RÉPUBLIQUE FRANÇAISE
Liberté
Égalité
Fraternité

GRENOBLE INP UGA Phelma

Graduate School of Engineering in Physics, Electronics, Materials Sciences

Master of engineering in Signal and Image Processing, Communication Systems, Multimedia

SICOM

PRESENTATION

Signal Image Communication Multimedia (SICOM) offers you a two years cursus, jointly performed by Phelma and Ense3, to prepare a high level engineer degree in Signal & Image Processing and more generally in Data Science, from sensor to decision. Our objectives are to study and develop new data processing algorithms (in the fields of Signal & Image Processing, Data Analysis, Artificial Intelligence and Machine Learning, Data Transmission), taking also into account the physical models of signals (generation and acquisition). The spectrum is more wide than a typical formation in data science or signal processing (essentially based on math & computer science) since it includes also skills on electronic instrumentation and addresses typical applications (multimedia, environment and Health monitoring,...).

Our program prepares the students for a successful future engineer's career in industrial research and development, and provides also strong fundamental bases for further PhD studies. Emphasis is put on practical training and most theoretical courses are coupled with labworks and integrated projects. For the last year, one program among two possible can be taught in English (EEH Track "Energy, Environment & Health" in english, while track IMMAC "Image, Multimedia, Audio & Communication" mainly in French). The curriculum includes two internships (10 weeks and 6 months,) during which the students work fulltime, either in industry or in academic research facility. Students will receive an Engineer Degree from the Grenoble Institute of Technology, and a master degree.

INDUSTRIAL SECTORS

Students with the SICOM program have a strong background in Data Science and Signal & Image processing (major topic), along with a good background in computer science, and general knowledges in electronics. They have career options in various industrial sectors and in many positions such as research & development (working for example as data scientists), consultancies, production, maintenance, by manufacturers, service providers.

They occur in large industrial groups as well as in small innovative private specialist firms in many industrial sectors, such as information industries, multimedia equipment, telecommunications, bio-imaging and health, environmental, renewable energies sector or leisure industry. Grenoble's very dense and active industrial and research network knows as the French Silicon Valley is an excellent field where more than 10.000 jobs are provided by the SICOM's skills. Opportunities span from design of electronic systems for information processing, advanced digital communications systems, development of systems and complex signal and image processing algorithms to mention few. Career opportunities can be found in Research as 20% of SICOM Engineers reach a PhD program.

RESEARCH

SICOM program is well connected within Grenoble's very dense and active industrial and academic research as well as French major scientific networks providing internship and job opportunities. Students from SICOM program can have internship session in the best laboratories on site, abroad or in industrial and international partner laboratories (GIPSA-Lab, Grenoble Institute of Neurosciences , CEA-LETI, EDF, STMicroelectronics, EADS, Altran, GE, Trixell, ID3, INRIA, CNES, THALES, ALTEN, TOY Films, MORPHO, ONERA, MBDA, PARROT, etc.). It is to note that teaching staff of Sicom includes faculty members from Grenoble INP - UGA, full time researchers from CNRS as well as professional engineers from -usually international- companies located in Grenoble and around.

ASSETS

SICOM program takes advantage of the expertise of two "engineering schools", that permits to apply data science in various field of application (e.g. Sound and speech processing, Health monitoring, Telecom for "Phelma", and energy and environment monitoring, or remote sensing for "ENSE3"). SICOM program thrives at training students by providing an integrated work (lab work in the best platforms, courses etc.) in close contact with academic staff and researchers belonging to the world-class laboratories on site.

Students will actively participate in these courses through team working, report writing and presentations and will participate in labwork experiments dealing with electronics instrumentation, image, and signal speech processing on real data. Collaborations with professionals from major industries, research institutions are encouraged by invited lectures, seminars, on-site visits so as to facilitate direct contact with the students. During the last year, it is possible to do a double degree diploma with the master research TSI Sigma (Signal ImaGe processing Methods and Applications).

PRESS RANKINGS

Shanghai
Since 2020, Grenoble INP - UGA has contributed to the international ranking of the University of Grenoble Alpes
Shanghai Global 2022
Grenoble Alpes University ranked among the 150 best universities in the world and in the top 5 of French universities.

QS 2023 ranking by theme: Grenoble INP - UGA makes good progress in the field of engineering and technology
Grenoble INP - UGA has made good progress in the overall field of "engineering and technology", moving up 74 places to 93rd position worldwide and 5th position in France, making it the leading institution outside the Paris region. The institute has made eight appearances in this ranking.

REUTERS

Grenoble INP - UGA leader in 2 lists from Reuters Ranking 2019

Most innovative universities in Europe
- 2nd of the French Engineerings Schools
- 13th in France

Grenoble INP - Phelma, UGA is the school for scientific diversity. It offers its students courses in various fields with a promising future:

- **Microelectronics and nano-technologies** (electronics, nanosciences, materials, health),
- **Decarbonated energy** (nuclear energy, photovoltaic, electrochemical storage),
- **Information technology** (digital communication, image and signal processing, telecommunications, computing and networks, Internet of Things, artificial intelligence),
- **Innovative materials** (for aeronautics, automobiles, sport & leisures, health, microelectronics, energy),
- **Biotechnology and biomedical engineering** (medical imagery and therapy, implantable devices),
- **Sustainable development** (decarbonated energies, eco-processes, recycling, material durability, energy management, natural signal analysis).

Based in Grenoble in the heart of the French Rhône Alpes region, Phelma boasts a rich academic and industrial infrastructure. As the only teaching institute on the Minatec innovation campus, Phelma benefits from an exceptional Training / Research / Industry synergy.

GRENOBLE INP UGA Phelma

1,400 students
380 + Engineering graduates a year
+ More than 25% of engineering go on to complete a thesis

110 permanent teacher-researchers from **11** laboratories associated with the school
Approximately 370 stakeholders from industry and research

CONTACT

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