MASTER ISICG

Computer Graphics training path

Level	Program duration	Credits
Master	**2 years**	**120 credits**

Program outline

This Master is dual and consists of training engineers in technical and scientific professions linked to image and 3D as well as students wishing to continue their studies as doctoral students in the fields of computer graphics, analysis and image processing and computer vision. The main objectives are:

- Be able to understand and apply methods related to computer graphics, image processing and computer vision
- Know how to develop independently in several programming languages
- Be able to solve algorithmic problems using a parallel approach
- Be able to successfully carry out an IT project as a team

Admissions requirements

Must hold a Bachelor's degree in computer science or equivalent.

Organization

- Internship in M1 (international mobility)
- End-of-study internship in M2
- Scientific project in M2

How to apply

Students residing in France or the EU: www.monmaster.gouv.fr

International students from outside the EU: www.campusfrance.org/fr

Key info

- Selective course (limited places)
- No repetition possible in TACTIC course
- Scholarships 6000€ (4000€ in M1, 2000€ in M2)
- Financial assistance for incoming and outgoing mobility

Study place

Campus La Borie, Limoges

Program contact

M1 : maxime.maria@unilim.fr

M2 : djamchid.ghazanfarpour@unilim.fr

Project manager : celine.parvy@unilim.fr

School contact

msciences@unilim.fr

What's next ?

• Continuation of study

Continuation in thesis possible.

• Job opportunities

Jobs: IT R&D engineer, 3D engineer, image engineer, developer, IT project manager, researcher, assistant professor.

Sectors: Research laboratories, video game industry, film production, additive manufacturing industry, virtual and augmented reality industry.

Program

Semester 1

Course name	Course unit (UE or component)	Nbr h Lecture	Nbr h Tutorial	Nbr h Practice	Credits
Algorithmics and advanced programming	UE	6h	12h	12h	3
Artificial intelligence	UE	9h	9h	12h	3
Introduction to digital image processing	UE	18h	0h	12h	3
Development on GPGPU	UE	12h	0h	18h	3
Fundamentals of computer graphics	UE	22.5h	16.5h	21h	6
Real-time 3D engines	UE	9h	0h	21h	3
Practical optimization	UE	12h	9h	9h	3
Soft skills	UE	20h	10h	0h	3
Laboratory research project at XLIM	Project				3

Semester 2

Couse name	Course unit (UE or component)	Nbr h Lecture	Nbr h Tutorial	Nbr h Practice	Credits
Artificial intelligence	UE	9h	9h	12h	3
Computer vision	UE	9h	0h	21h	3
Introduction to realistic image synthesis	UE	18h	18h	24h	6
Game theory	UE	9h	9h	12h	3
Language (English or French)	UE	0h	30h	0h	3
Scientific computation and parallelization	UE	9h	0h	21h	3
Soft skills	UE	20h	10h	0h	3
Abroad internship	Internship				3
Laboratory research project at XLIM	Project				3

Semester 3

Course name	Course unit (UE or component)	Nbr h Lecture	Nbr h Tutorial	Nbr h Practice	Credits
Realistic rendering in computer graphics	UE	33h	27h	0h	6
Modeling and animation	UE	30h	30h	0h	6
Motion design	UE	12h	18h	0h	3
Development of software extensions for computer graphics	UE	0h	40h	0h	3
Elective courses (1 out of 2)					3
• Simulation of physical models	UE	12h	18h	0h	3
• Discrete geometry and	UE	15h	15h	0h	3

image-based methods					
Deep learning	UE	15h	16h	0h	3
Introduction to additive manufacturing and 3D printing	UE	0h	15h	15h	3
Language (English or French)	UE	0h	30h	0h	3

Semester 4

Course name	Course unit (UE or component)	Nbr h Lecture	Nbr h Tutorial	Nbr h Practice	Credits
Research or entrepreneurial project	Project				6
End of study internship (master's thesis)	Internship				24