SCIENCES, TECHNOLOGIES AND HEALTH

Master in Signal and image processing

Traitement du signal et des images

Target level
Baccalaureate +5

ECTS
120 credits

Duration
2 years

Component
Grenoble INP - Phelma (Physique, électronique et matériaux), UGA, Grenoble INP - Ense3 (Energie, eau, environnement), UGA

Language(s) of instruction
French, English

Subprograms

- Signal image processing methods and applications
- Mobile, autonomous and robotic systems

Presentation

Course co-accredited by the National Polytechnic Institute of Grenoble (Grenoble INP) and Université Grenoble Alpes

This master takes into account developments in techniques and knowledge in the field of signal and image processing. In particular, it offers an approach with a greater focus on tools for modelling, analysing and formatting information, enabling the transition to the massive data scale.

The course will benefit from the resources of the CEA-GIPSA "common laboratory" (CEA/Grenoble-INP framework agreement), which has been active since 2008. This project has already resulted in the creation of more than eight areas of cooperation, which have led to more than 10 doctorates being supported.

The master's strong foundation within the Université Grenoble Alpes and the SICOM engineering course of the Grenoble INP-ENSE3 and PHELMA components enables the shared organisation of exchanges, lectures and seminars offered by the industrial partners of the engineering courses (Thalès, Trixel, STMicro, EDF, Areva, ...).

Two representatives from the world of R&D (if possible from companies with a broad international base) will be invited to participate in the training development committee.

- Doctorate in the field of ICST

- Employment in R&D in the industrial sector, in SIP or information science

International education : Internationally-oriented programmes

International dimension

The course has an international orientation, with 100% of the teaching for 2nd year's master provided in English. For foreign students enrolled in the 1st year, courses in French as a foreign language may be offered. The training offer will be circulated to foreign universities that are already partners of ENSE3 and PHELMA in the framework of their engineering courses.

Organisation

Admission

Access conditions

To be accepted for a master 1st year, you must hold a bachelor degree (licence 3rd year) or equivalent.

To be accepted for a master 2nd year, you must hold a master 1st degree or equivalent. Your previous studies must be compatible with the master you wish to study. The recruitment and registration conditions are stated for each speciality

Candidature / Application

See Grenoble INP website

Students

15 students in 1st year and 15 to 20 students in 2nd year

And after

Further studies

Doctorate in the field of ICST

Sector(s)

- Modelling of signals and systems, random processes
- Formatting, extraction and analysis of information in complex observation systems : inverse problems, detection, statistical learning. Transition to the scale of large masses of data
- Applications in multi- and hyperspectral imaging, biomedical applications, neurosciences, astro, geosciences etc

Additional information

- The master falls within the Data Sciences theme of the Université de Grenoble Alpes community's MSTIC cluster
- Involvement of local excellence laboratories: Persyval, Osug@2020
- Involvement in regional initiatives: IXXI, SIERA
- Main support laboratories: GIPSA-Lab (Grenoble), IPAG (Grenoble), LISTIC (Annecy), ENS-Lyon Physics Lab
- Partner laboratories: LJK, LIG, G2ELab, LTHE, LEGI

Useful info

Contacts

Program director

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Program administration

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Partner schools

Ecole Normale Supérieure de Lyon

http://www.ens-lyon.eu/

Jean Monnet University

http://www.univ-st-etienne.fr/

Université de Savoie Mont Blanc

https://www.univ-smb.fr/

Course location(s) - City

Grenoble

Campus

Grenoble - Scientific Polygon

Grenoble - University campus

Program

Specifics of the program

- **Master 1st year :** The very close cooperation between the first and the second year of the SICOM course means that it is not possible to guarantee that 100% of the teaching will be in English. All supporting documents will however be available in English.
- **Master 2nd year :** 12 ECTS shared with the third year of SICOM; these comprise the "basic" courses in the field. 3 ECTS can be replaced by courses selected from the Université Grenoble Alpes training offer, to be determined at the beginning of the year with the course managers. These must be courses in a scientific field related to the themes of the master. More than just an introduction, these courses should help reinforce knowledge on more specific methodological aspects, related to SIP. 18 original ECTS, broken down into two fundamental modules (6 ECTS each) and one research introduction module (6 ECTS), established on the basis of a winter school and a cycle of seminars. These modules that are not shared with SICOM (12 ECTS) are established on the basis of three courses. If agreed by their master managers, the students will be able to replace one course in each module by an opening course from the other masters of the site (Sciences Co, MisCit, MSIAM, Astro, Geoscience). All of the teaching and supporting documentation (100%) for the 2nd year's master is in English. The end-of-course internship (27 ECTS) and the language courses (3 ECTS) round off the training.

Signal image processing methods and applications

Mobile, autonomous and robotic systems