



Grenoble INP - UGA is a member of international engineering and management education and research networks. It is widely recognized in national and international rankings.



**8** schools + **39** laboratories

**8 300** students

**1 300** teaching, research, administrative and technical staff

**Grenoble INP-UGA is a renowned public institution of higher education and research, and a major player in the Grenoble ecosystem. It is the engineering and management institute of Grenoble Alpes University, and plays a leading role in the scientific and industrial community.**

## University lecturer Position

<b>Short profile</b>	Deep learning for computer vision or image synthesis
<b>Body</b>	University lecturer position
<b>Position number</b>	27-26 MCF 0733
<b>CNU Section</b>	27/26
<b>Site</b>	Grenoble
<b>Start by</b>	01/09/2023
<b>Key words</b>	Deep learning; Vision; Image synthesis

Grenoble INP - UGA is a leading public institution accredited with the French label "Initiative d'excellence". It offers innovative engineering and management programs, with an increasing internationalization of its course offers. The courses are grounded in sound scientific knowledge and linked to digital, industrial, organizational, environmental and energy transitions. The Engineering and Management Institute of Grenoble Alpes brings together more than 1300 staff members (teacher-researchers, lecturers, administrative and technical staff) and 8300 students, located on 8 sites (Grenoble INP - Ense3, Grenoble INP - Ensimag, Grenoble INP - Esisar, Grenoble INP - Génie industriel GI, Grenoble INP - Pagora, Grenoble INP - Phelma, Polytech Grenoble, Grenoble IAE and the INP Prepa). Grenoble INP is also a highly-ranked institution of higher education and research, leading the way in the fields of engineering and management on an international scale. It is a member of a large number of international academic and research networks. It is part of the European University UNITE!.

As part of Grenoble Alpes University, Grenoble INP has associated guardianship of 39 national and international research laboratories and of technological platforms. The research conducted there benefits both its socio-economic partners and its students. Grenoble INP is at the heart of the following scientific fields: physics, energy, mechanics and materials; digital; micronanoelectronics, embedded systems; industry of the future, production systems, environment; management and business sciences.

Grenoble INP - UGA is an equal opportunity employer committed to sustainability. Grenoble INP-UGA celebrates diversity and equity and is committed to creating an inclusive environment for all employees. All qualified applications will be considered without discrimination of any kind.

# Teaching

**School:** Grenoble INP - Ensimag

**School website:** <https://ensimag.grenoble-inp.fr/>

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Grenoble INP-Ensimag is one of the best French schools in the digital field. It provides very high-quality training programs in the fields of computer science and applied mathematics. It prepares students for careers as digital engineers in many sectors such as information systems, finance, embedded systems, networks, and all industries for design and decision support tools.

## Teaching Profile:

This position fits within the scope of the training strategy at Ensimag, a school specialized in digital technology, where there are important needs for courses in computer graphics and computer vision. For 30 years, Grenoble INP Ensimag has been offering training in 3D imaging in its MMIS (Mathematical Modeling, Images and Simulation) program, which has become a benchmark for CAD, image and video software publishing companies and animation studios. This program attracts very good students in mathematics and computer science to Grenoble.

The need for teaching is very high in the first and second year of the school. The chosen candidate must be able to teach algorithmics, programming, numerical analysis, signal and image processing. Knowledge in C++ will be highly appreciated.

Within the MMIS program, more specifically during the second year of the school's program, the person recruited should be able to teach in the fields of computer graphics or computer vision, and AI techniques applied to the fields previously mentioned. He or she will also have to lead specialty projects, initiate research and tutor end-of-study projects in these fields. This core curriculum is the ground knowledge of our engineering students, highly recognized by our industrial and research partners, and which allows them to specialize while remaining generalist and versatile. The person recruited could be asked to design courses at the crossroads of mathematics and computer science and to coordinate teaching programs and teams.

In collaboration with the relevant teaching teams, he/she will have to be involved in the setting up of project-based teaching and training through digital technology.

Ensimag provides learning to all of its students in responsible and ecologically efficient digital technology; These aspects should be included in the pedagogical project, and in particular the ethical aspects.

# Research

**Host laboratory:** LJK (UMR 5224 Grenoble INP - UGA, UGA and CNRS)

**Laboratory website:** <https://www-ljk.imag.fr/>

**Contacts:** [jean-guillaume.dumas@univ-grenoble-alpes.fr](mailto:jean-guillaume.dumas@univ-grenoble-alpes.fr)

The Laboratoire Jean Kuntzmann (LJK) is a research laboratory in applied mathematics and computer science that brings together teams of probabilistic-statisticians, numerical engineers, and specialists in image and vision processing.

The diversity of its disciplines provides the structure with a wealth of research topics and also of human potential. It is precisely because of this richness that the LJK is so dynamic and the fundamental challenge for its management is to maintain this emulation through a policy of structural cohesion.

The LJK cultivates close working relationships with companies, in particular through the MaiMoSiNE and AMIES structures.

#### **Research Profile:**

One of the scientific obstacles to be overcome lies in the management of information that is both complex (a large amount of data) and partial. Several recent developments in machine learning, and in particular in unsupervised learning, open new research directions: in particular, one may consider the acquisition of reflectance properties of an object from a small number of photographs (sometimes only one), the identification and tracking of objects in a video, the reconstruction of geometry from a few photographs...

The candidate will conduct his/her research in one of the teams of the Geometry-Image department.

The research will focus on the use of machine learning techniques in computer vision or image synthesis:

- machine learning for computer vision: reconstruction from images or video streams
- machine learning for audio processing
- acquisition of reflectance properties of an object from a small number of views
- transfer of graphic style, textures between objects, from photographs
- differentiable rendering: derivability of the rendering equation, and use of the derivatives to optimize the parameters of the scene and get closer to a fixed objective.

## Specific requirements or conditions

Administrative activities related to the duties of an assistant professor: the assistant professor will be in charge of a teaching unit, a program or a year.

## How to apply

Applicants must submit their applications on the Galaxie Platform of the French Ministry of Higher Education and Research from the 23rd of February 2023, 10 a.m. (Paris time) to the 30th of March 2023, 4 p.m. (Paris time), deadline.

Any document sent outside the Galaxie procedure will not be taken into account.

The interview will include simulation/situational exercises. The details will be communicated when the invitation is sent out. In addition, part of the interview may be conducted in English.