

ÉCOLE NATIONALE D'INGÉNIEURS DE BREST (ENIB)
ENSTA BRETAGNE
IMT ATLANTIQUE
UNIVERSITÉ DE BRETAGNE OCCIDENTALE (UBO)

Master in Computer Science

Intelligent and Autonomous Interactive Systems (SIIA)

Aims

The IAIS specialization is a joint degree between Brest's leading higher education establishments (UBO, ENIB, ENSTA Bretagne and IMT Atlantique) which have come together to build a shared programme based on their cutting-edge knowledge in Intelligent and Autonomous Interactive Systems.

The main theme of this programme focuses on computer systems related to human uses. More specifically, the notion of interaction between artificial systems and humans will be studied, both in the case of humans immersed in complex systems and humans designing and creating such systems. Current knowledge of artificial intelligence, learning, cognitive science, modelling and verification, virtual reality, robotics, sensor networks, modelling and simulation through multi-agent systems are presented in the 8 course units. The classes are taught by research lecturers from the computer science departments at UBO, ENIB, ENSTA Bretagne and IMT Atlantique.

Skills acquired

On course completion, graduates will be capable of:

- Contributing to a research and development project within a company and leading a laboratory-based research project for instance for a PhD (autonomy, open-mindedness)
- Conducting scientific and technical intelligence and sharing/disseminating the knowledge acquired
- Setting up intelligent autonomous systems comprising human interaction.

Applications

With a maximum of 24 places on this course each year, the admissions process to the 2nd year of the Master's course is selective and application-based.

Application documents: application form, CV, cover letter, copy of qualifications and academic transcripts (post-secondary).

Deadline: applications must be submitted in PDF format to scolarite@enib.fr by 1st June

Internship

Mandatory long-term internship (20 weeks)

- > Type of internship: Assignment
- > Start of internship: mid-January
- > Duration: 20 weeks
- > Note on duration:
Minimum of 5 months in a research laboratory or company (preferably in a R&D department).

Further study

As this Master's degree is a combined professional and research course, the internship may be carried out in an industrial or academic context (e.g. public research laboratory). The internship must last between 5 and 6 months. Internships take place between mid-January and mid-July. A wide array of topics are available to students thanks to partnerships forged by the academic team. Internships abroad are possible.

Career opportunities

PhD in Computer Science, public research sectors, Research and Development departments, computing service providers, business IT departments...

Learning environment

Course assets:

- Specializations related to regional priorities, with high-level teaching geared mainly towards research and development positions.
- Links with research activities of a leading laboratory: Lab-STICC (CNRS UMR 6285).
- Teaching mainly delivered through lectures completed with a personal project (Homework) through which students have the opportunity to identify interests and limitations.
- Teaching delivered in English when international students are present.

Practical information

> **Ecole Nationale d'Ingénieurs de Brest (ENIB)**

> **Teaching location:** Brest

> **Contacts:**

Course Director:

Cédric Buche

Service Scolarité – Master Informatique

+33 (0)2 98 05 66 16 (or 00)

scolarite@enib.fr

Course content

The second year of this Master's course is divided into two semester-long course units, S9 and S10, the details of which are provided in the table below.

Semester 9

S9 SIIA Cognition-Environment Interaction Relationship (Engagement, Immersion, Presence)	4 credits	24h
S9 SIIA Meta-modelling (Modelling, Compilation, Interpretation)	4 credits	24h
S9 SIIA Interaction and Verification (Contract, Semantics, Logic)	4 credits	24h
S9 SIIA Interaction with Virtual or Augmented Reality Environments (Virtual human, Immersive system, Informed environment)	4 credits	24h
S9 SIIA MAS and interactive simulation (Multi-Agent Systems, Complex Systems, Virtual Laboratories)	4 credits	24h
S9 SIIA Interactive Machine Learning (Deep Learning, Reinforcement Learning, Incremental Learning)	4 credits	24h
S9 SIIA Professionalization of research		20h
Preparing for the working world	6 credits	66h
English	3 credits	24h
Communication - Business	3 credits	42h

Semester 10

S10 SIIA Bibliography and seminar	4 credits	2h
S10 SIIA Internship (5 to 6 months)	20 credits	
S10 SIIA Scientific methodology	2 credits	10h
S10 SIIA Robotics and sensor networks for environment interaction (Sensor systems, Physical modelling, Decision-making)	4 credits	24h

Key dates

Application deadline:	1st June
Classes begin:	1st September
Classes end:	mid-January
Internship period:	1st February -> 1st July (20 weeks, flexible dates)