UAB
Universitat Autònoma de Barcelona

Master's Dissertation

Code: 43089
ECTS Credits: 12

Degree

Master in Computer Vision

Contact

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Use of languages

Principal working language: English

Some groups entirely in English:

Some groups entirely in Catalan:

Some groups entirely in Spanish:

Prerequisites

Degree in Engineering, Maths, Physics or similar

Objectives and Contextualisation

The main goal of this module is the development of **a project where students should apply the knowledge acquired in the previous modules** and their own skills and abilities to solve a practical problem in Computer Vision. For students willing to pursue a PhD program after completion of the master, the master thesis should be the first stage of their PhD thesis.

To this end, students must be able to analyse the problem, pose an initial hypothesis to solve it, design an appropriate methodology to validate this hypothesis and draw relevant conclusions from their work. As a result, students must write a final report and pass a public defence before an evaluation committee where they should show their ability to communicate in a clear way their work.

The expected total **workload of this module thesis is about 300 hours**.

Skills and learning outcomes

- Solve problems in new or little-known situations within broader (or multidisciplinary) contexts related to the field of study.
- Integrate knowledge and use it to make judgements in complex situations, with incomplete information, while keeping in mind social and ethical responsibilities.
- Communicate and justify conclusions clearly and unambiguously to both specialist and non-specialist audiences.
- Continue the learning process, to a large extent autonomously.
- Identify concepts and apply the most appropriate fundamental techniques for solving basic problems in computer vision.
- Conceptualise alternatives to complex solutions for vision problems and create prototypes to show the validity of the system proposed.
- Choose the most suitable software tools and training sets for developing solutions to problems in computer vision.
- Plan, develop, evaluate and manage solutions for projects in the different areas of computer vision.
- Apply the research methodology, choose the techniques and information sources and organise the specific resources for research in the field of computer vision.

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- Understand, analyse and synthesise advanced knowledge in the area, and put forward innovative ideas.
- Accept responsibilities for information and knowledge management.

Learning Outcomes

1. Solve problems in new or little-known situations within broader (or multidisciplinary) contexts related to the field of study.
2. Integrate knowledge and use it to make judgements in complex situations, with incomplete information, while keeping in mind social and ethical responsibilities.
3. Communicate and justify conclusions clearly and unambiguously to both specialist and non-specialist audiences.
4. Continue the learning process, to a large extent autonomously.
5. Identify the basic problems to be solved in the problem addressed in Master's Dissertation, and the most suitable techniques for solving them.
6. Identify the best representations that can be defined for solving the problem addressed in Master's Dissertation.
7. Choose the learnt techniques and the training sets and design training to solve the problem addressed in Master's Dissertation.
8. Plan, develop, evaluate and manage the solution to the problem addressed in Master's Dissertation.
9. Apply research methodology to solve the problem addressed in Master's Dissertation.
10. Choose information sources needed to solve the problem addressed in Master's Dissertation.
11. Obtain and organise the specific resources needed to solve the problem addressed in Master's Dissertation.
12. Understand, analyse and synthesise advanced knowledge in the area, and put forward innovative ideas.
13. Accept responsibilities for information and knowledge management.

Content

The Master dissertation is an individual academic work, consisting of 3 well differentiated parts, which are: the realization of the project, the writing of the technical report, and the public presentation and defense of the project, which will take place at the end of the first semester of the second. The aim of the Project realization is the student to apply the steps of the scientific method.

Methodology

Each student will have to select a project, it can be an academic project proposed by the academic staff, or can be a project proposed by a company. Students can also propose their on project proposal. In any case an academic supervisor will be assigned from any of the 4 university departments involved in the master. The supervisor will guide the student in a personalized manner in the completion of the project. The academic selects and provides guidance around the objectives of the project, supervises and resolves doubts. A series of activities will be carried out (deliveries and meetings) that allow to control the follow-up of the work carried out by the student. Students should contact their tutor to arrange the meetings they will hold throughout the course.

Activities

Title	Hours	ECTS	Learning outcomes
Type: Supervised			
Supervised work by thesis supervisor	80	3.2	3,5, 6, 7, 8
Type: Autonomous			
Autonomous work by the student	220	8.8	1, 2, 4, 9, 10, 11, 12, 13

Assessment

The **final mark** for this module will be computed with the **following formula**:

$$\text{Final Mark} = 0.25 \times \text{Supervisor Mark} + 0.75 \times \text{Committee Mark}$$

where,

Supervisor Mark: is the result of applying a three stage rubric to the document of the thesis proposal. The project advisor will evaluate the student before the presentation, and provide the evaluation scores to the Master Thesis committee.

Committee Mark: is the average mark provided by the three members of the evaluation committee. The committee members will receive the Master Thesis document at least 7 days before the public presentation. After each presentation the three members will discuss privately the evaluation of the written reports and the presentations.

Assessment activities

Title	Weighting	Hours	ECTS	Learning outcomes
Evaluation by thesis Advisor	0	0	0	2, 3, 8
Master thesis	0.5	30	1,2	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13
Oral presentation and thesis defence	0.25	1	0.04	3, 5, 6, 8, 12

Bibliography

Specific bibliography will depend on individual projects and will be suggested by the academic in charge.