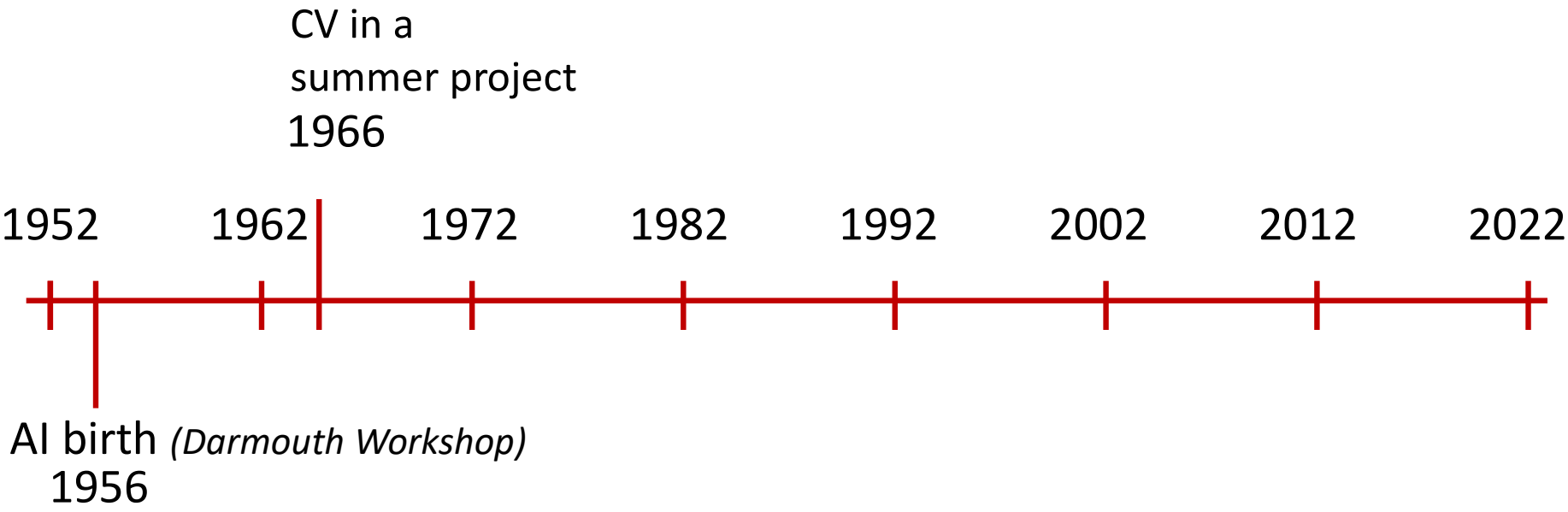
- *Ray Solomonoff*
- *Marvin Minsky*
- *John McCarthy*
- *Claude Shannon*
- *Trenchard More*
- *Nat Rochester*
- *Oliver Selfridge*
- *Julian Bigelow*
- *W. Ross Ashby*
- *W.S. McCulloch*
- *Abraham Robinson*
- *Tom Etter*
- *John Nash*
- *David Sayre*
- *Arthur Samuel*
- *Kenneth R. Shoulders*
- *Shoulders' friend*
- *Alex Bernstein*
- *Herbert Simon*
- *Allen Newell*



Vision as a Summer Project, 1966

from MIT AI Memos (1959-2004) we can find
Papert, Seymour (1966-07-01). "The Summer Vision Project"

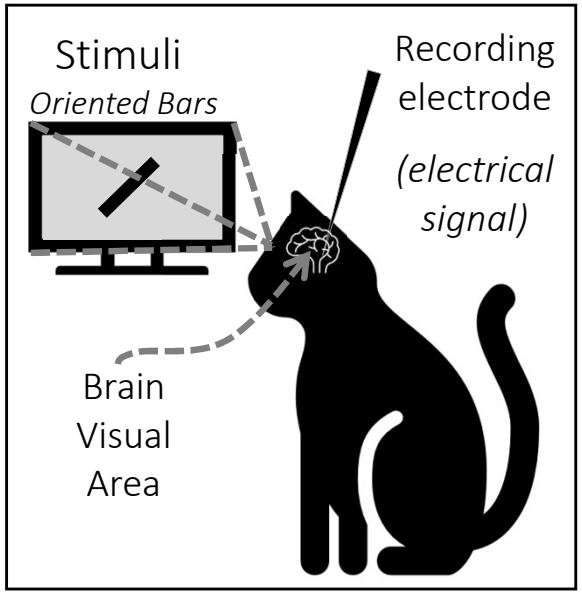
[…] The primary goal of the project is to construct a system of programs which will divide a vidisector picture into regions such as likely objects, likely background areas and chaos. We shall call this part of its operation **FIGURE-GROUND analysis**. It will be impossible to do this without considerable analysis of shape and surface properties, so FIGURE-GROUND analysis is really inseparable in practice from the second goal which is **REGION DESCRIPTION**. The final goal is **OBJECT IDENTIFICATION** which will actually name objects by matching them with a vocabulary of known objects.

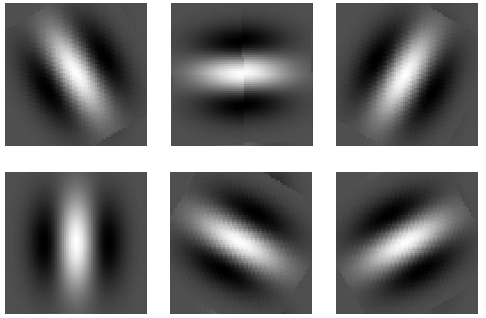


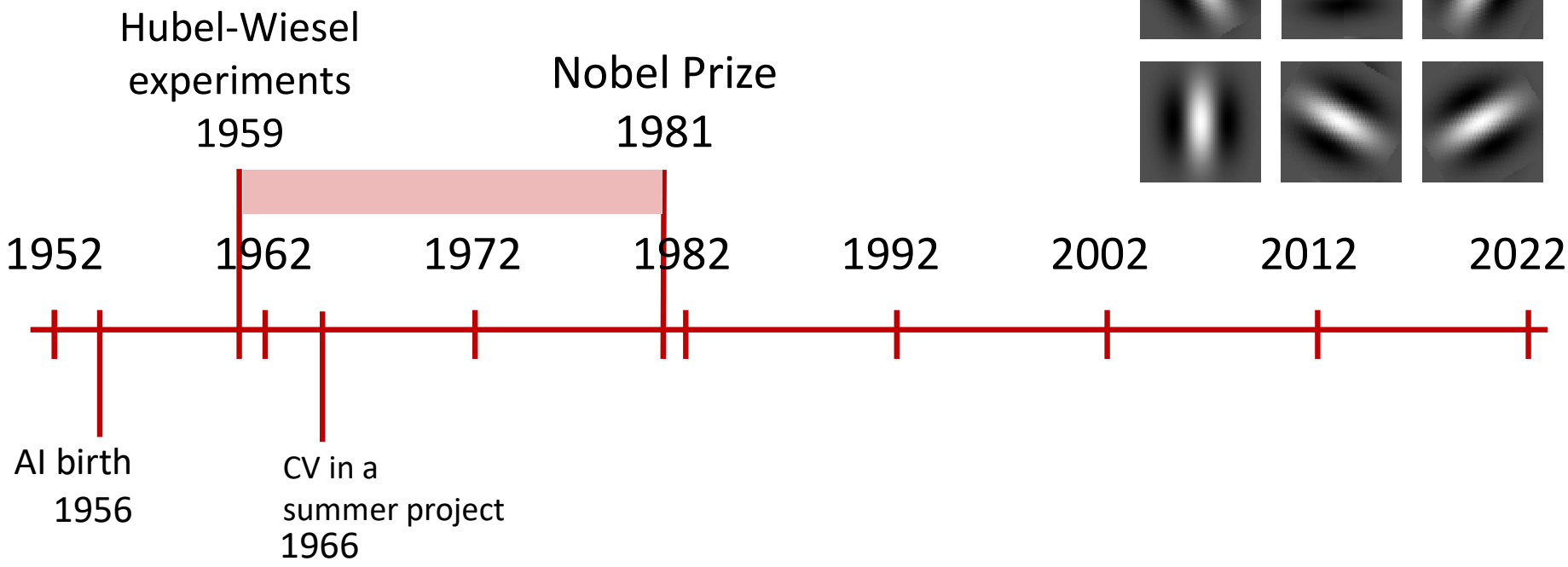
Important fidings in neurophysiology, 1959

From Wikipedia:

"[…] The Hubel and Wiesel experiments greatly expanded the scientific knowledge of sensory processing. In one experiment, done in 1959, they inserted a microelectrode into the primary visual cortex of an anesthetized cat. They then projected patterns of light and dark on a screen in front of the cat. They found that some neurons fired rapidly when presented with lines at one angle, while others responded best to another angle. They called these neurons "simple cells." Still other neurons, which they termed "complex cells," responded best to lines of a certain angle moving in one direction. These studies showed how the visual system builds an image from simple stimuli into more complex representations […]

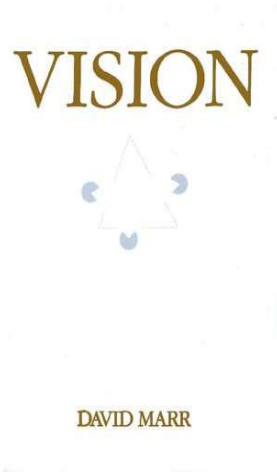


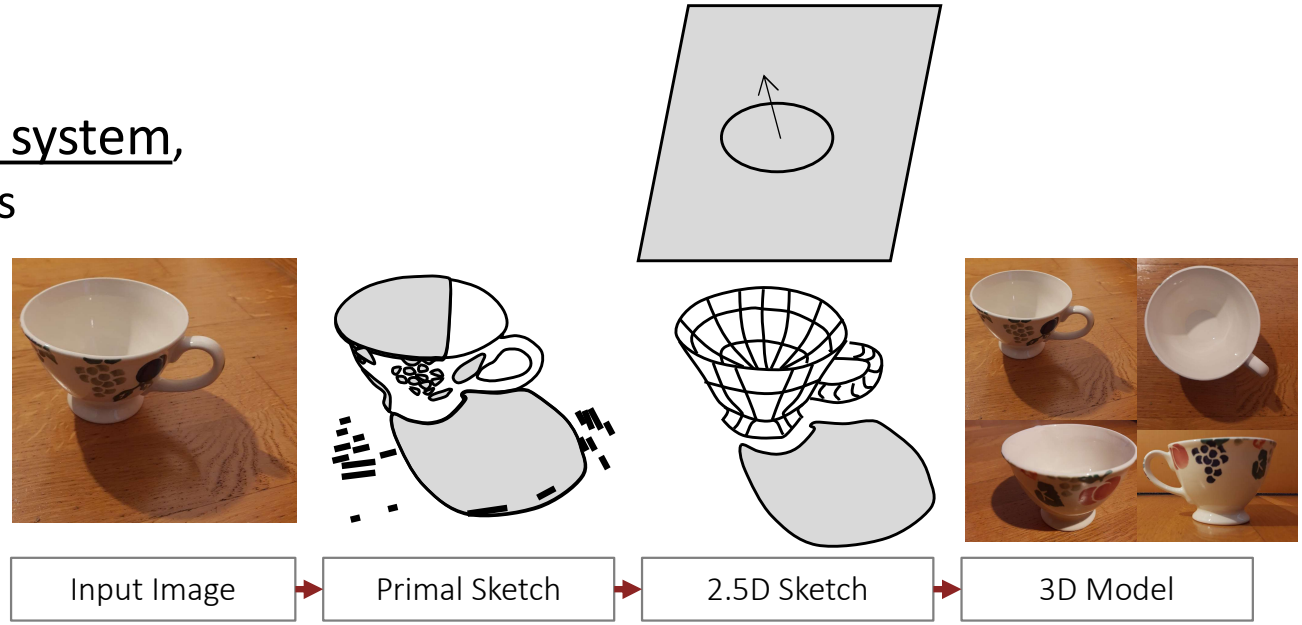


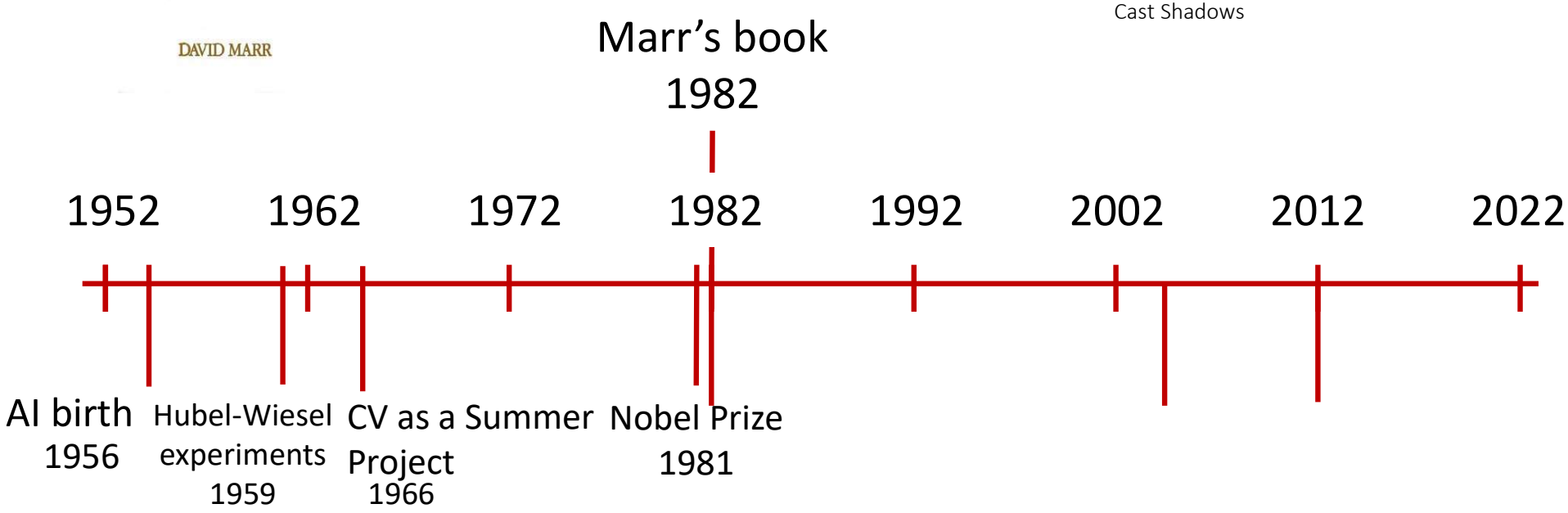


Marr's Theory, 1982

Vision must be considered as
an information processing system,
that is built at different stages







CV field explodes with multiple computational approaches

Different optimization method to extract important features that requires regularization methods to solve the ill-posed nature

Pros:

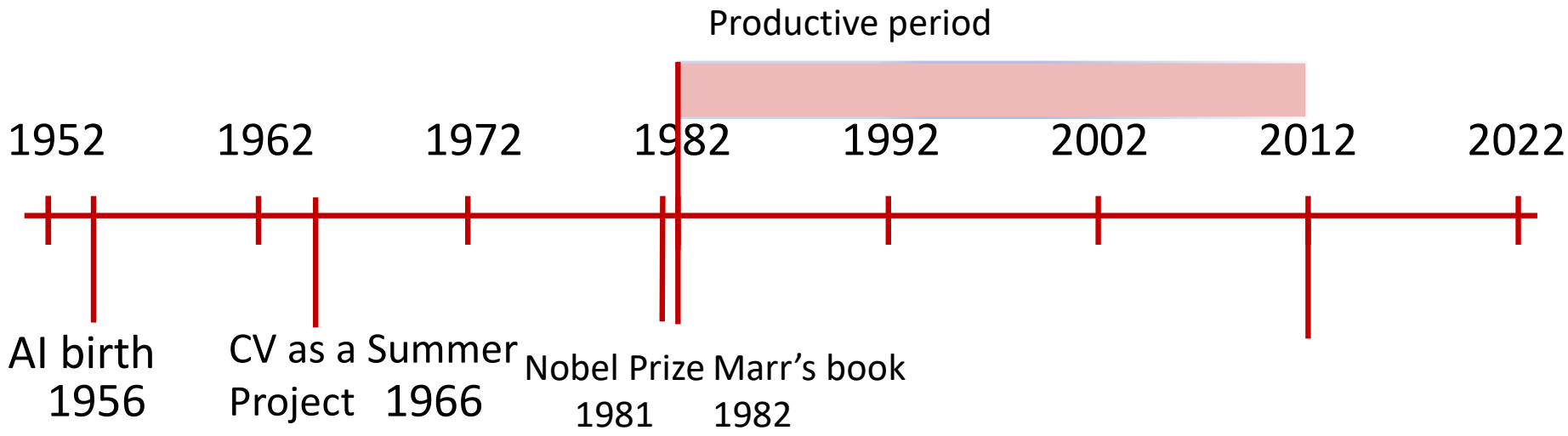
Application of a rich diversity of mathematical models … ✓

(Markov models, Wavelets, graphical models, neural networks…)

Cons:

A lot of hand-crafted design and parameter setting …. ✗

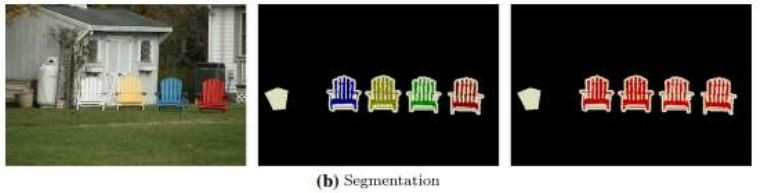
Not a unified methodology to deal with visual information ✗



CV seriously start to work on Image annotation (2005)

The Pascal VOC Project (EU funded) provided a serious datasets for object class recognition [http://host.robots.ox.ac.uk/pascal/VOC/]

- *Standardized image datasets*
- *A common set of tools to access data*
- *Standardize evaluation and comparison of methods*
- *Ran challenges to evaluate methods (from 2005-2012)*

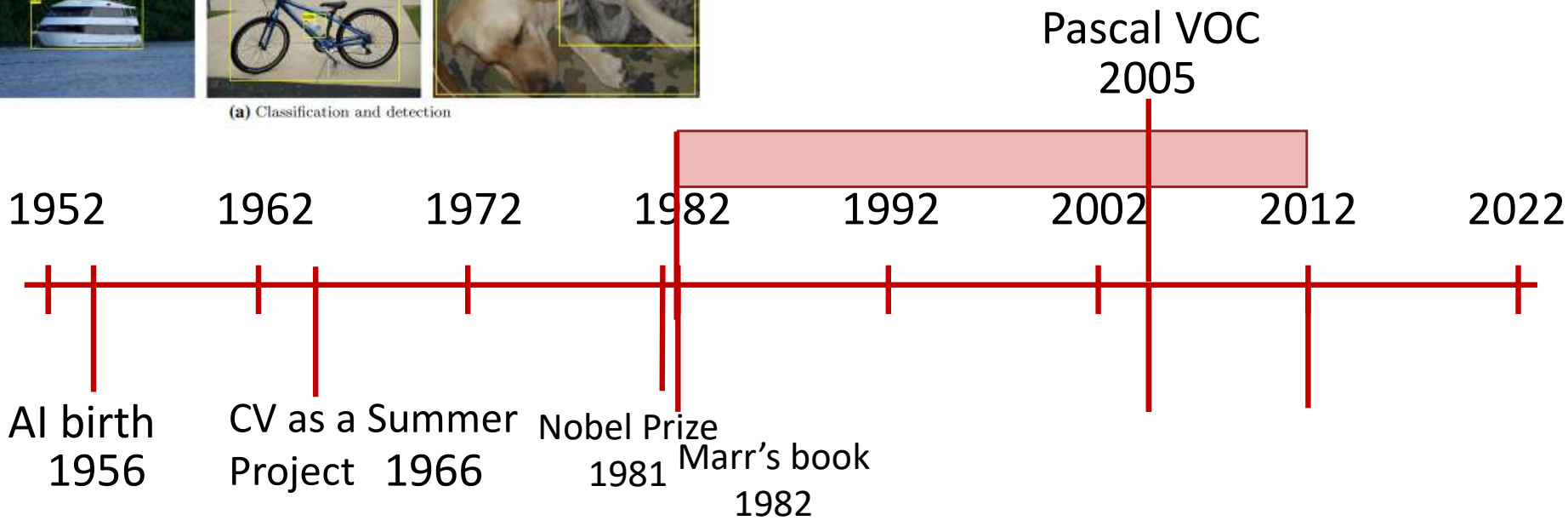


(b) Segmentation

(c) Action classification

(d) Person layout

(a) Classification and detection



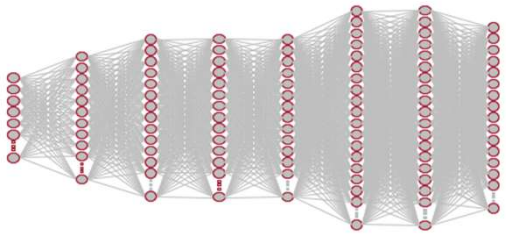
Deep Convolutional Networks (2012)

There is an important increase in performance accuracy in the Pascal Challenge

ImageNet Classification with Deep Convolutional Neural Networks
A. Krizhevsky, I. Sutskever and G.E. Hinton. NEURIPS 2012

LeNet-5 (1998)
by Yann LeCun et al

Extended



Trained on a
GPU Card

5% increment!!
Object Recognition
Challenge

Parallelism

- GPUs are designed for **massive parallel processing**, ideal for matrix operations used in deep learning.
- Compared to CPUs, GPUs can perform thousands of operations simultaneously.

Speed

- Training AlexNet on a CPU would have taken **weeks or months**.
- With GPUs, it was trained in **a few days** — making experimentation and iteration feasible.

Deep CNNs

1952 1962 1972 1982 1992 2002 2012 2022

AI birth
1956

CV as a Summer
Project 1966

Nobel Prize
1981

Marr's book
1982

Pascal VOC
2005

Deep Convolutional Networks (2012)

There is an important increase in performance accuracy in the Pascal Challenge

ImageNet Classification with Deep Convolutional Neural Networks
A. Krizhevsky, I. Sutskever and G.E. Hinton. NEURIPS 2012

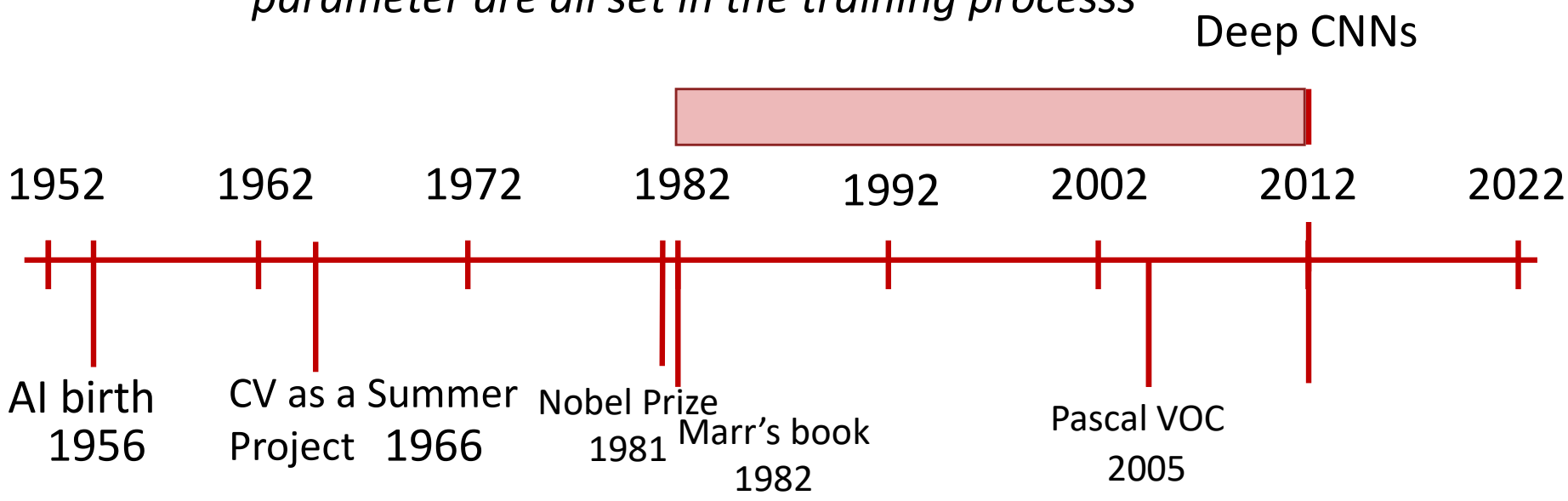
They had provoked **a break in Computer Vision Methodology**!!!

From flat descriptors to hierarchical descriptors

Increase the power of representation of visual information

From hand-crafted to learned descriptors

CNN is trained with large datasets using graphical Cards and all parameter are all set in the training processs



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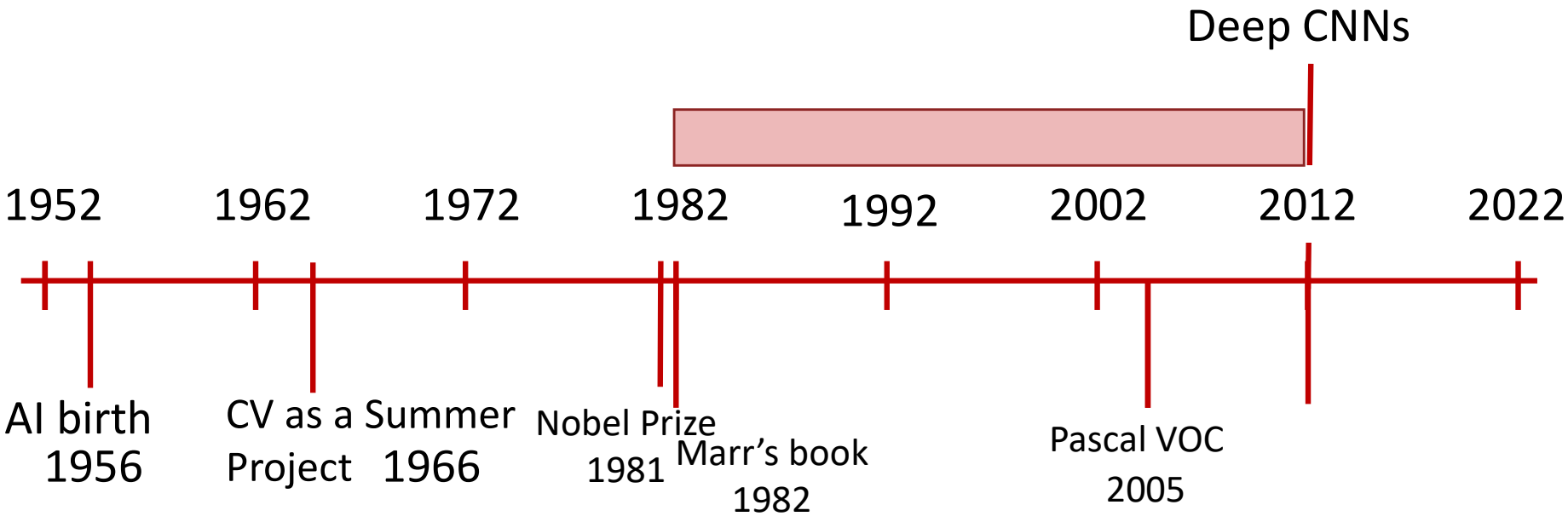
ImageNet Classification with Deep Convolutional Neural Networks
A. Krizhevsky, I. Sutskever and G.E. Hinton. NEURIPS 2012

DNN Research Inc. Startup
(acquired by Google in 2013)

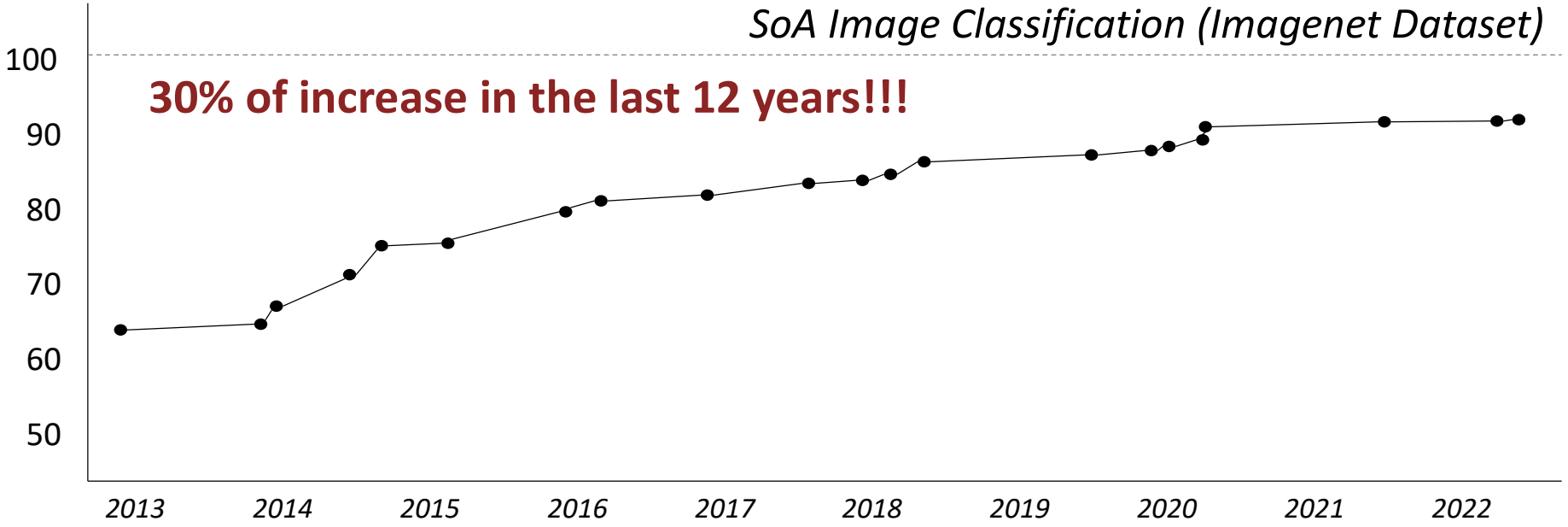
OpenAI
Co-founder in 2015

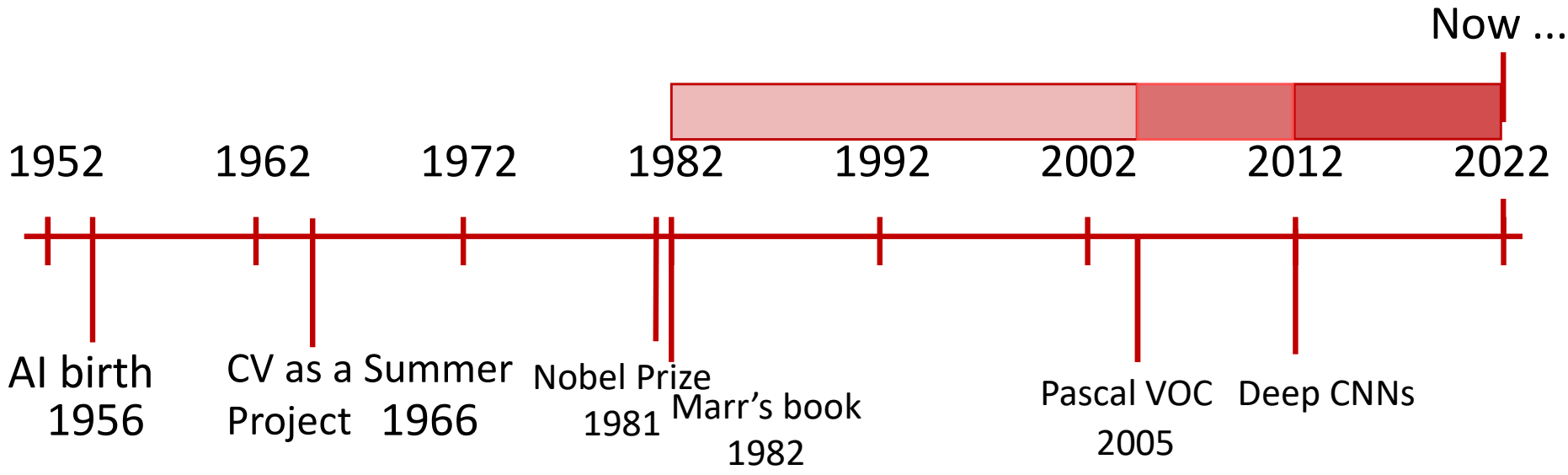
Nobel Prize in Physics
in 2024



Since 2012 … CV field is installed in a permanent growing ….

Image Classification performance is still improving results





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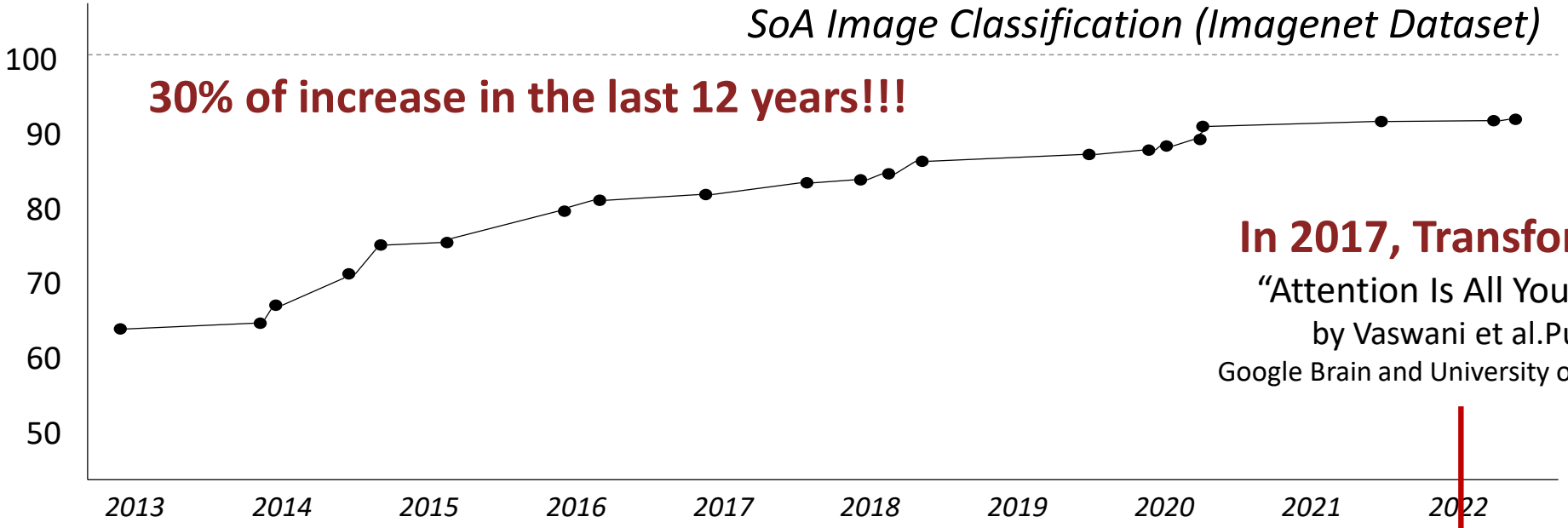
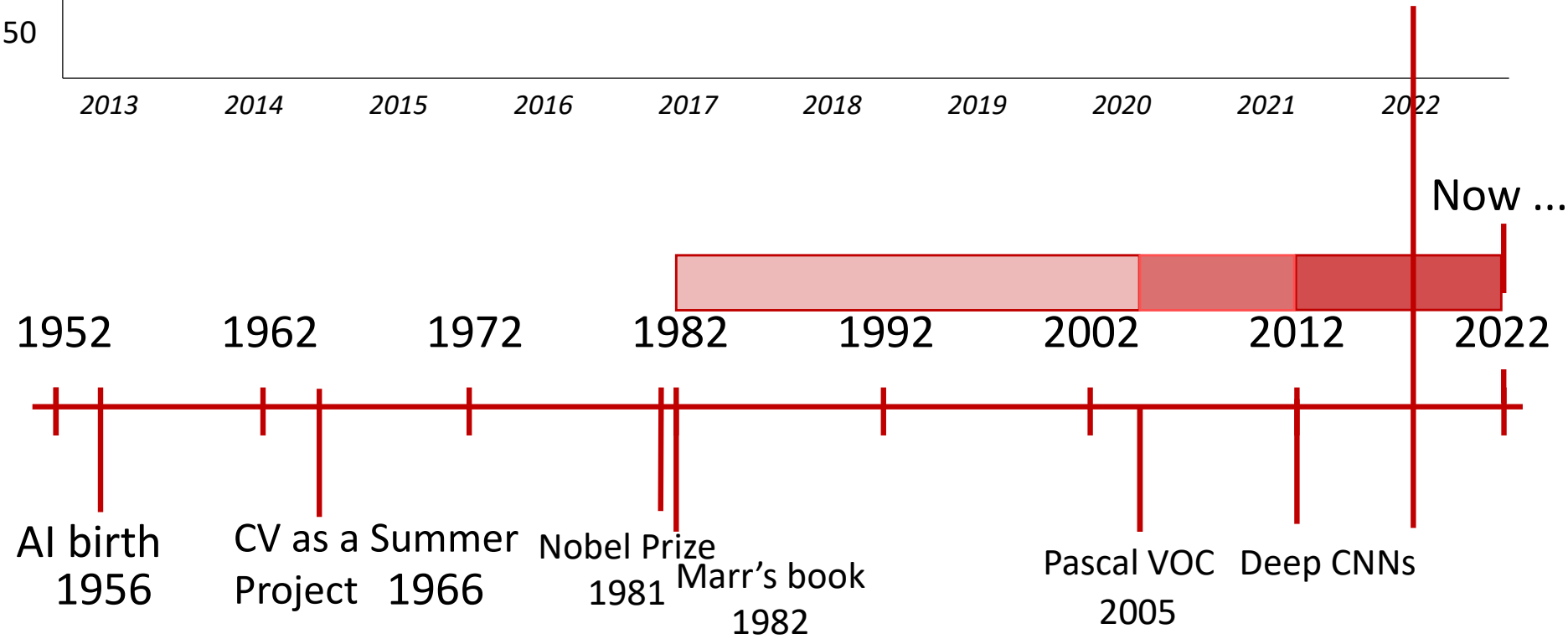


In 2017, Transformers

"Attention Is All You Need"

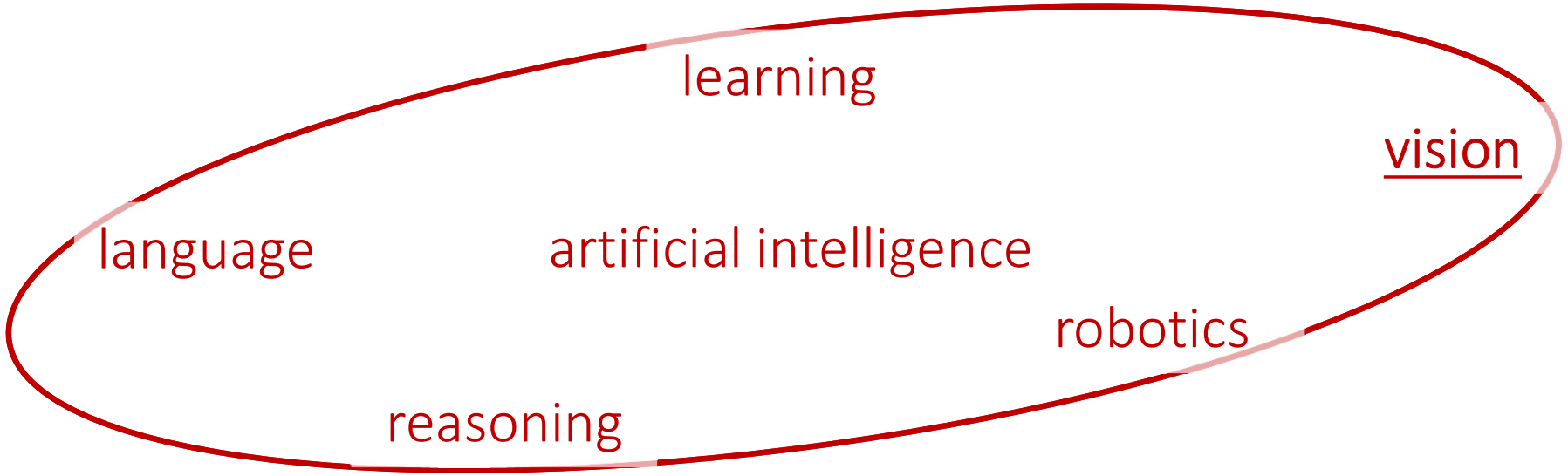
by Vaswani et al.Published

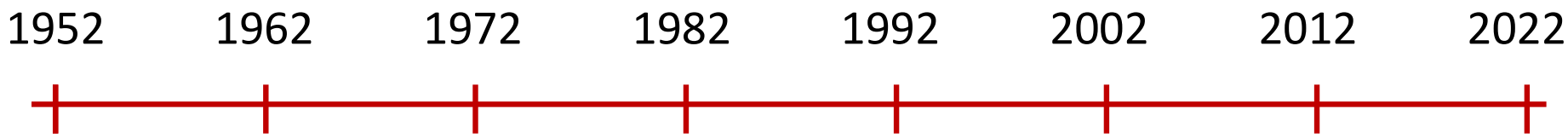
Google Brain and University of Toronto



about computer vision

after 75 years we are **installed in the AI era**





Welcome session

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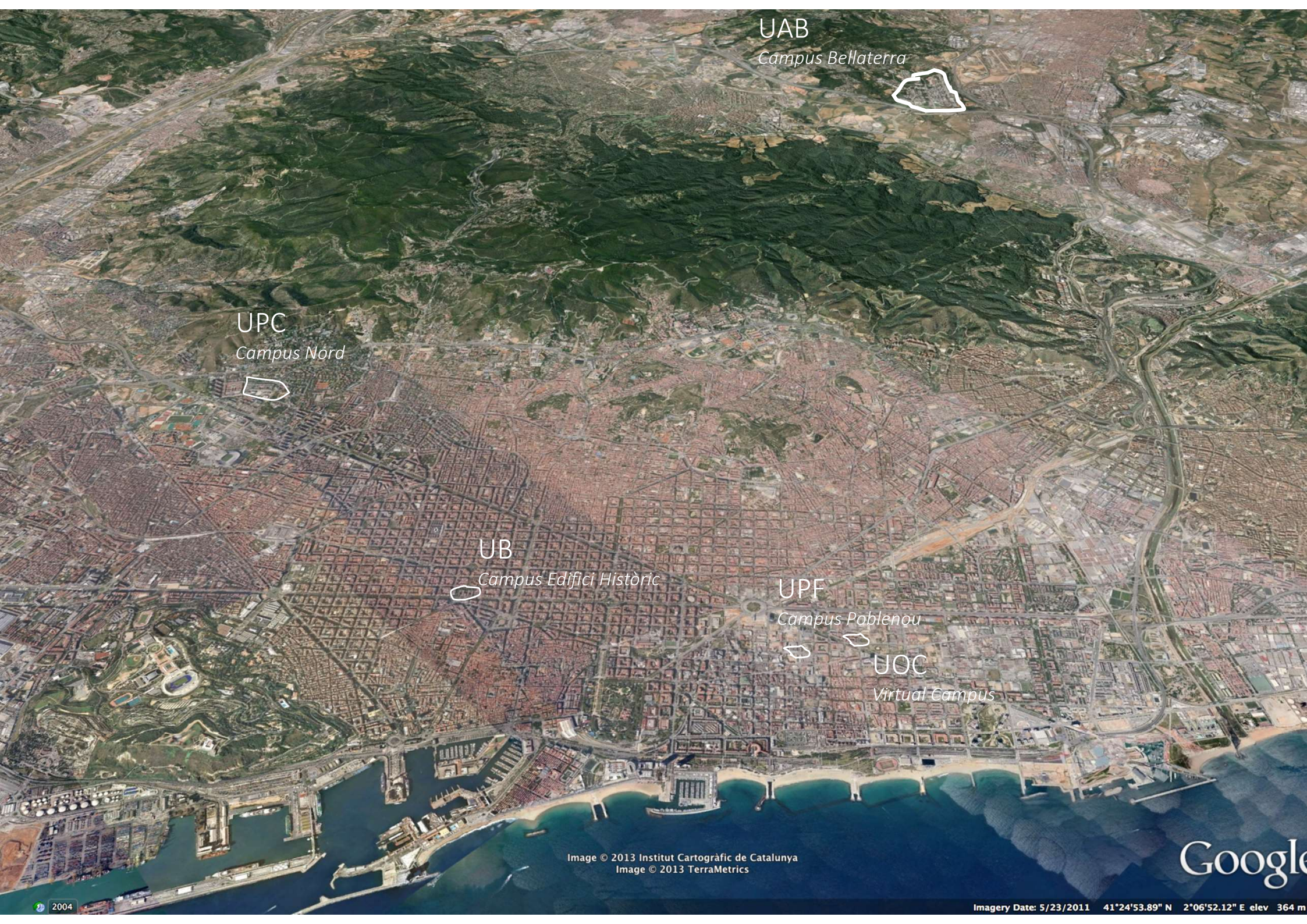
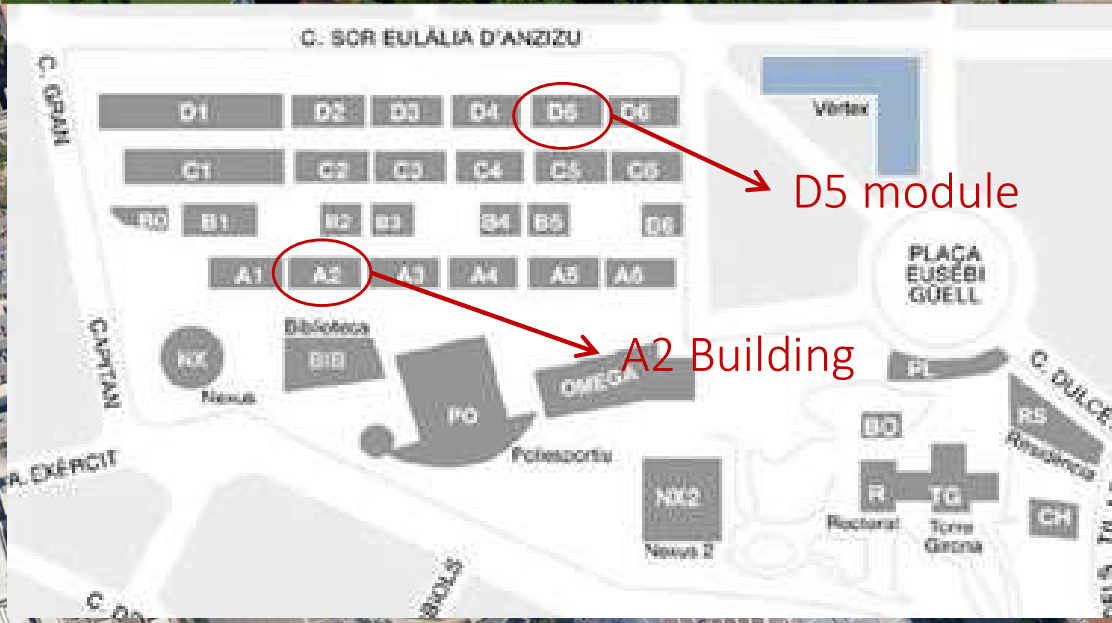

UAB
Campus Bellaterra
UPC
Campus Nord
UB
Campus Edifici Històric
UPF
Campus Poblenou
UOC
Virtual Campus
Image © 2013 Institut Cartogràfic de Catalunya
Image © 2013 TerraMetrics
Google
2004
Imagery Date: 5/23/2011 41°24'53.89" N 2°06'52.12" E elev 364 m

UAB
Campus Bellaterra

Administration
Escola d'Enginyeria

Computer Vision Center

UPC
Campus Nord



UPF

Campus Poblenou

UOC

22@ Building

UB

Campus Edifici Històric

URL Facultat de Filosofia

Universitat de Barcelona

talunya

1 year program (60 ECTS: *European Credit Transfer System*)

	Courses	ECTS	Univ.	
C1	Introduction to human and CV	6	UPC	6 ECTS
C2	Optimization and Inference techniques for CV	6	UPF	
C3	Machine Learning techniques for CV	6	UAB	
C4	3D Vision	6	UPF	
C5	Visual Recognition	9	UAB-UB	9 ECTS
C6	Video Analysis	9	UPC-UB	
C7	Research Dissemination and Transfer	9	UOC	
C8	Master Dissertation	9	ALL	
	Total:	60		

1 ECTS = 25 Hours of student work

1 year program (2 Semesters)

	Courses	ECTS	Univ.	
C1	Introduction to human and CV	6	UPC	1st Semester
C2	Optimization and Inference techniques for CV	6	UPF	
C3	Machine Learning techniques for CV	6	UAB	
C4	3D Vision	6	UPF	
C5	Visual Recognition	9	UAB-UB	2nd Semester
C6	Video Analysis	9	UPC-UB	
C7	Research Dissemination and Transfer	9	UOC	Annual
C8	Master Dissertation	9	ALL	
	Total:	60		

1 year program (Contents)

	Courses	ECTS	Univ.	
C1	Introduction to human and CV	6	UPC	CV Techniques
C2	Optimization and Inference techniques for CV	6	UPF	
C3	Machine Learning techniques for CV	6	UAB	
C4	3D Vision	6	UPF	Vision Problems
C5	Visual Recognition	9	UAB-UB	
C6	Video Analysis	9	UPC-UB	
C7	Research Dissemination and Transfer	9	UOC	Transversal Skills
C8	Master Dissertation	9	ALL	Individual Project
		Total:	60	

1 year program (Coordinators)

	Courses	ECTS	Univ.	
C1	Introduction to human and CV	6	UPC	*Philippe Salembier*
C2	Optimization and Inference techniques for CV	6	UPF	*Coloma Ballester*
C3	Machine Learning techniques for CV	6	UAB	*Ramon Baldrich*
C4	3D Vision	6	UPF	*Gloria Haro*
C5	Visual Recognition	9	UAB-UB	*Javier Vázquez-Julio Silveira*
C6	Video Analysis	9	UPC-UB	*Javier Ruiz-Albert Clapès*
C7	Research Dissemination and Transfer	9	UOC	*Carles Ventura*
C8	Master Dissertation	9	ALL	
	Total:	60		

M. Vanrell & R. Baldrich (UAB)
J.R. Casas (UPC)
C. Ballester (UPF)
I. Benito (UOC)
X. Baró (UB)

1 year program (Methodology)

	Courses	ECTS	Univ.	
C1	Introduction to human and CV	6	UPC	Project-based methodology
C2	Optimization and Inference techniques for CV	6	UPF	
C3	Machine Learning techniques for CV	6	UAB	
C4	3D Vision	6	UPF	
C5	Visual Recognition	9	UAB-UB	
C6	Video Analysis	9	UPC-UB	
C7	Research Dissemination and Transfer	9	UOC	Online Activities
C8	Master Dissertation	9	ALL	Individual work
		Total: 60		

1 year program (Project Coordinators)

	Courses	ECTS	Univ.	
C1	Introduction to human and CV	6	UPC	*Ramon Morros*
C2	Optimization and Inference techniques for CV	6	UPF	*Adriano Pastore*
C3	Machine Learning techniques for CV	6	UAB	*Ramon Baldrich*
C4	3D Vision	6	UPF	*Gloria Haro*
C5	Visual Recognition	9	UAB-UB	*Ernest Valveny-Julio Silveira*
C6	Video Analysis	9	UPC-UB	*Javier Ruiz -Albert Clapés*
C7	Research Dissemination and Transfer	9	UOC	
C8	Master Dissertation	9	ALL	
	Total:	60		

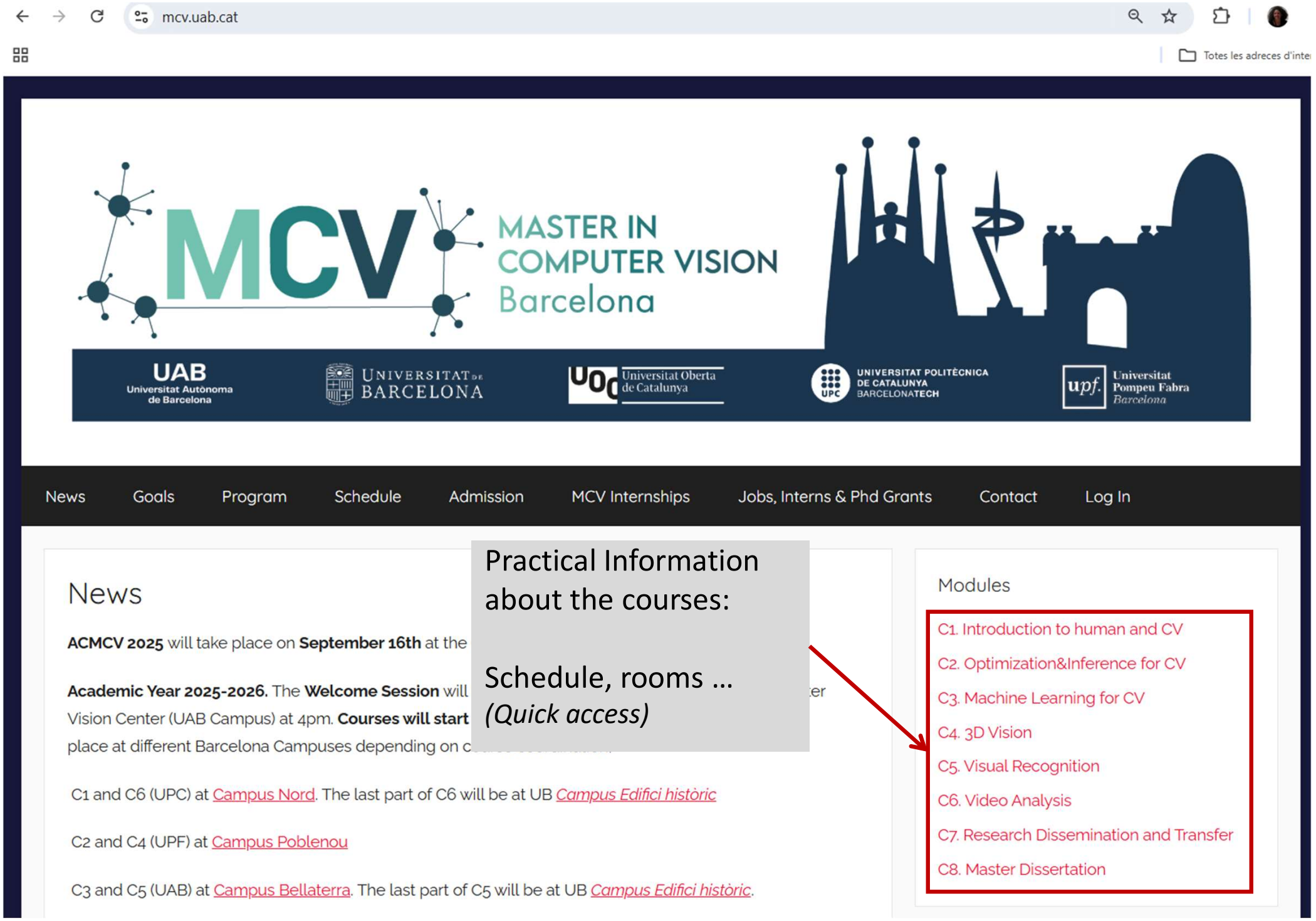
Schedule:

hybrid

Courses:	Monday C1-C3-C5	Tuesday C2-C4-C6	Wednesday C1-C3-C5	Thursday C2-C4-C6	Friday
4pm-5pm	Lecture	Lecture	Lecture	Lecture	
5pm-6pm	Lecture	Lecture	Lecture	Lecture	
6pm-7pm	*[Lecture]*	*[Lecture]*	*[Lecture]*	*[Lecture]*	
7pm-8pm	Project Follow-up			Project Follow-up	
	3 or 4 hours	*2 or 3 hours*	*2 or 3 hours*	*3 or 4 hours*	
	Number of hours per day depends on the Lecture Topic *Total amount Hours/Course = 6 per week*				

6 hours/week (1 follow-up, 5 theoretical) within the schedule

but can change a bit depending on the course and the contents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MCV
MASTER IN
COMPUTER VISION
Barcelona
UAB
Universitat Autònoma
de Barcelona
UNIVERSITAT DE
BARCELONA
Universitat Oberta
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DE CATALUNYA
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News
ACMCV 2025 will take place on September 16th at the
Academic Year 2025-2026. The Welcome Session will
Vision Center (UAB Campus) at 4pm. Courses will start
place at different Barcelona Campuses depending on c
C1 and C6 (UPC) at Campus Nord. The last part of C6 will be at UB Campus Edifici històric
C2 and C4 (UPF) at Campus Poblenou
C3 and C5 (UAB) at Campus Bellaterra. The last part of C5 will be at UB Campus Edifici històric.
Practical Information
about the courses:
Schedule, rooms …
(Quick access)
Modules
C1. Introduction to human and CV
C2. Optimization&Inference for CV
C3. Machine Learning for CV
C4. 3D Vision
C5. Visual Recognition
C6. Video Analysis
C7. Research Dissemination and Transfer
C8. Master Dissertation

News

ACMCV 2025 will take place on **September 16th** at the Computer Vision Center [+].

Academic Year 2025-2026. The **Welcome Session** will take place on **September, the 26th** at Computer Vision Center (UAB Campus) at 4pm. **Courses will start on September, the 29th,** they will take place at different Barcelona Campuses depending on course coordination.

C1 and C6 (UPC) at Campus Nord. The last part of C6 will be at UB *Campus Edifici històric*

C2 and C4 (UPF) at Campus Poblenou

C3 and C5 (UAB) at Campus Bellaterra. The last part of C5 will be at UB *Campus Edifici històric*.

Modules

C1. Introduction to human and CV

C2. Optimization&Inference for CV

C3. Machine Learning for CV

C4. 3D Vision

C5. Visual Recognition

C6. Video Analysis

C7. Research Dissemination and Transfer

C8. Master Dissertation

C1. Introduction to human and computer vision

M1 Schedule - Academic Year 2025-2026 - Student Guide <here>

DATE	TIME	Lecture	Lecturer	University	room
Mon. Sept. 29th	16:00-17:00	Image processing assessment and pixel-based processing	Philippe Salembier	UPC	A4-202
Mon. Sept. 29th	17:00-18:00			UPC	
Mon. Sept. 29th	18:00-19:00	Project Introduction	R. Morros & J. Ruiz	UPC	
Wed. Oct. 1st	16:00-17:00	Morphological and nonlinear filtering	Philippe Salembier	UPC	A4-205 & Hybrid
Wed. Oct. 1st	17:00-18:00			UPC	
Mon. Oct. 6th	16:00-17:00	Human Visual system and perception	Javier Vázquez	UAB	A4-202
Mon. Oct. 6th	17:00-18:00			UAB	
Mon. Oct. 6th	18:00-19:00	Project follow-up	R. Morros & J. Ruiz	UPC	
Wed. Oct. 8th	16:00-17:00	Human Visual system and perception	Javier Vázquez	UAB	A4-205 & Hybrid
Wed. Oct. 8th	17:00-18:00			UAB	
Mon. Oct. 13th	16:00-17:00	Space-frequency representation, Fourier transform and linear filtering	Javier Ruiz	UPC	A4-202
Mon. Oct. 13th	17:00-18:00			UPC	
Mon. Oct. 13th	18:00-19:00	Project follow-up	R. Morros & J. Ruiz	UPC	
Wed. Oct. 15th	16:00-17:00	Space-frequency representation, Fourier transform and linear filtering	Javier Ruiz	UPC	A4-205 & Hybrid
Wed. Oct. 15th	17:00-18:00			UPC	
Mon. Oct. 20th	16:00-17:00	Space-frequency representation, Fourier transform and linear filtering	Javier Ruiz	UPC	A4-202
Mon. Oct. 20th	17:00-18:00			UPC	
Wed. Oct. 22nd		**HOMEWORK**			
Mon. Oct. 27th	16:00-17:00	Feature extraction	Ramon Morros	UPC	A4-202
Mon. Oct. 27th	17:00-18:00			UPC	
Mon. Oct. 27th	18:00-19:00	Project follow-up	R. Morros & J. Ruiz	UPC	
Wed. Oct. 29th	16:00-17:00	Grouping, segmentation and classification	Ramon Morros	UPC	A4-205 & Hybrid
Wed. Oct. 29th	17:00-18:00			UPC	
Mon. Nov. 3rd	16:00-17:00	Grouping, segmentation and classification	Ramon Morros	UPC	A4-202
Mon. Nov. 3rd	17:00-18:00			UPC	
Wed. Nov. 5th		**HOMEWORK**			
Mon. Nov. 10th	16:00-19:00	Project Presentations	R. Morros & J. Ruiz	UPC	A4-202
Mon. Nov. 17th		**HOMEWORK**			
Wed. Nov. 19th		**HOMEWORK**			
Mon. Nov. 24th	16:00 -19:00	EXAM	Philippe Salembier	UPC	A4-202

We usually have:

4 Theory hours/week
1 Follow-up session/week

But, with some variations:

1 free day in the middle
4 follow-up session
1 Project Presentation Session
1 Exam

News

ACMCV 2025 will take place on **September 16th** at the Computer Vision Center [+].

Academic Year 2025-2026. The **Welcome Session** will take place on **September, the 26th** at Computer Vision Center (UAB Campus) at 4pm. **Courses will start on September, the 29th,** they will take place at different Barcelona Campuses depending on course coordination.

C1 and C6 (UPC) at Campus Nord. The last part of C6 will be at UB *Campus Edifici històric*

C2 and C4 (UPF) at Campus Poblenou

C3 and C5 (UAB) at Campus Bellaterra. The last part of C5 will be at UB *Campus Edifici històric*.

Modules

C1. Introduction to human and CV

C2. Optimization&Inference for CV

C3. Machine Learning for CV

C4. 3D Vision

C5. Visual Recognition

C6. Video Analysis

C7. Research Dissemination and Transfer

C8. Master Dissertation

C2. Optimization for Introduction to Human and Computer Vision

DATE	TIME	Lecture	Lecturer	University	Room/Building
Tue. Sept. 30th	16:00-17:00	Introduction to optimization problems and energy minimization methods. Examples.	Coloma Ballester	UPF	Room 52.119 (Hybrid) Roc Boronat building
Tue. Sept. 30th	17:00-18:00	Numerical techniques for optimization problems (I): Gateaux derivative, Euler-Lagrange equation and Gradient methods.		UPF	
Thu. Oct. 2nd	16:00-17:00	Numerical techniques for optimization problems (II): Gateaux derivative, Euler-Lagrange equation and Gradient methods.	Coloma Ballester	UPF	Room 52.119 Roc Boronat building
Thu. Oct. 2nd	17:00-18:00	Numerical techniques for optimization problems (III): Gradient methods. Applications: denoising, image inpainting, Poisson editing, etc		UPF	
Thu. Oct. 2nd	18:00-19:00	Project Introduction	Adriano Pastore	UPF	
Tue. Oct. 7th	16:00-17:00	Review and complements of numerical linear algebra (I): least squares methods, singular value decomposition. Applications.	Pablo Arias	UPF	Room 52.119 (Hybrid) Roc Boronat building
Tue. Oct. 7th	17:00-18:00	Review and complements of numerical linear algebra (I): least squares methods, singular value decomposition. Applications.		UPF	
Thu. Oct. 9th	16:00-17:00	Stochastic Optimization for Machine Learning (I). The backpropagation strategy for gradient formulation. Gradient descent optimization strategies useful for deep learning strategies	Pablo Arias	UPF	Room 52.119 Roc Boronat building
Thu. Oct. 9th	17:00-18:00	Stochastic Optimization for Machine Learning (II). The backpropagation strategy for gradient formulation. Gradient descent optimization strategies useful for deep learning strategies		UPF	
Thu. Oct. 9th	18:00-19:00	Convex optimization (I). Convex sets and convex functions		UPF	
Thu. Oct. 9th	19:00-20:00	Project Follop-up	Adriano Pastore	UPF	
Tue. Oct. 14th	16:00-17:00	Convex optimization (II). Constrained and unconstrained optimization. Karush-Kuhn-Tucker optimality conditions.	Pablo Arias	UPF	Room 52.119 (Hybrid) Roc Boronat building
Tue. Oct. 14th	17:00-18:00	Convex optimization (III). Constrained and unconstrained optimization. Karush-Kuhn-Tucker optimality conditions. Applications		UPF	
Thu. Oct. 16th	17:00-18:00	Convex Optimization (V). Duality-based methods. Applications. Non-convex problems.	Coloma Ballester	UPF	Room 52.119 Roc Boronat building
Thu. Oct. 16th	18:00-19:00	Segmentation with variational models. The Mumford and Shah functional and the level sets framework	Adriano Pastore	UPF	
Thu. Oct. 16th	19:00-20:00	Project Follop-up	Adriano Pastore	UPF	
Tue. Oct. 21st		HOMEWORK			
Thu. Oct. 23rd					
Tue. Oct. 28th	16:00-17:00	Bayesian networks and MRFs (I): Inference problems. Main Inference algorithms. Message passing. Examples.	Toni Lozano	UAB	Room 52.119 (Hybrid) Roc Boronat building
Tue. Oct. 28th	17:00-18:00	Bayesian networks and MRFs (II): Inference problems. Main Inference algorithms. Message passing. Examples.		UAB	

We have a similar schedule,

But

1 day with 4 hours

1 free week

Teaching Methodology:

Supervised Sessions

- Lecture Sessions, where the lecturers will explain general contents about the topics. Some of them will be used to solve the problems.

- Project follow-up Sessions, where the problems and goals of the projects will be presented and discussed, students will interact with the project coordinator about problems and ideas on solving the project (approx. 1 hour/week)

- Presentation Session, where the students give an oral presentation about how they have solved the project and a demo of the results.

- Exam Session, where the students are evaluated individually. Knowledge achievements and problem-solving skills

Homework, student will work in groups to solve the problems of the projects with deliverables:

- Code
- Reports
- Oral presentations

C7. Research Dissemination and Transfer

	Courses	ECTS	Univ.
C1	Introduction to human and CV	6	UPC
C2	Optimization and Inference techniques for CV	6	UPF
C3	Machine Learning techniques for CV	6	UAB
C4	3D Vision	6	UPF
C5	Visual Recognition	9	UAB-UB
C6	Video Analysis	9	UPC-UB
C7	Research Dissemination and Transfer	9	UOC
C8	Master Dissertation	9	ALL
	Total:	60	

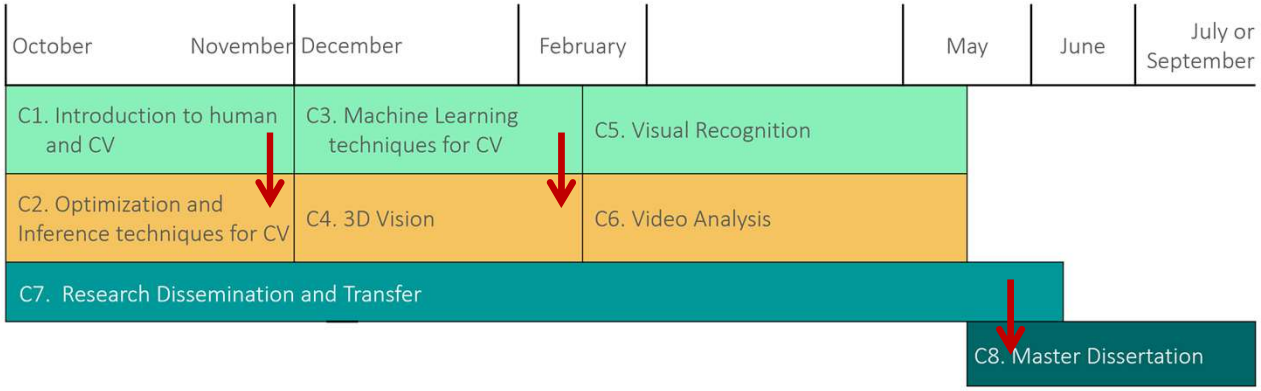
Important note: Starts on October 16th?

Contents

C7. Research dissemination and Transfer (UOC)

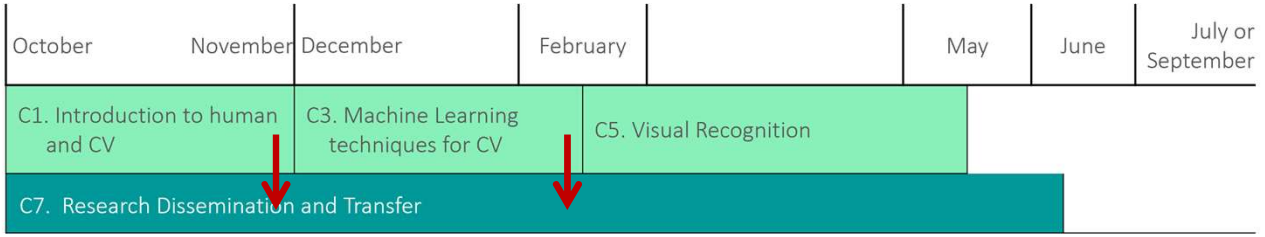
Methodology: Online Asynchronous.
Access to Materials and Agenda of Activities with Deliveries

FULL TIME option

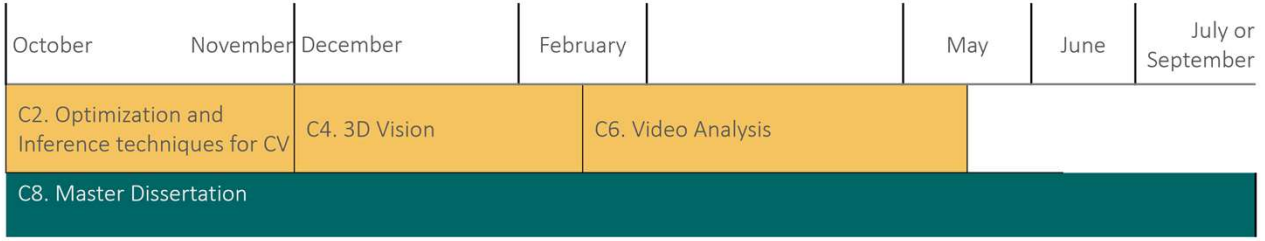


PART TIME option

1st YEAR:



2nd YEAR:



C8. Master Dissertation

	Courses	ECTS	Univ.
C1	Introduction to human and CV	6	UPC
C2	Optimization and Inference techniques for CV	6	UPF
C3	Machine Learning techniques for CV	6	UAB
C4	3D Vision	6	UPF
C5	Visual Recognition	9	UAB-UB
C6	Video Analysis	9	UPC-UB
C7	Research Dissemination and Transfer	9	UOC
C8	Master Dissertation	9	ALL
	Total:	60	

C8. Master Dissertation

January-March, **Project proposals are made available,** they can be seen at:

- *Academic: https://mcv.uab.cat/show_academic_proposals/*
- *Company: https://mcv.uab.cat/show_company_proposals/*

April, **Selection period is open**

Students should discuss with academic supervisors and companies and select a project.

End of April, **Project assignment**

Students take a decision

May-September (or July) - **Master project development**

Project carries 225 hours of work and should be completed between May and September.

Defence of the thesis (July or September)

Call 1: July 1st / Call2: September 1st

Step 1. Informing M9 coordinators about your intention of defending your MSc thesis

Step 2. Submitting your dissertation (pdf report)

Step 3. Oral presentation

Evaluation

	Courses	ECTS	Univ.
C1	Introduction to human and CV	6	UPC
C2	Optimization and Inference techniques for CV	6	UPF
C3	Machine Learning techniques for CV	6	UAB
C4	3D Vision	6	UPF
C5	Visual Recognition	9	UAB-UB
C6	Video Analysis	9	UPC-UB
C7	Research Dissemination and Transfer	9	UOC
C8	Master Dissertation	9	ALL
	Total:	60	

Evaluation C1-C6

The final marks for modules M1-M6 are computed with a formula, such as:

$$\text{Final Mark} = 0{,}4 \times \text{Exam} + 0{,}55 \times \text{Project} + 0{,}05 \times \text{Attendance}$$

Exam: is the mark obtained in the Module Exam (must be equal or greater than 3)

Attendance: is the mark derived from the control of attendance at lectures

(must be at least 70%)

Project: is the mark provided by the project coordinator based on the weekly control of the project through the project sessions and deliverables accordingly with specific criteria of the projects, such as:

- Participation in discussion sessions and in team work **(intra-group evaluations)**
- Mandatory and optional exercises
- Code development (style, comments, etc.)
- Report (justification of the decisions in your project development)
- Presentation (Talk and demonstrations on your project.

Special Exercises can allow you to get extra points ot increase the Exam Mark, but only if Exam Mark is greater than 3.

Evaluation

	Courses	ECTS	Univ.
C1	Introduction to human and CV	6	UPC
C2	Optimization and Inference techniques for CV	6	UPF
C3	Machine Learning techniques for CV	6	UAB
C4	3D Vision	6	UPF
C5	Visual Recognition	9	UAB-UB
C6	Video Analysis	9	UPC-UB
C7	Research Dissemination and Transfer	9	UOC
C8	Master Dissertation	9	ALL
	Total:	60	

Evaluation C7

The final Mark in this course will be computed by the following weighted formula on the whole evaluation activities:

Project Planification and Development (10%)

- Project Planning (3%)
- Data Analysis (3%)
- Ethics in Research: Debate (4%)

Writing Scientific texts in Latex (30%)

- Introduction to Latex: edition of basic text
- Advanced Latex: Standard text edition
- Writing scientific texts: simplifying a scientific document
- Writing Scientific Texts: introduction to computer vision (C1)
- Writing of Scientific Texts: machine learning techniques for computer vision (C3 or C4)
- Literature review and composition of the state-of-the-art

Oral presentation (30%)

- Oral Presentation: "Introduce yourself" (10%)
- Oral Presentation: "Machine learning for computer vision" (20%)

Research management and dissemination (30%)

- Publishing Research Results: quiz test (2%)
- Entrepreneurship (20%)
- Public Funding of Research Projects (6%)
- Intellectual property, patents, copyright and trademarks (2%)

Evaluation

	Courses	ECTS	Univ.
C1	Introduction to human and CV	6	UPC
C2	Optimization and Inference techniques for CV	6	UPF
C3	Machine Learning techniques for CV	6	UAB
C4	3D Vision	6	UPF
C5	Visual Recognition	9	UAB-UB
C6	Video Analysis	9	UPC-UB
C7	Research Dissemination and Transfer	9	UOC
C8	Master Dissertation	9	ALL
	Total:	60	

Evaluation C8

The final Mark of the dissertation is computed by the following weighted formula:

Final Mark = 0,25 x Supervisor Evaluation + 0,75 x Committee Evaluation

Supervisor Evaluation Criteria:

- Technical Competences
- Attitude
- Innovation and Research capabilities

Committee Evaluation Criteria:

- Written report
- Work carried out
- Oral presentation

Plagiarism and irregularities:

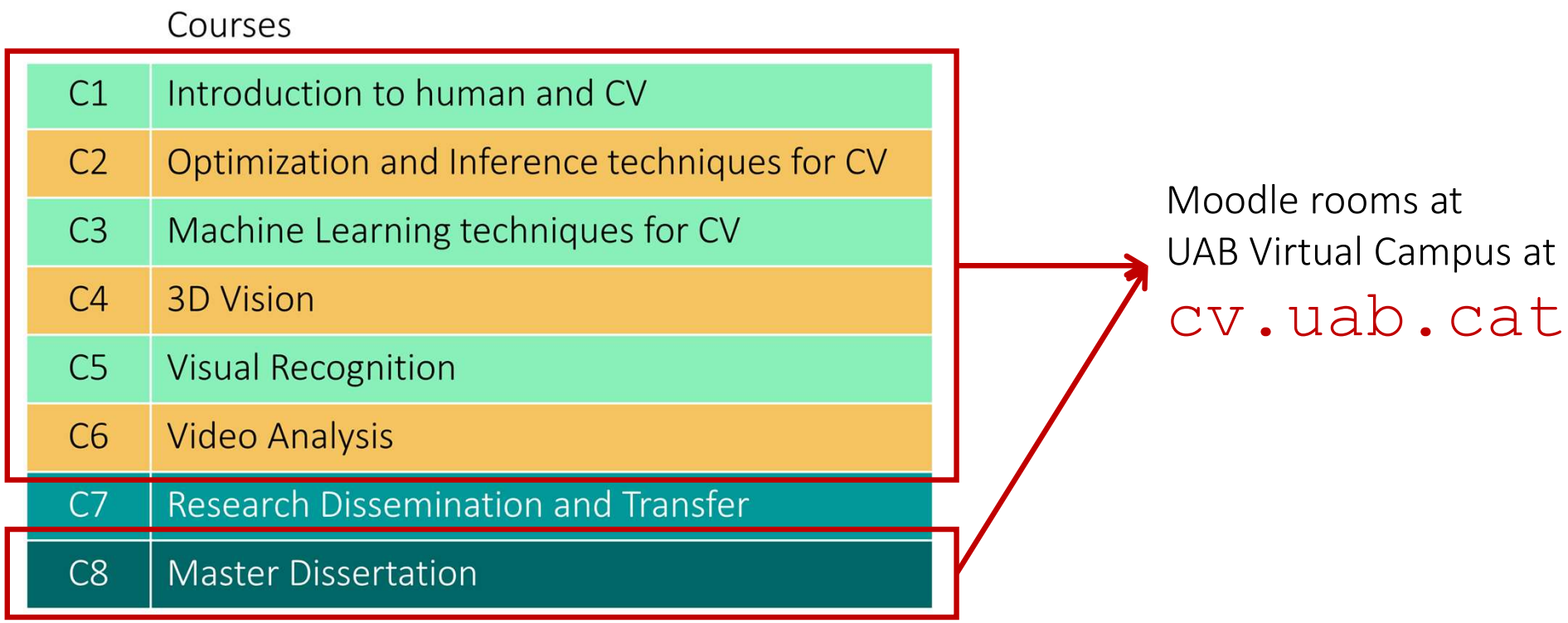
Notwithstanding other disciplinary measures deemed appropriate,
and in accordance with the academic regulations in force,
assessment activities will receive a zero whenever a student commits academic irregularities that may alter such assessment.

Assessment activities graded in this way and by this procedure **will not be re-assessable**.
If passing the assessment activity or activities in question is required to pass the subject, the awarding of a zero for disciplinary measures will also entail a direct fail for the subject, with no opportunity to re-assess this in the same academic year.

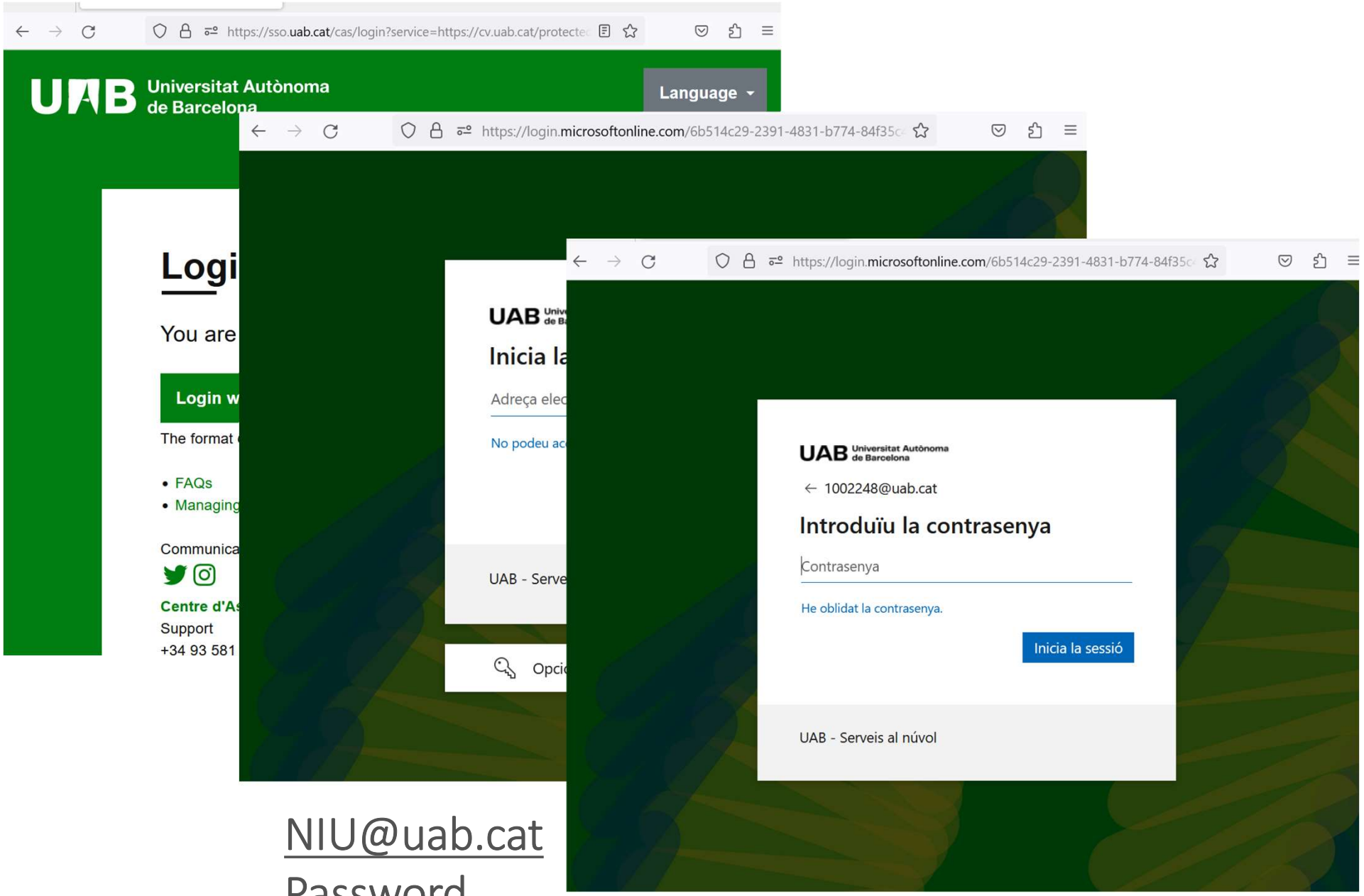
Irregularities contemplated in this procedure include, among others:

- the **total or partial copying** of a practical exercise, report, or any other evaluation activity,
- **allowing others to copy**,
- **unauthorized and/or non-cited use of AI tools** *(such as, Copilot, ChatGPT or equivalent)* to solve exercises or projects or any assessed activity,
- **presenting teamwork** that has **not been entirely done by the members of the team**,
- **presenting any materials prepared by a third party as one's own work**, even if these materials are translations or adaptations, including work that is not original or exclusively that of the student,
- **having communication devices** *(such as mobile phones, smart watches, etc.)* accessible during theoretical-practical assessment tests (individual exams).

Communication



cv.uab.cat



NIU@uab.cat
Password

Verification code

https://cv.uab.cat/protected/index.jsp?changeLocaleTo=en

UAB Universitat Autònoma de Barcelona

English 1002248

Campus Virtual UAB

Benvinguda al Campus Virtual

Canvi de curs acadèmic a Campus (2023-2024)

Ja teniu disponibles les vostres aules del curs **2023-24** al tauler del Campus Virtual. Podreu continuar accedint-hi a les dels cursos 2021-22 i 2022-23 des del menú **Cursos**.

NIUs no personals

Com a conseqüència de la política de la UAB en relació a l'accés dels NIUs no personals a diferents serveis, a partir de setembre aquests NIUs també deixaran de tenir accés al Campus Virtual. Fins al dia del canvi hi podran accedir, però no en podran gestionar les aules.

És per aquest motiu que us recomanem que, si és el cas, us assegureu que la vostra aula té un o més NIUs personals assignats, per tindre-hi accés a partir del setembre.

Your subjects

Preferences

- Messaging (moodle)
- C1. Introduction to Human and Computer Vision [MO64870] (23-24)
- C2. Optimisation techniques for Computer Vision [MO65058] (23-24)
- GEI - Coordinació professorat [MO60966] (23-24)

Latest news

On Campus

App UAB, the University in your pocket

Welcome sessions for international students

Registration for artistic workshops begins on 18 September

Come to know your library!

At Escola d'Enginyeria

Utilities

- Moodle classroom management
- Moodle: Help for teachers
- Virtual Campus in figures

Courses

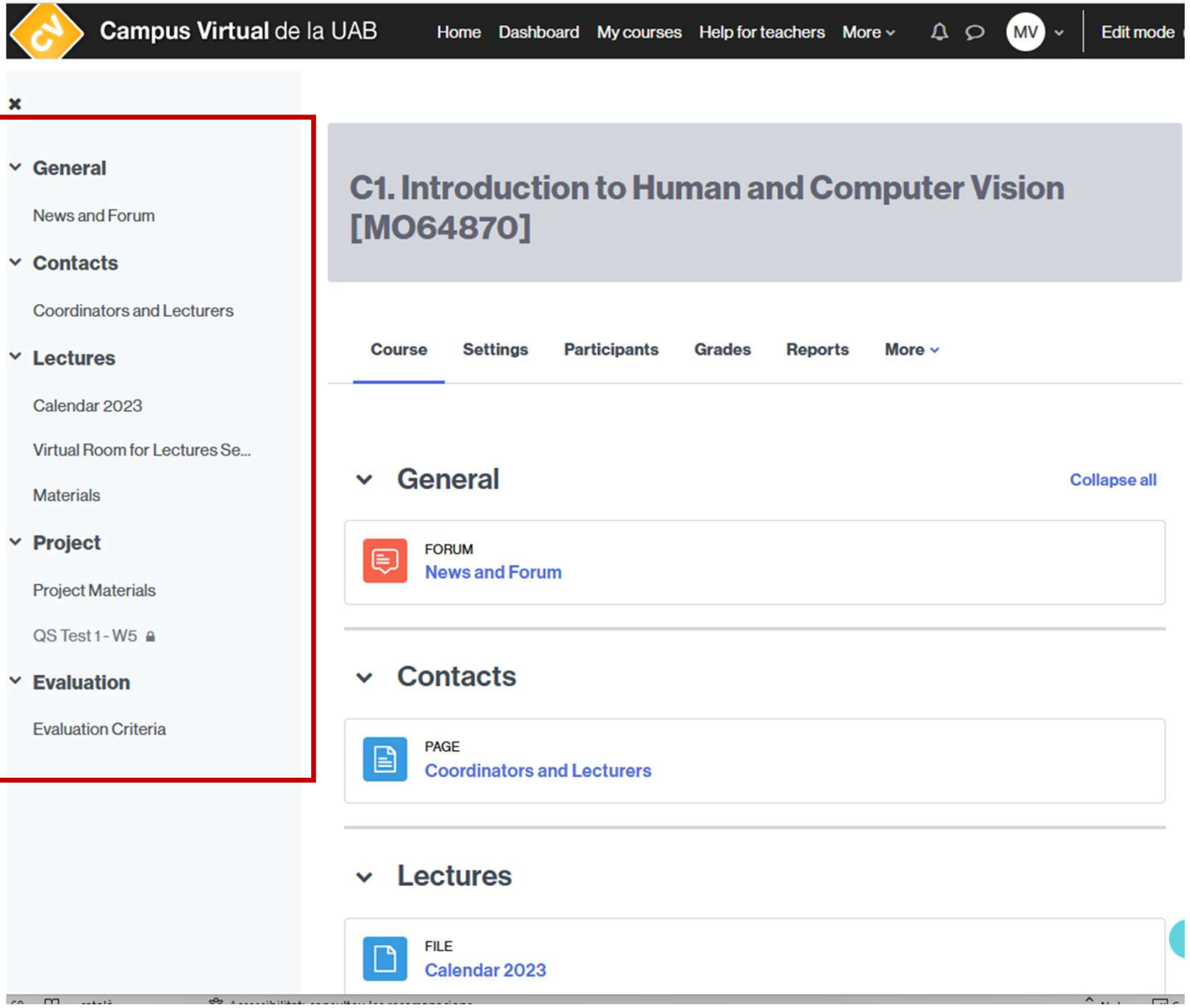
Current course

Previous academic year (22-23)

Previous academic year (21-22)

Shortcuts

Email | Surveys | Academic year calendar


Campus Virtual de la UAB
Home
Dashboard
My courses
Help for teachers
More
MV
Edit mode
General
News and Forum
Contacts
Coordinators and Lectures
Lectures
Calendar 2023
Virtual Room for Lectures Se...
Materials
Project
Project Materials
QS Test 1 - W5
Evaluation
Evaluation Criteria
C1. Introduction to Human and Computer Vision [MO64870]
Course
Settings
Participants
Grades
Reports
More
General
Collapse all
FORUM
News and Forum
Contacts
PAGE
Coordinators and Lecturers
Lectures
FILE
Calendar 2023

IMPORTANT

About UAB e-mail address

You can access your account at: correu.uab.cat

with the UAB NIU and password

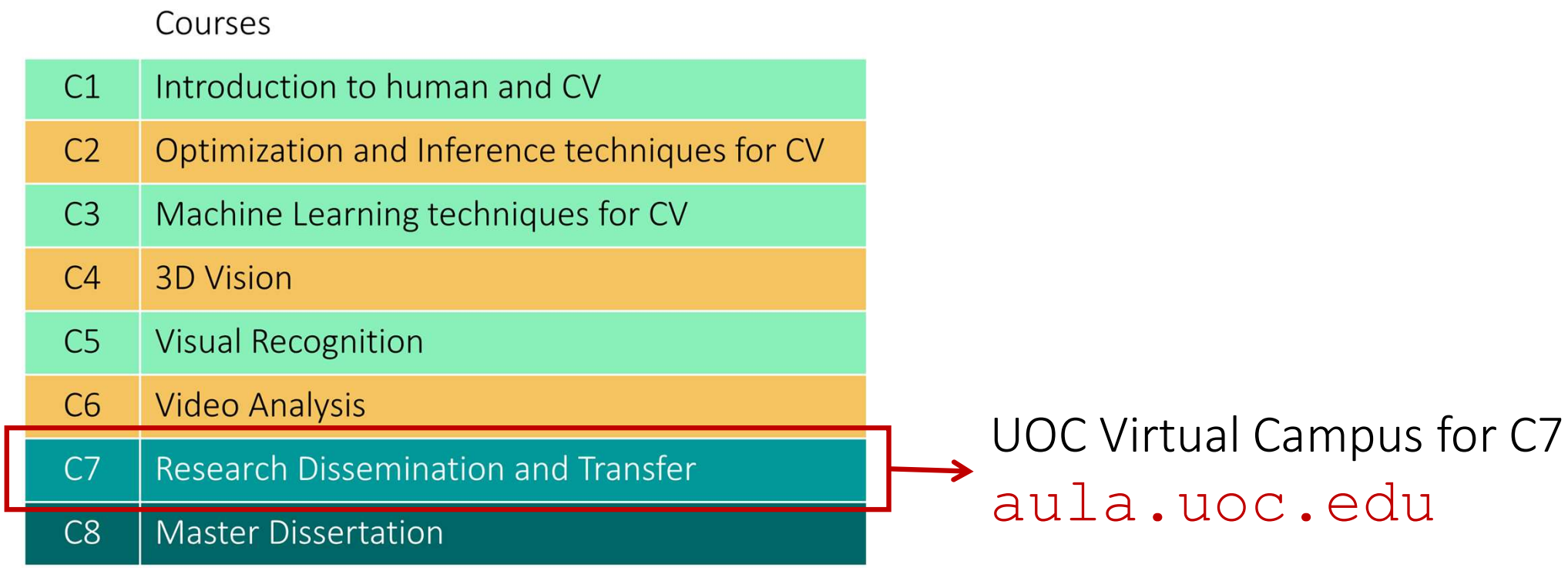
Once logged in, you should

- At the top of the page, select **Settings** > **View all Outlook settings**.
- Select **Mail** > **Forwarding**.
- Select **Enable forwarding**, enter the forwarding email address

If you have technical problems with your account or

Campus Virtual you can contact to cas@uab.cat

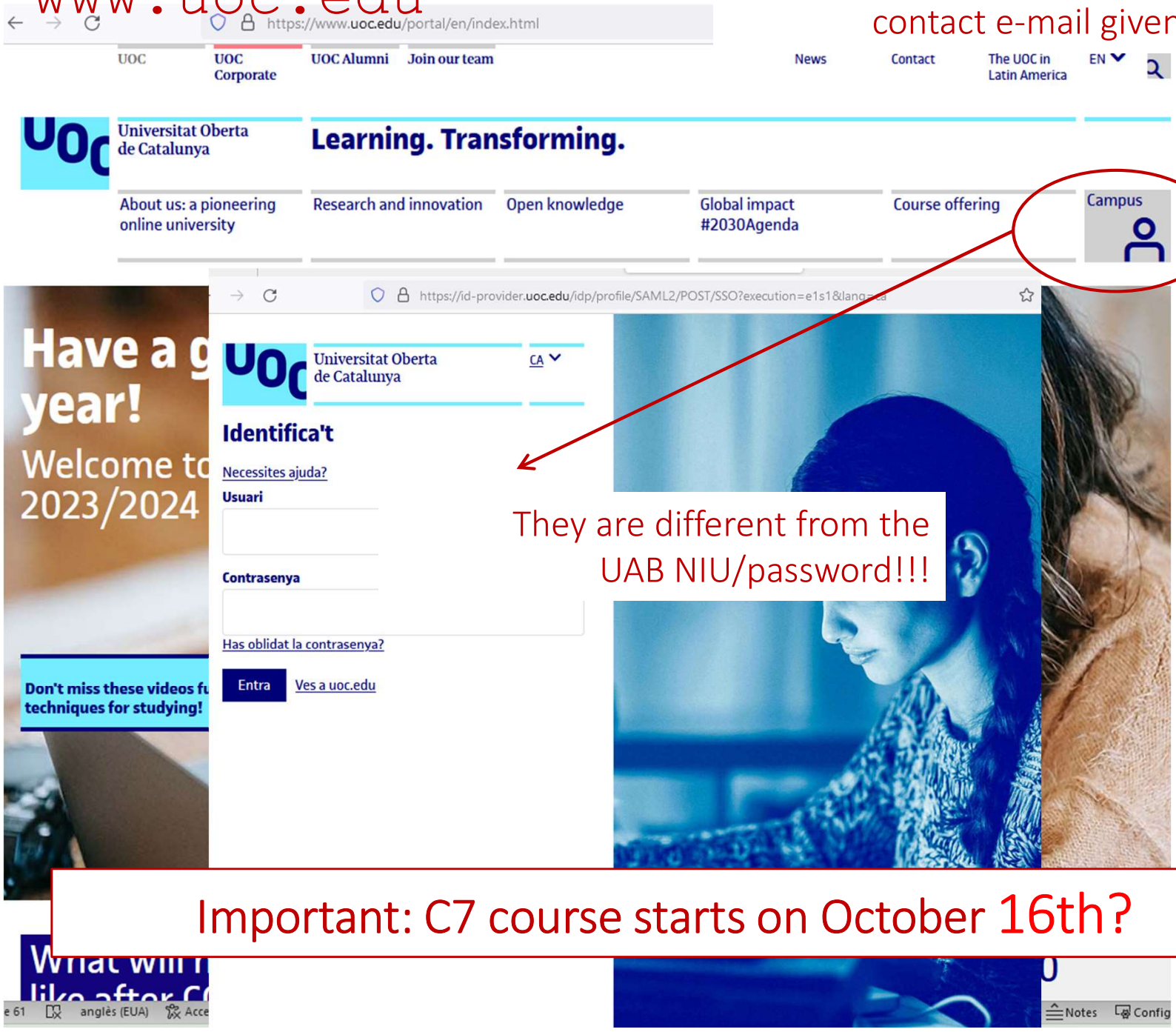
Communication



UOC Virtual Campus for C7

www.uoc.edu

You Will receive your login information from UOC at your contact e-mail given to UAB



They are different from the UAB NIU/password!!!

Important: C7 course starts on October 16th?

Welcome session

1. aim of the master
2. about computer vision
3. about the master
4. about the partners
    - UAB-CVC
    - UOC
    - UPC
    - UPF
    - UB
5. about the students

UAB / CVC

UAB

Created in 1968

University campus with 263ha with all necessary services for living

International Ranquings

THE WORLD UNIVERSITY RANKINGS — **170 (2)**

ACADEMIC RANKING OF WORLD UNIVERSITIES SINCE 2003 — **201-300 (2)**

QS WORLD UNIVERSITY RANKINGS — **178 (1)**

UI GreenMetric — **44 (1)**

RANKING CYD — **(1)**

Rank	Scientific fields and subjects
1-50	Geography (34), Veterinary Sciences (5)
51-75	Agricultural Sciences
76-100	Biotechnology, Ecology, Economics
101-150	Atmospherical Sciences, Instrumental Sciences and Technology, Mathematics, Materials Science, Nanoscience and Nanotechnology, Oceanography, Physics,
151-200	Biological Sciences, Chemistry, Energy Science and Engineering, Environment Science and Engineering, Hospitality and Tourism Management, Human Biological Sciences, Medical Technology, Nursing, Pharmacy, Political Science, Public Administration, Sociology
201-300	Biomedical Engineering, Clinical Medicine, Earth Sciences, Education, Food Science and Technology, Psychology, Telecomunications Engineering

Degrees

112 Bachelor's degrees
140 Official Master's degrees
129 Master's Degrees
293 Lifelong learning programmes

56 MOOC offered at Coursera
221,562 MOOC students
89% Bachelor's degree performance rate
93% Employment rate

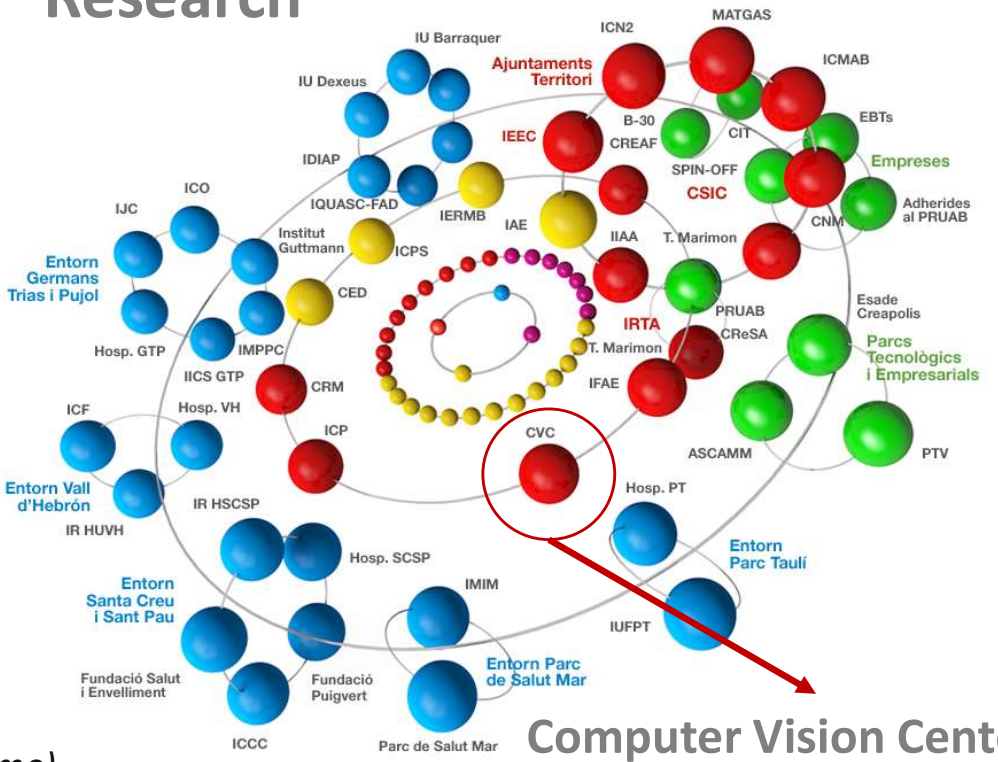
Students

27,203 Undergraduate students *(25,537 full-time)*
2,987 Official Master's students
2,046 UAB master's degree students
3,789 Lifelong learning programmes students

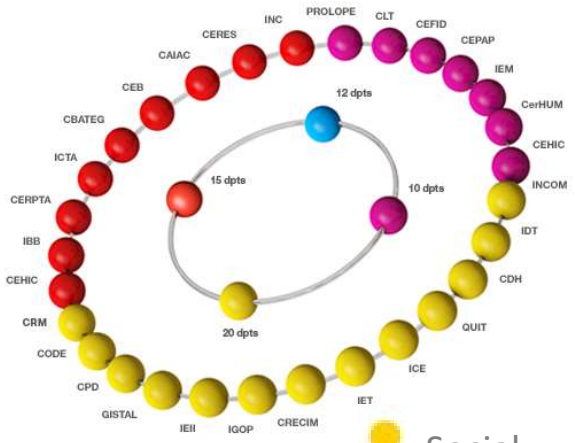
Staff

57 Departments → **Computer Science Department**
15 Centers → **Engineering School**
4,020 Teaching and Research Staff

Research



Computer Vision Center



- Social
- Humanities
- Science (Tech & Exp)
- Health
- Others

Computer Vision Center, since 1995

26 YEARS

+130 STAFF

2,8 M €/YEAR INCOME

+50 PUBLICATIONS/YEAR

+50 ONGOING PHD THESIS

Computer Vision Center 1995-2020

Generalitat de Catalunya

Universitat Autònoma de Barcelona

TECH TRANSFER

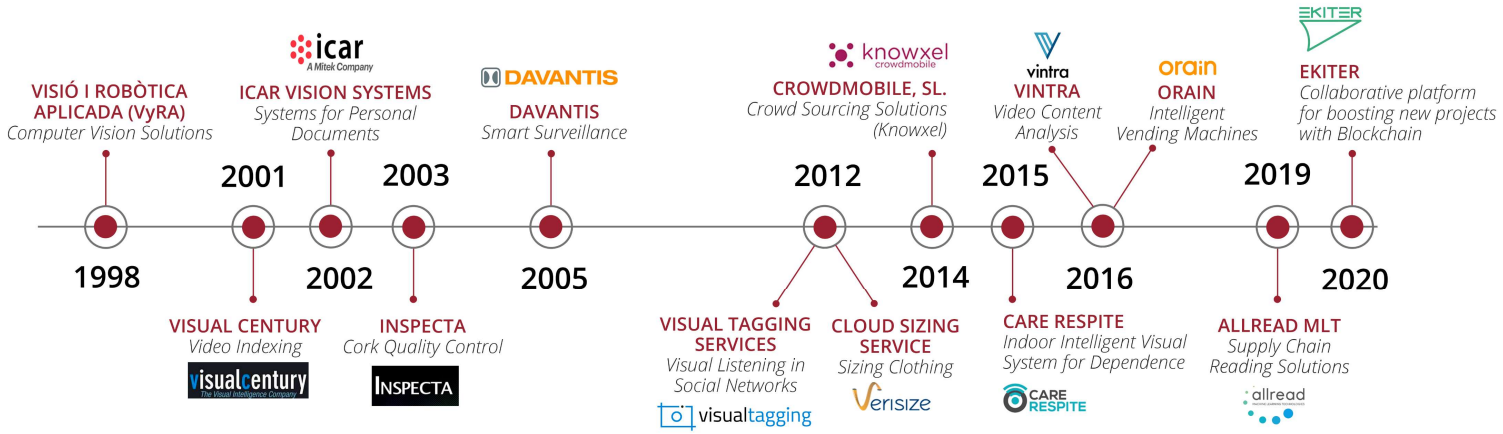
40 **active projects** with a total budget of 2.342.200 €

18 **new projects** with a total budget of 1.188.372 €

2 **Transferred Licenses**

+150 **companies** among our customers and contacts

CVC SPIN-OFFS



Research Lines

Health and well-being

Computer assisted diagnosis, intervention and planning;
Augmented modelling;
Well-being and ambient assisted living.

Mobility and transport

Advanced driving systems and autonomous driving;
Virtual worlds for ADAS;
Unmanned Aerial Vehicles.

Culture & Experience-based technologies

Cultural heritage (AR/VR)
Reading Systems – Document analysis
Surveillance

Industry 4.0

Quality control
AR/VR technologies for industry 4.0
Robotic Vision

UOC

Universitat Oberta de Catalunya

The world's first online university

"We wanted to break down the barriers of space and time"

Gabriel Ferraté, the UOC's founding president

The idea behind founding the UOC back in 1995 was not to create a distance university, but to take advantage of the incipient World Wide Web to create the first-ever *distanceless* university

Our story

1994/1995

6 October 1994
Creation of the Fundació per a la Universitat Oberta de Catalunya.

6 April 1995
The Catalan Parliament unanimously approves a law to officially recognize the UOC.

26 May 1995
Appointment of our first president, **Gabriel Ferraté.**

1995/1996

31 October 1995
Our first academic year starts with 206 students and two programmes:
· Business Studies
· Educational Psychology
27 courses
36 online classrooms

1996/1997

First online university entrance course for over-25s.

1997/1998

Our first four postgraduate courses are launched:
· Teacher Training
· How to Create a Marketing Plan
· Accounting and Finance for Non-Accountants
· Total Quality Management of Services

1998/1999

The first two UOC-**certified master's degrees** are launched –
· Occupational Health, Safety and Conditions
· Financial Instruments and Markets

The **first graduation ceremony** is held in Manresa.

1999/2000

The Internet **Interdisciplinary Institute (IN3)** research centre was born.

The **international doctoral programme** in the Information and Knowledge Society is launched.

Programmes in Spanish are offered for the first time thanks to a five-year partnership with Grupo Planeta.

21,374 students

2000/2001

New centre in Madrid.
1,000 online classrooms

2001/2002

Manuel Castells starts the 2001/2002 academic year with a lecture on "Internet and freedom".

Launch of **Project Internet Catalonia,** which finished in 2005: a large-scale interdisciplinary research programme that studied Catalonia's transition to an information society.

2002/2003

Creation of the digital journal ***Artnodes***, which explores the intersections between art, science and technology.

Creation of the UNESCO E-learning Chair.

Josep Laporte receives the UOC's first honorary doctorate for his contribution to the creation of the university.

2003/2004

The UOC opens its first international office in **Mexico City.**

33,573 students

2004/2005

Creation of the ***International Journal of Educational Technology in Higher Education*** (ETHE), initially titled the ***Revista de Universidad y Sociedad del Conocimiento*** (Journal of the University and Knowledge Society – RUSC), which gradually climbs to the top of the main teaching and technology indexes.

2005/2006

13 December 2005
Appointment of **Imma Tubella** as President.

The UOC receives the Technological Innovation and Quality Award from the Centre for Innovation and Business Development (CIDEM).

2006/2007

The Catalan University Quality Assurance Agency (AQU Catalunya) gives a favourable assessment to UOC programmes through its Virtual programme – the first accreditation of official online programmes.

2007/2008

Creation of **UOC Alumni,** which takes over from the Graduates and Former Students Club formed in 2001.

54,378 students

16,366 graduates

2008/2009

10 October 2008
Award of an honorary doctorate to Sir Timothy Berners-Lee for his contribution in developing information and communication technologies, and in particular for having invented the World Wide Web in 1990.

Creation of the **eLearn Center (eLC).**
500 courses with a mobile responsive design

2009/2010

During the 2009/2010 academic year the UOC celebrates its **15th anniversary.** It reaches the figure of 56,000 students and more than 20,000 graduates.

Creation of the Centre for Modern Languages.

Creation of 02, the UOC's open-access institutional repository of publications.

2010/2011

The UOC hosts the first International Seminar on Higher Education Rankings and E-learning.

2011/2012

The Virtual Campus and the UOC Library catalogue are made accessible to mobile devices.

The open access policy is approved and all scientific and teaching output is made freely available to the community.

2012/2013

3 April 2013
Appointment as president of **Josep A. Planell.**
over 4,000 courses

2013/2014

The new 2014-2020 Strategic Plan focuses on excellence in research, enhancing employability, strengthening the University's global profile and collaborative governance.

49,671 students

44,367 graduates

2014/2015

Creation of **Hubbik,** a platform for nurturing entrepreneurship, open innovation and knowledge transfer.

Creation of the **Doctoral School.**

2015/2016

6 October 2015
Creation of **UOC Corporate,** which offers innovative learning solutions for companies.

2016/2017

UOC X takes over from Ensenyament Obert and EducaciOnline to offer advance-level training beyond university.

Launch of the **eHealth Center (eHC).**
over 7,000 online classrooms

2017/2018

New international office in **Bogotá,** Colombia.

The UOC adheres to the United Nations **2030 Agenda** for Sustainable Development.

2018/2019

24 October 2019
Mary Beard is awarded an honorary doctorate for her academic and scientific achievements and her commitment to defending women's rights.

The academic year is affected by COVID-19. For the first time, **all final assessment tests are held online.**

over 77,500 students
over 85,700 graduates

2019/2020

The acquisition of two buildings in the Can Jaumandreu complex in Poblenou moves the UOC's nerve centre to the 22@ district, Barcelona's digital hub.

The UOC becomes a **WHO collaborating centre** for e-health.

over 300 faculty members
over 4,700 course instructors

Evolutions in technology

* In 1990 Tim Berners-Lee invents the World Wide Web.

94-95
Sony launches the first PlayStation.
Creation of Cadabra.com, an online bookstore that will later become Amazon!

95-96
The first internet auctions appear on the eBay website, and Microsoft launches the Internet Explorer browser.

96-97
A company starts sending DVDs by post... under the name of Netflix.

97-98
Computers go pocket-sized thanks to the first Palm Pilots.

98-99
The most important search engine ever is created: Google.

99-00
For the first time, UOC students receive their exam results by SMS!
More than 50 million users are hit by ILoveYou – the first mass-mailing worm.

00-01
The dot-com bubble bursts due to excessive speculation around the first digital start-ups.

01-02
The UOC's Wi-Fi network is rolled out.

02-03
New tools and social media appear such as LinkedIn, Skype, Safari, Second Life, WordPress and iTunes Store.

03-04
Facebook, Gmail and Flickr get up and running.
The BlackBerry Quark is released onto the market.

04-05
The home video revolution kicks off with the birth of YouTube!

05-06
140 characters never said so much – people get tweeting on Twitter.
Wikipedia reaches more than one million articles.

06-07
The first iPhone hits the market, as well as Dropbox!

07-08
Airbnb is created, shaking up the traditional tourism model.

08-09
A new music streaming service hits the scene – Spotify!
Mobile internet use becomes mainstream.

09-10
WhatsApp changes the way we communicate via mobile.
Instagram is also born.

10-11
WikiLeaks appears on the scene.

11-12
Clouds take on a new dimension with the appearance of iCloud. This is also the year Snapchat, Siri and Pinterest appear.

12-13
The dating platform Tinder is launched, 4G is born and *Gangnam Style* clocks up more than a billion views.

13-14

14-15
Google Glass is released, opening the door to augmented reality.

15-16

16-17
The social media network TikTok and the video game Fortnite take the world by storm.

17-18
5G – the new generation of mobile connectivity.

18-19

19-20

1,766,926,408
863,105,652

Students
Graduates
Pages on the web

Universitat Oberta de Catalunya

Leaders in quality e-learning

The UOC has students in 141 countries

> 51,400 in Catalonia

> 28,500 in Spain (excluding Catalonia)

> 6,600 in the rest of the world

Student data for 2020/2021. These figures do not include UOC Corporate students.

They come from **many** places and social backgrounds.

They are between **25** and **40 years old**, and more than **57%** are women.

They study, **work** and have **family obligations**.

They have previous training and **professional experience**: almost **67% work** in the private sector and **61%** are studying to **increase their knowledge**.

They have **little time** and **balance their studies with their work**.

1,944
students have a certified disability of 33% or more

95,000
graduates

6,500
course instructors and tutors

15,500
virtual classrooms

87,500
students

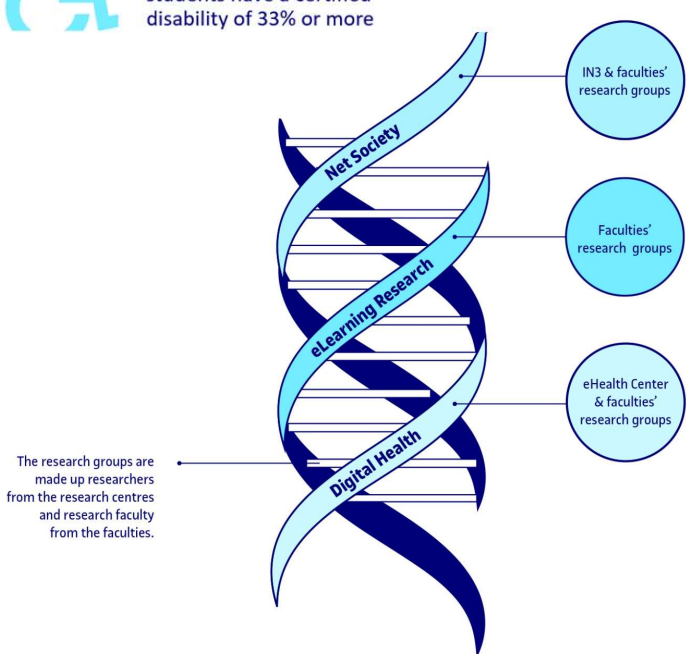
800
programmes taught

***Times Higher Education* World University Rankings**

Global
Top 175
among young universities

Ibero-America
1st
online university

Spain
4th
university created less than 50 years ago



The research groups are made up researchers from the research centres and research faculty from the faculties.

Research centres

Internet Interdisciplinary Institute (IN3)
The institute specializes in the **internet and technology's effects on human behaviour**

eHealth Center (eHC)
The centre conducts research into digital health to bring about a **paradigm shift in health** and transform the system

eLearning Innovation Center (eLinC)
The centre **innovates in learning** to bring our educational model to the next level

Doctoral School
It organizes and coordinates doctoral courses and acts as a frame of reference for the various **doctoral programmes** offered by the University

Social sciences

Arts and humanities

Information and knowledge society

Health sciences

Information and communication technologies

E-learning

Universitat Oberta de Catalunya

AIWELL Lab – Artifial Intelligence for Human Well-being Lab

https://aiwell.uoc.edu

Our mission

Advancing AI research and creating trustworthy AI technologies to promote and improve the human well-being

Computer Vision

Natural Language Processing

Explanaible Artificial Intelligence

Fairness in Artificial Intelligence

PDI:


Agata Lapedriza


Carles Ventura


David Masip


David Merino


Ismael Benito


Agnès Pérez


Joan M. Nunez


Xavi Baró

PhD Candidates:
Marcelo Teran, Mona Ashtari, Mujeeb Ur, Rubén González, Cristina Bustos, Josep López, Elena Ortega and Josep Cabacas.

Master Students:
Cristian Gutierrez, Rubés Ostos and Andres Santos.

UPC

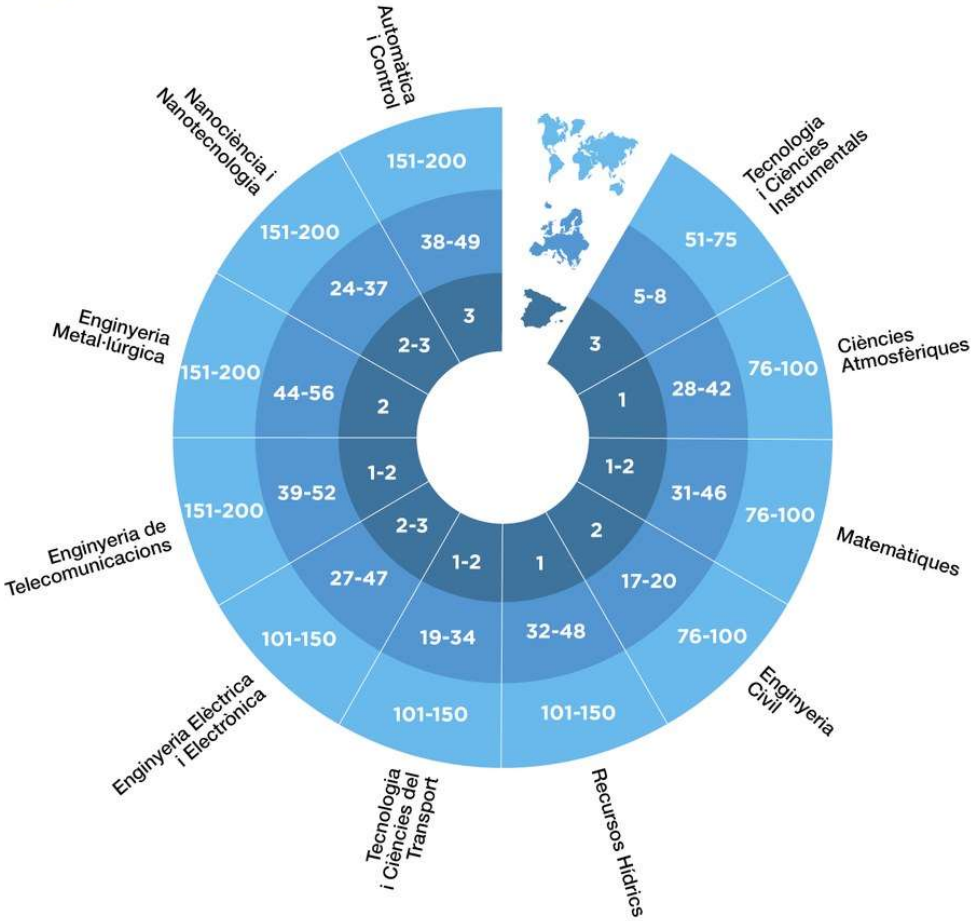
UNIVERSITAT POLITÈCNICA DE CATALUNYA BARCELONATECH

Campus d'Excel·lència Internacional

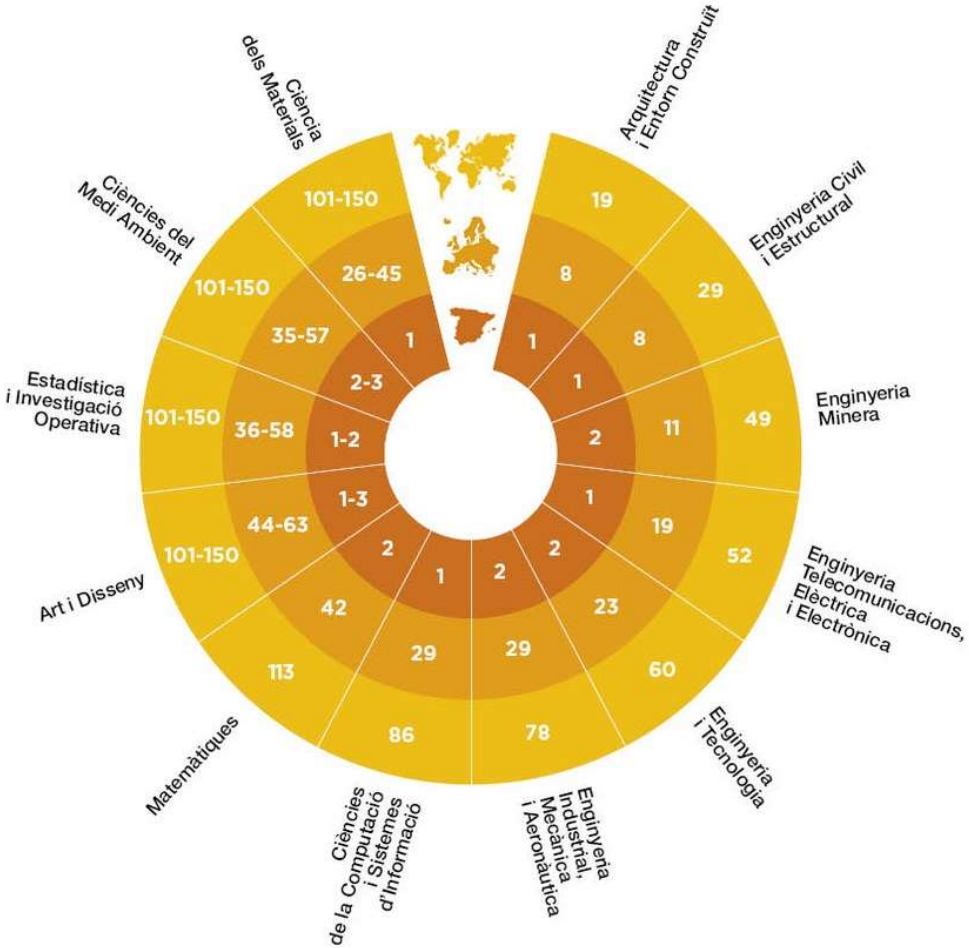
Universitat Politècnica de Catalunya BarcelonaTech

La **UPC** és una institució **pública** de **recerca** i d'**educació superior** en els àmbits de l'**enginyeria**, l'**arquitectura**, les **ciències** i la **tecnologia**, i és una de les universitats politècniques líders d'Europa.

Shanghai Global Ranking of Academic Subjects, 2022



QS World University Rankings by Subject, 2022



UNIVERSITAT POLITÈCNICA DE CATALUNYA BARCELONATECH

Campus d'Excel·lència Internacional

Universitat Politècnica de Catalunya BarcelonaTech

La UPC és una universitat amb una extensa implantació en el territori, amb **9 campus** distribuïts en **7 ciutats** de **Catalunya**: Barcelona, Castelldefels, Manresa, Sant Adrià de Besòs, Sant Cugat del Vallès, Terrassa i Vilanova i la Geltrú.

29.812 estudiants	3.523 PDI	2.074 PAS	65 graus	84 màsters	45 programes de doctorat
18 centres docents	275 programes de formació permanent	19 patents el darrer any	317 M pressupost 2022	72,7 M ingressos per R+D+I (2021)	70.151 Alumni

UNIVERSITAT POLITÈCNICA DE CATALUNYA BARCELONATECH

Campus d'Excel·lència Internacional

GPI – Image Processing Group
Signal Theory and Communications Department

GPI – Image Processing Group

Signal theory and communications Department

- 10 faculty members
- 25 PhD and master students
- https://imatge.upc.edu
- Consolidated Research Group since 1999
- GPI is part of IDEAI

IDEAI - Intelligent Data Science and Artificial Intelligence

- UPC Research Center
- 60 researchers / 150 Phd and Master students
- https://ideai.upc.edu

GPI Experience:

- >30 years in image processing and computer vision
- Pioneered adoption of Deep Learning (DL) since 2015
  - Introduced DL in master and bachelor programs
- Long experience in European and national projects

GPI Current research lines:

- Medical imaging applications (neuroimaging, histopathology, dermoscopic,…)
- CV solutions for micro mobility vehicles
- CV for agri-food industry
- Image processing for plasma facing components protection
- Remote sensing applications (super-resolution, semantic segmentation,…)
- Human computer interfaces
- Audio-visual production, archives, search and retrieval

UPF

UPF An urban **public** university in the heart of Barcelona

3 spheres campus

Ciutadella campus:
Social Sciences and Humanities
(+*Inf. Tech.:*
Centre for Brain
& Cognition - CBC)

Mar campus:
Health and Life Sciences

Poblenou campus:
Communication, Translation and
Engineering

upf. UPF in the rankings

1st. Spanish, 69th. European
156th. Worldwide (2022)
15th. Worldwide Young University (<50Y)

1st. Spanish in **Engineering** studies
82nd. European in **Engineering** studies
240th. Worldwide in **Engineering** studies

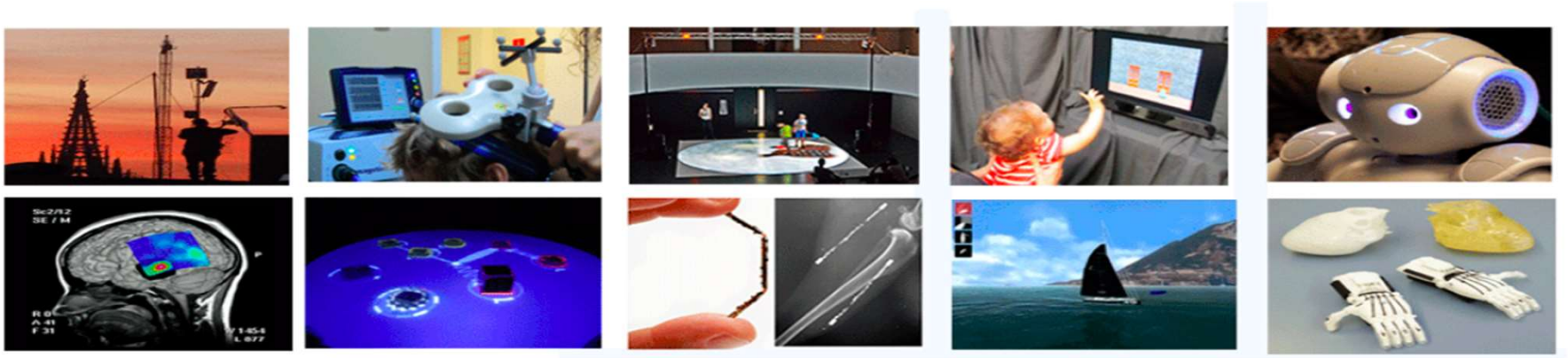
5th. Worldwide in sector of gender & equality

4th. European

1st. Of two **Spanish** ICT Department granted with research excellence seal **Maria de Maeztu** by the Spanish Ministry

3rd. Spanish university in terms of absolute H2020 funding [source: Horizon dashboard]
21 cumulative ERC grants @DTIC up to date

School of Engineering
Department of Engineering
(previously, of Information and Communication Technologies DTIC)



1.020
Under-graduate students

138
Master students

180
PhD students

46
Faculty members

86
Tenure Track / PostDocs

95 + 68
Research Support + part-time teaching

Total
1.630
Community members

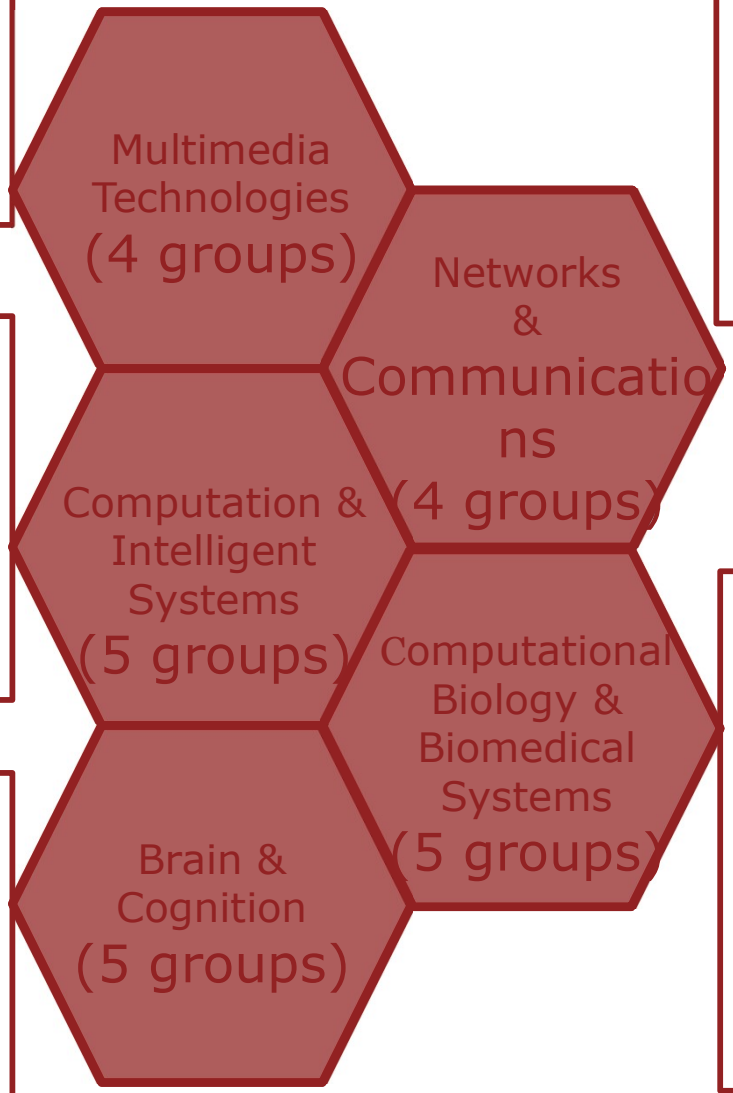
46 Faculty members: **16** Full Professors
+ **20** Associate Professors
+ **10** ICREA Research Professors
(Catalan Institution for Research and Advanced Studies)

23 Research Groups: 5 Research Areas

- Image Processing
- Computer Vision
- Sound & Music computing
- 3D Graphics, AR
- HCI, Educational Technologies

- Foundations of Computer Science
- Artificial intelligence (planning, natural language processing, CV, ML, robotics…)
- Ubiquitous computing
- Web science & social computing

- Computational Neuroscience
- Speech acquisition & perception; Language cognition
- Theoretical & Cognitive neuroscience
- Multisensory;
- Infant Reasoning, Cognition



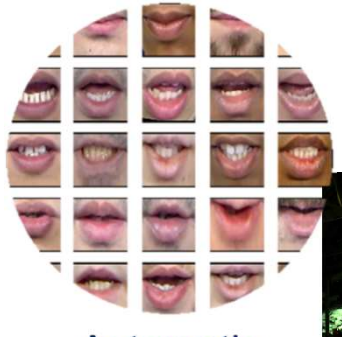
- Wireless Networks
- Information Theory and Coding
- Cybersecurity
- Network Technologies policy aspects and Strategies
- Internet of Things

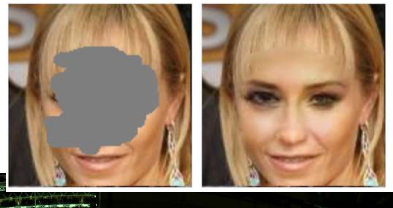
- Medical Imaging & modelling of biomedical systems
- Analysis of biomedical data
- Instrumentation & biomedical electronics
- Computational simulation & biomechanics
- Nonlinear signal analysis in biological systems

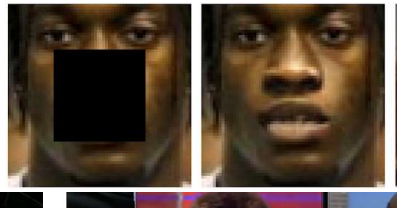
Research at Intelligent Multimodal Vision Analysis (IMVA) group

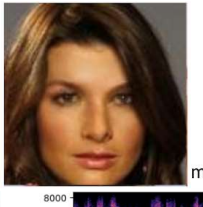
PIs: Coloma Ballester, Gloria Haro, Federico Sukno

Our overall goal is to investigate the automatic analysis and understanding of visual content and to address real-world problems and applications, often involving also modalities beyond vision, such as audio, natural language, ultrasound or magnetic resonance. We develop model-based and data-driven (deep learning) approaches, algorithms and innovative digital technologies, together with their theoretical analysis. The applications include: accessibility of people with visual, hearing or reading impairment to multimedia content and may contribute to the development of more accessible devices; the analysis of the human face both in terms of its morphology and its dynamics (e.g. expressions and emotions) with enormous potential for disciplines such as psychology, linguistics, neuroscience, health or developmental biology; the separation of the different audio sources that make up the audio mixture of a particular video; the understanding and the exploitation of the correlations and complementations among different modalities; etc

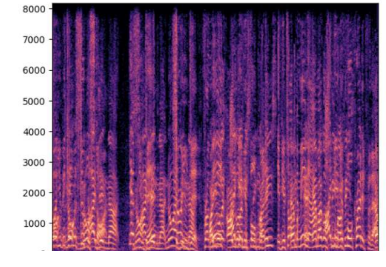








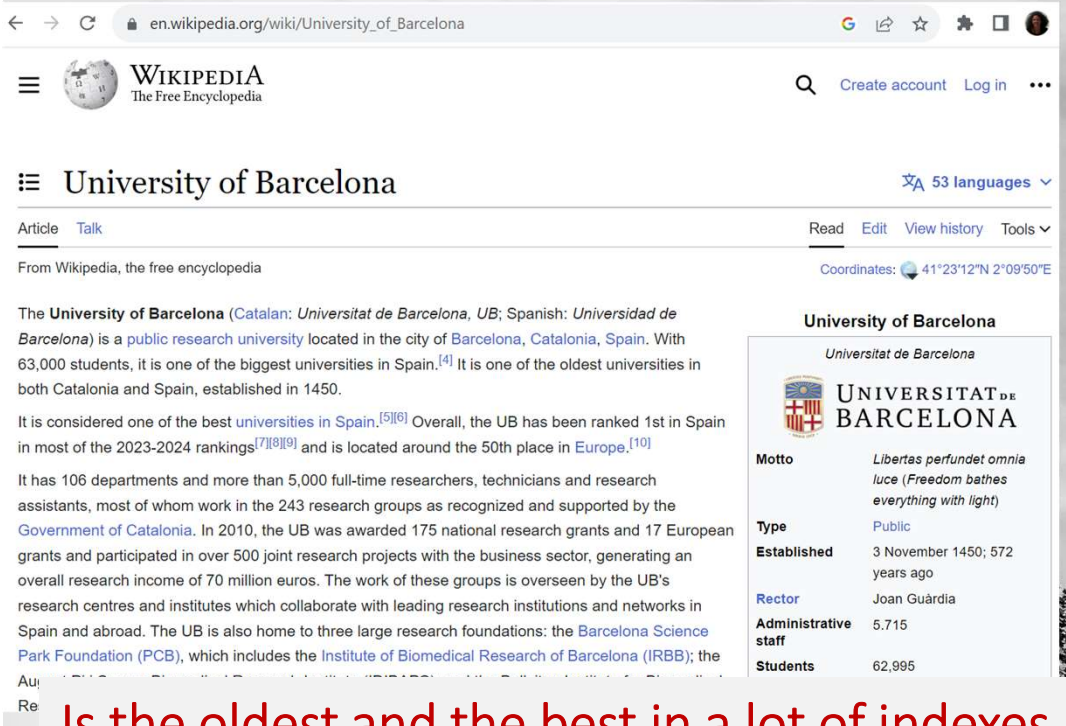
m of the Voice Mixture



UB

UNIVERSITAT DE BARCELONA

DEPARTAMENT DE MATEMÀTIQUES i INFORMÀTICA


en.wikipedia.org/wiki/University_of_Barcelona

WIKIPEDIA
The Free Encyclopedia

Create account Log in

University of Barcelona

53 languages

Article Talk Read Edit View history Tools

From Wikipedia, the free encyclopedia

Coordinates: 41°23′12″N 2°09′50″E

The **University of Barcelona** (Catalan: *Universitat de Barcelona, UB*; Spanish: *Universidad de Barcelona*) is a public research university located in the city of Barcelona, Catalonia, Spain. With 63,000 students, it is one of the biggest universities in Spain.[4] It is one of the oldest universities in both Catalonia and Spain, established in 1450.

It is considered one of the best universities in Spain.[5][6] Overall, the UB has been ranked 1st in Spain in most of the 2023-2024 rankings[7][8][9] and is located around the 50th place in Europe.[10]

It has 106 departments and more than 5,000 full-time researchers, technicians and research assistants, most of whom work in the 243 research groups as recognized and supported by the Government of Catalonia. In 2010, the UB was awarded 175 national research grants and 17 European grants and participated in over 500 joint research projects with the business sector, generating an overall research income of 70 million euros. The work of these groups is overseen by the UB's research centres and institutes which collaborate with leading research institutions and networks in Spain and abroad. The UB is also home to three large research foundations: the Barcelona Science Park Foundation (PCB), which includes the Institute of Biomedical Research of Barcelona (IRBB); the

University of Barcelona

Universitat de Barcelona

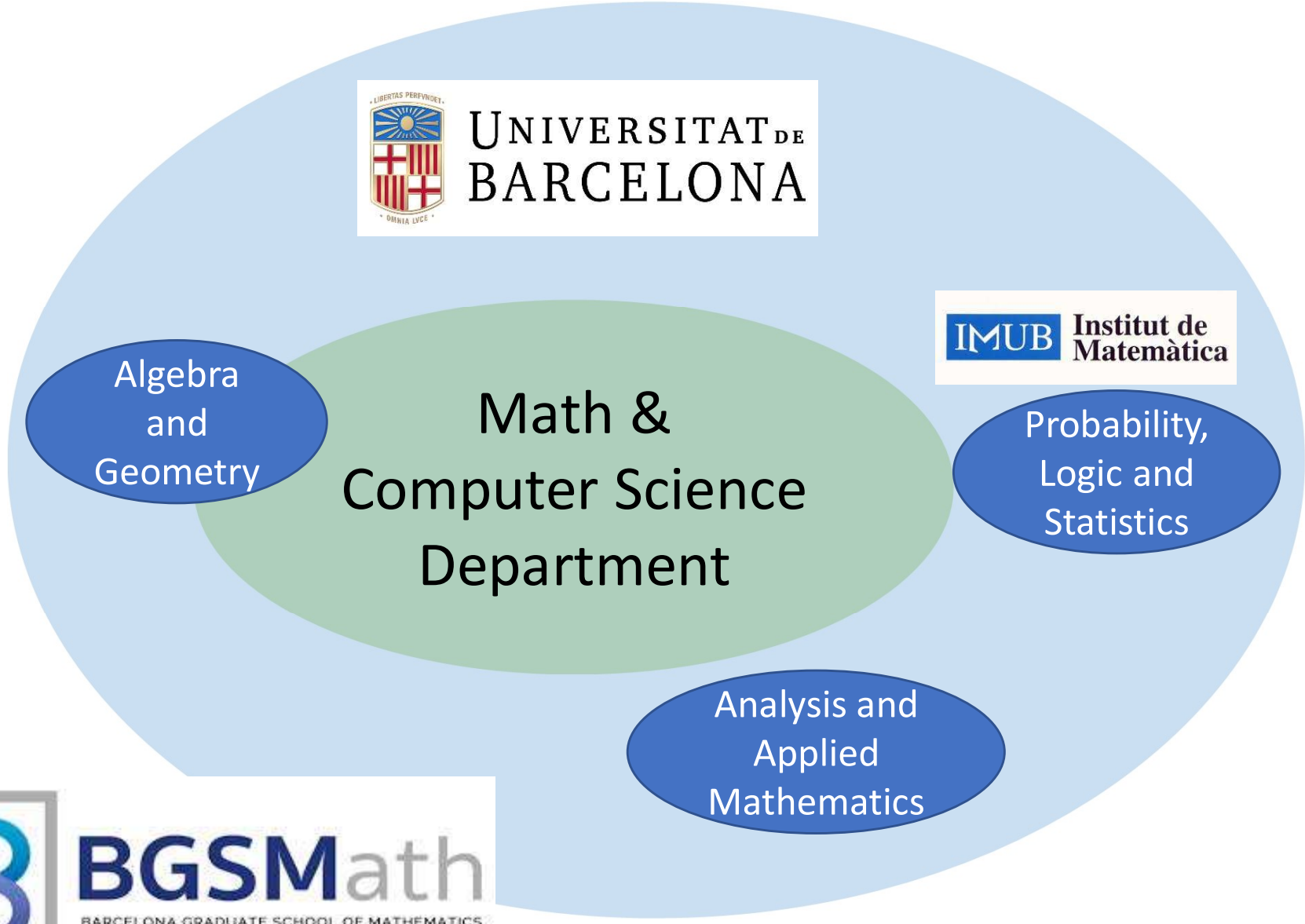
UNIVERSITAT DE BARCELONA

Motto	*Libertas perfundet omnia luce* (*Freedom bathes everything with light*)
Type	Public
Established	3 November 1450; 572 years ago
Rector	Joan Guàrdia
Administrative staff	5,715
Students	62,995

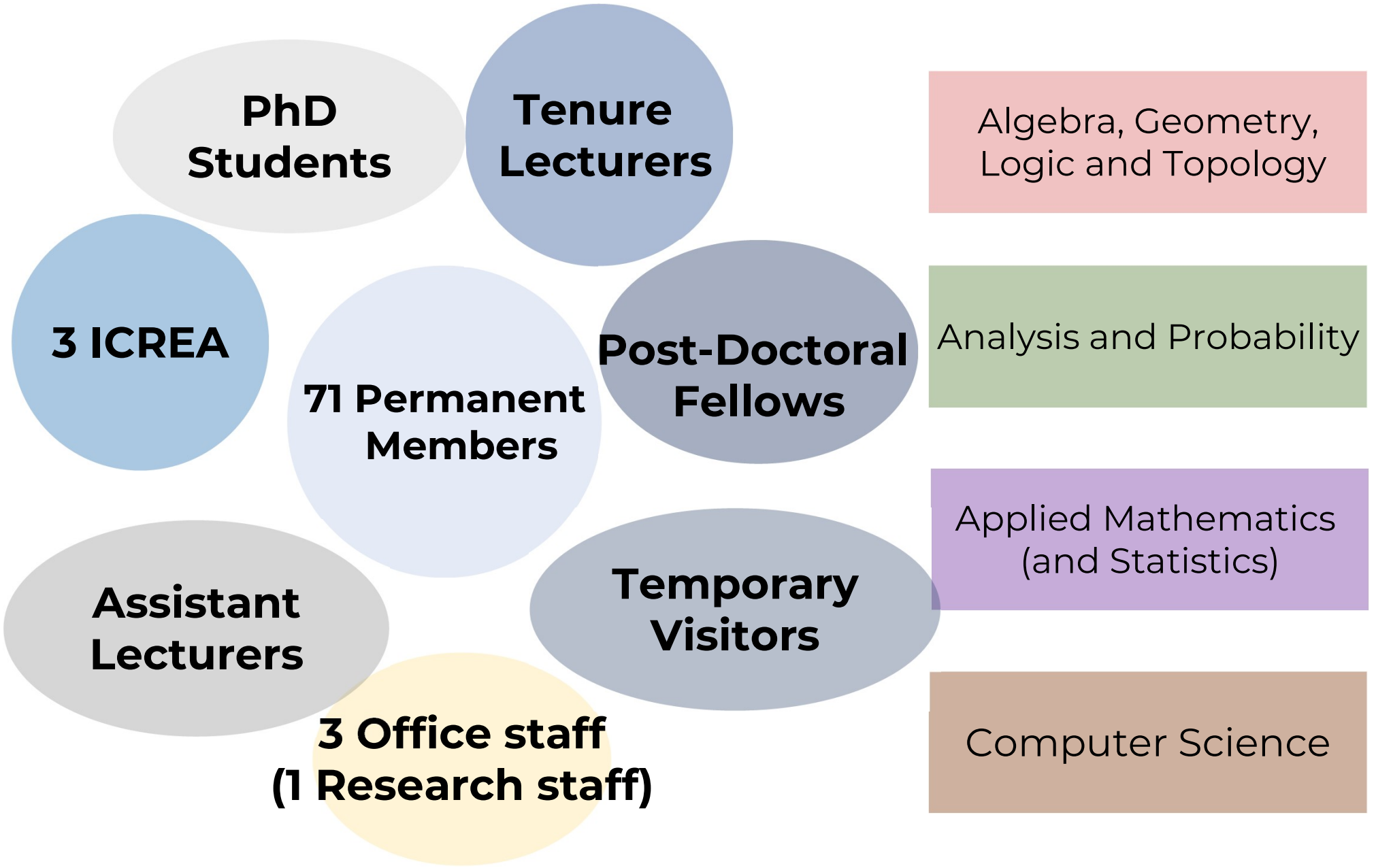
Is the oldest and the best in a lot of indexes

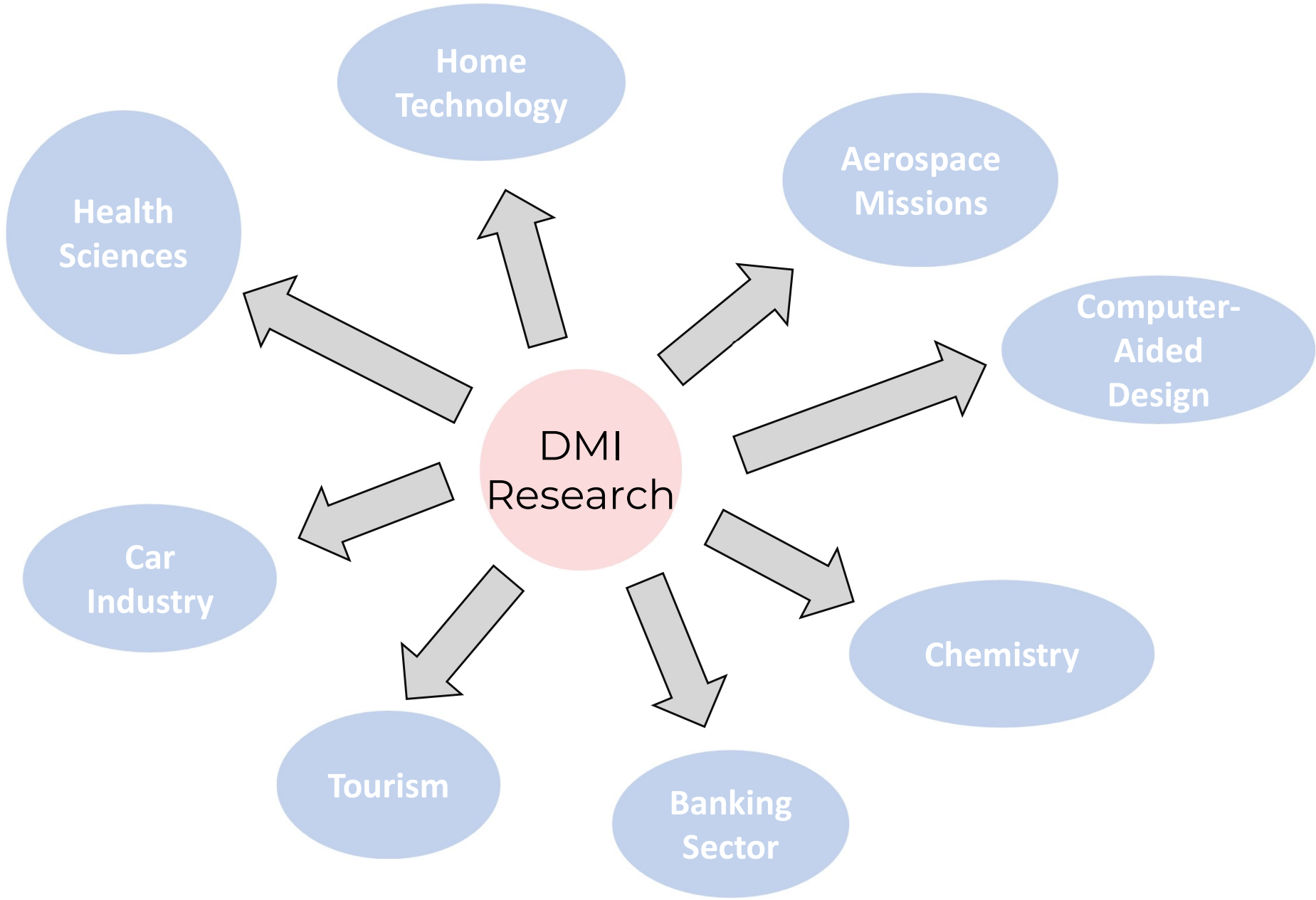
1401 - General Study of Medicine and Arts
1450 - General Study of Barcelona
Suppressed in **1717**, with the the lost of Catalan independence.
1842 – Created again as University of Barcelona
1863 – Building of the current venue, courses started in 1871.

https://en.wikipedia.org/wiki/University_of_Barcelona



BGSMath
BARCELONA GRADUATE SCHOOL OF MATHEMATICS

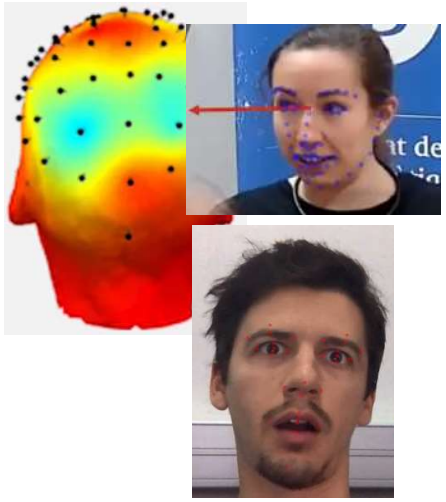

PhD Students
Tenure Lecturers
3 ICREA
71 Permanent Members
Post-Doctoral Fellows
Assistant Lecturers
Temporary Visitors
3 Office staff
(1 Research staff)
Algebra, Geometry, Logic and Topology
Analysis and Probability
Applied Mathematics (and Statistics)
Computer Science


Home Technology
Health Sciences
Aerospace Missions
Computer-Aided Design
DMI Research
Car Industry
Chemistry
Tourism
Banking Sector

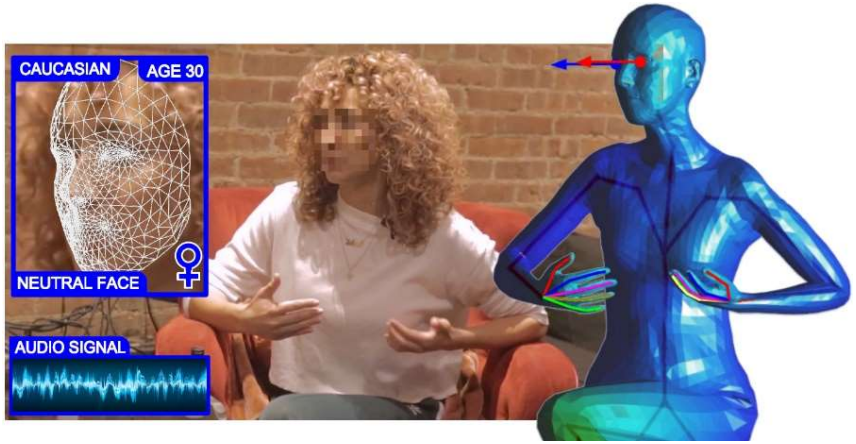
Human Pose Recovery and Behavior Analysis Group

Research lines
Human Behavior Understanding

FACE ANALYSIS



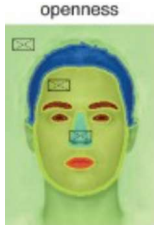
VISUAL (AND MULTIMODAL) MODELING OF HUMANS



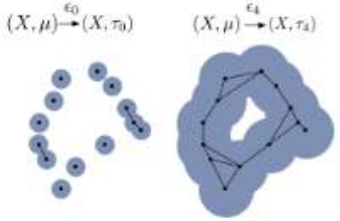
3D (& 4D) POSE, SHAPE, TEXTURE (IN 3D AND FROM 2D)

BEHAVIOR ANALYSIS

UNDERSTANDING AND EXPLAINING HUMAN BEHAVIOR (Affective & Personality Computing)
-INTERPRETABILITY & EXPLAINABILITY
-FAIRNESS



BIAS ANALYSIS VISUALIZATION



INTERPRETING AND EXPLAINING LEARNING

Research lines:

- Spatio-temporal and multi-modal deep Learning
- Domain Adaptation
- Bias and fairness
- Explainability and interpretability

Research fields

- Computer Vision
- Machine Learning
- Social Signal Processing
- Affective Computing
- Personality Computing

Application domains:

- eHealth and welfare
- Security
- Connected city / home
- Leisure

Welcome session

1. aim of the master
2. about computer vision
3. about the master
4. about the partners
    - UAB-CVC
    - UOC
    - UPC
    - UPF
    - UB
5. about the students

About the students

Genre	#	%
Female	5	15.6
Male	27	84.4

		Enrolment	#
News	32	Full-time	25
		Part-time	6
		Others	1
Old	8	PT2	5
		Others	3
	11	Final Project	11

University of Graduation	%
International	12.5
SIKKIM MANIPAL UNIVERSITY	Indian
MAULANA ABUL KALAM AZAD UNIVERSITY OF TECHNOLOGY	Indian
UNIVERSITATEA POLITEHNICA DIN BUCURESTI	Romania
UNIVERSITÉ DES SCIENCES ET DE LA TECHNOLOGIE '' HOUARI BOUM	Algeria
Spain	6.3
Universidad del País Vasco	Spain
Universitat de les Illes Balears	
Catalonia	81.3
Universitat Autònoma de Barcelona	15
Universitat de Barcelona	3
Universitat Politècnica de Catalunya	8
	100.0

Now, time for the students
to introduce themselves

Welcome session

1. aim of the master
2. about computer vision
3. about the master
4. about the partners
    - UAB-CVC
    - UOC
    - UPC
    - UPF
    - UB
5. about the students

Time to go to the garden (photo + drinks) …