

Research

IRIF is renown for its contributions to the design and analysis of algorithms, the study of computational and data representation models, the foundations of programming languages, software development, verification, and certification. IRIF also conducts interdisciplinary research taking advantage of its scientific approach.

IRIF relies on mathematical concepts developed and studied within it, particularly in combinatorics, graph theory, logic and algebra. Its work also contributes directly to mathematics, including number theory, combinatorial physics, probability theory, category, proof theory, and computer assisted mathematical proofs.



Academics

IRIF participates to several master programs in computer science and mathematics such as:





- * Parisian Master of Research in Computer Science, coordinated by Université Paris Cité in partnership with most of regional academic institutions. IRIF manages a dozen of courses and is associated to about twenty others.
- * Logique Mathématique et Fondements de l'Informatique, co-leded by IRIF and Institut de Mathématiques de Jussieu-Paris Rive Gauche.

IRIF has started and been running the French Spring Research School in Theoretical Computer Science since 1973, and also organizes three research schools per year.

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Access

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 Tramway T3a: Avenue de France
 Buses 62, 89: Porte de France

IRIF is a research unit co-founded by CNRS and Université Paris Cité, hosting one Inria project-team. IRIF is also member of Fondation Sciences Mathématiques de Paris, and of three regional programs: Math Innov, Computer Sciences, Quantum Technologies.



IRIF
INSTITUT
DE RECHERCHE
EN INFORMATIQUE
FONDAMENTALE

The research conducted at IRIF is based on the study and understanding of the foundations of all computer science, in order to provide innovative solutions to the current and future challenges of digital sciences.

 www.irif.fr
 @IRIF_Paris



Numbers

-  182 members / 90 tenures / 48 PhD students
 - 50 faculty members
 - 32 researchers
 - 6 administrative staff, 4 technical staff
 - 7 research associates, 9 emeritus members
 - 15 postdocs and teaching assistants
 - 60 PhD students
- € Annual budget of 3 M€ funding 41 projects:
 - 2 ERC, 3 H2020, 1 Marie Curie
 - 22 ANR, 3 IUF
 - 6 CNRS, 2 UP, 3 CIFRE
-  250 international publications per year





Honors

- ★ 6 laureates of European Research Council
- ★ 5 members of Institut Universitaire de France
- ★ 2 members of Academia Europæa, 1 EATCS fellow
- ★ 1 member of Académie des sciences
- ★ 1 grand prize Inria - Académie des sciences
- ★ 3 CNRS medals: 2 silver, 1 bronze
- ★ 1 l'Oréal-Unesco prize
- ★ 4 software prizes
- ★ 13 PhD awards since 2016 including 5 Gilles Khan prizes and 1 Ackerman prize

Organization

- 9 thematic research groups organized in 3 poles:
- ≡ ALGORITHMS AND DISCRETE STRUCTURES
 - Algorithms and complexity
 - Combinatorics
 - Distributed computing
 - Theory and algorithmics of graphs
 - ≡ AUTOMATA, STRUCTURES AND VERIFICATION
 - Automata and applications
 - Modeling and verification
 - ≡ PROOFS, PROGRAMS AND SYSTEMS
 - Algebra and computation
 - Analysis and conception of systems
 - Proofs and programs

Initiatives

-  INITIATIVE DE RECHERCHE ET INNOVATION SUR LE LOGICIEL LIBRE fosters exchange between developers and researchers
-  LEARN-OCAML promotes learning and dissemination of the OCaml programming language
-  PARIS CENTER FOR QUANTUM COMPUTING federates Parisian research on quantum computing
-  SOFTWARE HERITAGE builds the world wide archive of all software, in partnership with Unesco

National

- Leading member of networks:
- ★ Multifractal analysis and self-similarity
 - ★ Mathematical computer science
 - ★ Quantum engineering

International

- ★ 3 research laboratories: Israel, Japan and Singapore
- ★ 1 research projects: Argentina
- ★ 2 research networks: Italy and Germany–Austria–United Kingdom–Sweden
- ★ 1 emerging action: China

Transfert

Partner of several companies including:

- | | | |
|---------------|--------------|---------------|
| ★ AdaCore | ★ Microsoft | ★ Oracle Labs |
| ★ Atos | ★ Mitsubishi | ★ QCWare |
| ★ IDQuantique | ★ Nokia | ★ Total |

Software

Development of many major software including:

- | | | |
|---------|-----------|-------------|
| ★ Babel | ★ C-SHORE | ★ Ocsigen |
| ★ CDuce | ★ CUDF | ★ Stamina |
| ★ Coq | ★ Kappa | ★ Vaucanson |