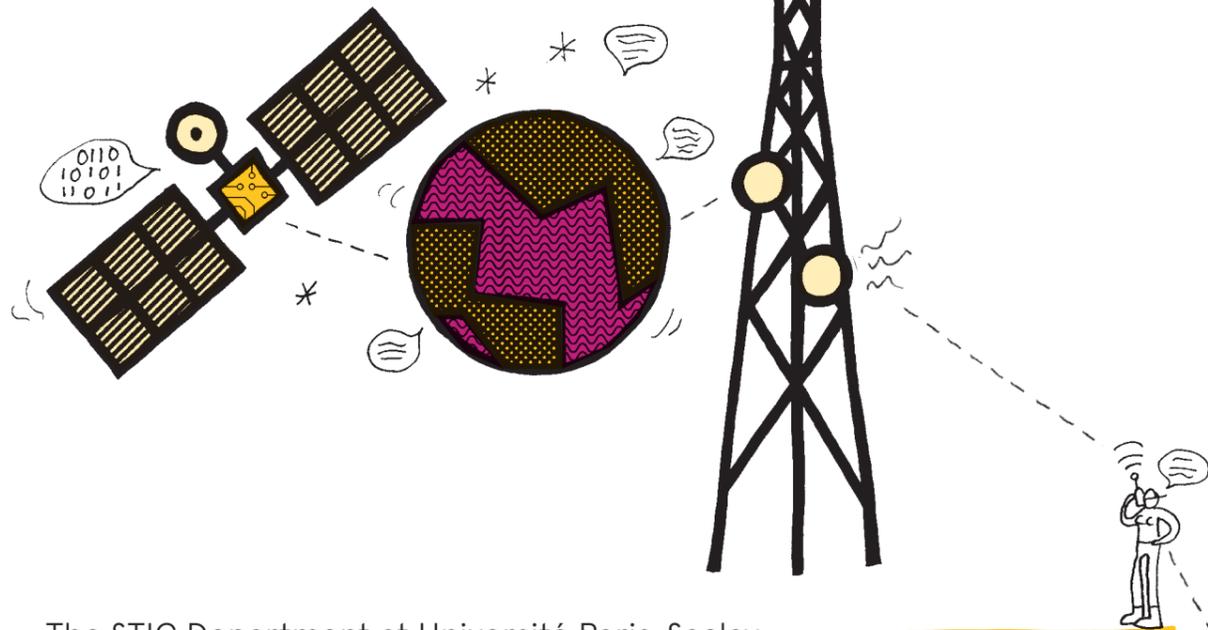


INFORMATION SCIENCE AND TECHNOLOGY (STIC)



DEPARTMENT METRICS

- 1100 permanent members
- 22 laboratories
- 11 Université Paris-Saclay member institutions
- 500 PhD students, 1000 Master's students
- 12% of French research, 50% of research in the Paris region

The STIC Department at Université Paris-Saclay, which covers all the sciences and technologies that contribute to the study, design and implementation of information and communication operational models and systems, represents the largest research community in France in this field.

The research carried out by the department addresses all the key areas in this discipline, including automation and robotics; signal and image processing; human-machine interaction; algorithmics, combinatorics and optimization; security, safety and testing; telecommunication networks; data and knowledge management; machine learning and data mining; high-performance computing, distributed computing and parallelism.

ORGANIZATIONS FOR EXCELLENCE AND PLATFORMS

- The Digicosme LabEx
- Center for Data Science and Institute for Control and Decision (ICODE) Strategic Research Initiatives
- DATAIA Convergence Institute (Data science, intelligence & society)
- SystemX technology research institute
- Digiscope EquipEx
- Digiteo, a thematic network on advanced research
- The Saclay AI platform
- Robotics platforms

KEY FOCUS

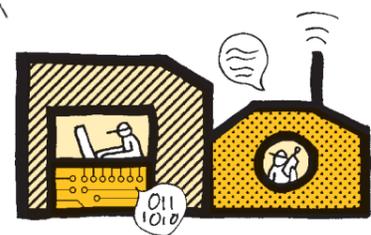
Big data, artificial intelligence, machine learning
Big data issues are relevant to all fields of knowledge. Scientific stumbling blocks, which laboratories can deploy significant research efforts to address include:

- adapting to heterogeneity
- multi-scaling and mastering complexity
- human validation and control
- social appropriation of big data.

Safety and security
Given how omnipresent safety and security issues are in information science and technology, these issues are being addressed by initiatives for excellence, such as the Digicosme LabEx, the Institute for Control and Decision (ICODE) as well as other strategic areas of research across disciplines. Four major challenges, both technological and scientific, lie at the heart of this topic:

- safety and security of cyber-physical systems
- design and testing from model to code execution
- methods and tools that can be used by non-specialists
- securing data and distributed computing.

Human-machine interaction, interactive robotics
The challenges which research teams are addressing relate to designing more intuitive, adaptive, and smart interfaces; combining multi-modal information and robust estimations; security and reliability of operating artificial assistants and rethinking the design of methodologies and evaluation for human-centered interfaces.



Network systems
Research focuses on 5G, networks of the future and the Internet of Things.

Signal and system modeling and simulation
This work applies to:

- life sciences
- energy
- humanities and social sciences
- industry of the future.

TECHNOLOGY TRANSFER

Thriving entrepreneurship activities evidenced by the many start-ups that have been created from Université Paris-Saclay laboratories

- **CybeleTech**
This start-up originated in the Mathematics and Computer Science Laboratory for Complexity and Systems at Centrale-Supélec and develops digital technologies for plants (yield prediction, crop and forest production optimization, variety selection optimization).
- **Gyrolift**
Created in the Versailles Engineering Systems laboratory at Université Versailles-Saint-Quentin-en-Yvelines, Gyrolift offers an innovative mobility device, based on a gyropod that helps users move more easily.
- **CryptoSense**
This Inria start-up offers safety solutions and software in the field of cryptography.

INTER-DEPARTMENTAL PROJECTS

- Math**
- Stochastic optimization
 - Random matrices
 - Time series
 - Game theory
 - Combinatorics
 - Graphs
 - Classification
- Life sciences**
- Systems biology
 - Regulation networks
 - Systemic biology
 - Neuroscience
 - Biomedical imaging
 - E-healthcare
 - Disability
 - Movement science
 - Nutrition
 - Environmental health
 - Precision medicine
- Humanities and social sciences**
- Language processing
 - Psychology
 - Ergonomics
 - Human learning
 - Art and science
 - Science history
 - Communities and the environment
 - Mobility
 - Real-life and virtual society
 - Culture and heritage
- Electrical, optical and electronic engineering**
- Smart grids
 - Networks
 - Robotics
 - Image processing
- Mechanics, energy and processes**
- Risk management
 - Design engineering
 - Acoustics, disability

