



ircam
Centre
Pompidou

IRCAM, L'ART DE L'INNOVATION

A UNIQUE INSTITUTE

A scientific research center for technological innovation and musical creation, a place for training and transmission, IRCAM brings together artists and scientists for joint, unifying projects.

IRCAM's activity is located at the intersection of laboratory and university, of art school and workshop. From its very beginning and through the vision of its founder, Pierre Boulez, IRCAM, an associated department of the Centre Pompidou, anticipated the digital revolution and the resulting changes in languages and artistic practices. Today, the largest public institute dedicated to music and sound, has become a major player in the multidisciplinary world where designers meet the live performers of the "arts of time" (e.g. musical creation, opera, dance, theater, video, film, sound design).

Supported through French and international partnerships IRCAM's mission focuses on three aspects: musical research—the largest domain, sound research—the most varied domain, and scientific research—the broadest domain. This mission is incarnated by a body of works and knowledge that mobilizes artists and researchers worldwide and responds to several functions:

- Creating** new knowledge, **testing and creating** prototypes
- Exposing** this body of work in public during artistic and scientific rendezvous
- Committing** to surfacing creation and new digital professions
- Perpetuating and broadly** circulating the contemporary musical repertoire
- Transmitting** the techniques and works to professionals and new audiences

A non-profit association (French law 1901), IRCAM is unique in its economic and cultural structure. Supported since its creation by the French Ministry of Culture and Communication, the joint research laboratory STMS (Sciences and Technologies of Music and Sound) housed by IRCAM, is under the tutelage of the CNRS and since 2010, of the University Pierre et Marie Curie (UPMC). This laboratory finances 50% of its activities through collaborative projects and industrial relations.

THE ISSUES OF TOMORROW

IRCAM, For Whom?

In today's cultural context, a location that can provide a laboratory and a teaching venue is in high demand in Europe. The art world is currently focusing on the convergence of specific knowledge and multidisciplinary practices. Surpassing the boundaries of individual disciplines, IRCAM mobilizes complementary professions and audiences: composers, performers, sound engineers, choreographers and dancers, sound designers and directors, video artists and sculptors, designers of video games, installations, or of interactive environments talk with researchers, computer scientists, doctoral students, and computer-music designers.

IRCAM supports a wide variety of artistic productions that are not defined using cultural standardization, the surfacing of new signatures (Academy and Festival), communities of users fascinated by technical innovations (Forum), and novel cultural practices for a public attracted to the digital world.

The action of research is the driving force for a laboratory where the musical languages of today and the sound technologies of tomorrow are created. IRCAM defends the interests of independent research and development that leads to artistic applications, involving artists in collective research projects.

The action of production brings the spirit of experimentation to a variety of prestigious stages such as La Scala, the Royal Albert Hall, the Berlin Philharmonic, as well as French theaters, festivals, and public spaces, representing a broad range of musical genres, from sound gardens to opera.

The action of teaching is incarnated in IRCAM's internationally renowned programs. The development of a PhD in musical and scientific research and of off-campus IRCAM programs in Asia and Latin America reinforces the science-art-technology junction and offers new possibilities for music, performances, and digital art.

The action of transmission and democratization focuses on reducing the cultural gap between the tangible and the intelligible and mobilizing those far from venues of creation: the Workshops of Creation for vocational high schools, artistic courses for undergraduate students, mixed music programs for schools, online resources that develop music social networks.



INVENT AND TEST



Making an artist's dream come true—seeing a work's premiere and its tour—is like clearing a path from the laboratory to the stage, creating a chain of knowledge, models, and prototypes. A large range of scientific domains is always a part of these projects, from physics (acoustics) to the humanities and sociology (musicology, human cognition) with computer sciences and technologies (signal processing) at their heart.

This research is a part of three concentric circles of activity:

- **Musical research** covering all musical genres in the domains of acoustic and electronic instrument making, diffusion (search engines for music), and computer-assisted education
- **Sound research** extending to tools for audiovisual and multimedia production and to the use of sound artifacts in the domains of voice processing and simulation, virtual and augmented reality, sound design, as well as the functional conception of sound in an environment (automotive, man-machine interfaces)
- **Scientific research** is the largest component of IRCAM's activities. Research on artistic creation calls upon several associated disciplines including mathematics, neurosciences, biology, and complex systems that are sustained in return by the improvement of general knowledge, models, and methods

Research themes for the near future focus on the following concepts:

- Renewing sound and vocal material
- Development of musical languages (creation of specialized computer languages)
- Augmented instruments (sensors and active control)
- Interaction between movement and sound (music, dance, sound design)
- Nomad intelligence
- Spatialization of sound in performances
- Analysis and documentation of the creative process

| 140 RESEARCHERS, ENGINEERS, DOCTORAL STUDENTS, AND INTERNS are welcomed every year, 30% of which are foreigners

| 7 SPECIALIZED RESEARCH TEAMS

| 9 SOFTWARE ENVIRONMENTS ARE DEVELOPED AND MARKETED: Max, Modalys, AudioSculpt, CataRT, OMax, Antescofo, Gesture and temporal form followers

CHRONO-
LOGY ←

1970

Pierre Boulez is invited by Georges Pompidou to create and head an institute specialized in musical research and creation under the aegis of the Centre Pompidou.

1977-78

Opening of the building designed by Renzo Piano and Richard Rogers.

First public performances at IRCAM.

1990

Creation of the International **Cursus** Program for Composition and Computer Music.

1992

Laurent Bayle succeeds Pierre Boulez as director and Pierre Boulez becomes honorary director.



PRODUCE

A factory for a vocal fantasy (Olivier Cadiot, Michaël Levinas, Luca Francesconi) or for a system that analyzes movement (Thierry De Mey, Richard Siegal), the dream of a talking orchestra (Jonathan Harvey) or the invention of a multimedia theater (Georges Aperghis), the design of tools for sound synthesis or spatialization (WFS, Ambisonics, Spat); the diversity of the productions at IRCAM combines artistic invention and technology.

IRCAM's most emblematic **artistic and scientific projects** are a part of **international research networks** or consortiums such as the Bee Music project or the European Varèse network.

Technological development, an integral part of these activities, produces specialized functional models, the principle vector of industrial transfers with our private partners, be they small businesses or large groups. The Ircam Inside label is used in open software environments for creation and experimentation.

The IRCAM forum, a shared space for researchers, engineers, and artists, provides a privileged access to these technologies. Several commercial applications have been coproduced through the Forum including **IRCAM Tools**, a collection of professional audio plugins with the company Flux: and **Ircamax**, a collection of advanced musical functions.

1993

Creation of the **IRCAM Forum** (IRCAM software users' group).

Beginning of **the industrial relations policy** at IRCAM.

Establishment of **the ATIAM master's program** in collaboration with several institutions of higher learning.

1995

IRCAM and the CNRS join forces to create the mixed research lab **IRCAM-CNRS**, and then a lab on the sciences and technologies of music and sound (STMS).

1998

First edition of **the Agora Festival**.





50,000 TO 100,000 AUDIENCE MEMBERS see IRCAM productions annually

400,000 PEOPLE CONSULT BRAHMS, IRCAM's database on music post-1945, every year

40 CONCERTS AND PERFORMANCES go on tour every year

30 NEW CREATIONS COME TO FRUITION EVERY YEAR in collaboration with renowned ensembles

15 CONCERTS/SEASON In collaboration with renowned ensembles

150 PUBLICATIONS EVERY YEAR

SEVERAL SCIENTIFIC SEMINARS

1 MULTIMEDIA RESEARCH LIBRARY that houses several thousand documents online



EXPOSE

IRCAM is present **for all the major art and scientific research events** in Europe, the United States, and Asia as well as during its Parisian concert season and on tour in locations including Musica in Strasbourg, the Festival d'Avignon, the Lucerne Festival, Proms in London, Tokyo Spring Festival, and Los Angeles.

ManiFeste, IRCAM's international festival and multidisciplinary academy brings together nearly a hundred artists every year in June, with events held in nearly twenty venues throughout Paris such as the Centre Pompidou, the Philharmonie de Paris, the CENTQUATRE-PARIS, the Gaîté lyrique, the Louvre, the Opéra Comique, the Salle Pleyel, and the Théâtre des Bouffes du Nord. Participating in ongoing public debates, this annual multidisciplinary event addresses scientific and artistic issues (Produce Time; Prototypes; The Icon, The Voice) and has featured unique meetings with figures such as Henri Atlan, Alain Badiou, Pierre Boulez, Alain Connes, Jean-Pierre Dupuy, Bruno Latour, Lev Manovich, Raoul Ruiz, Cédric Villani, and Lars Von Trier.

A factory for the operas of today, IRCAM is present on the stages of theaters with a strong tradition of opera: ambitious projects have invested opera houses and have been revived throughout Europe.



2002

Bernard Stiegler becomes director of IRCAM.

2004

Creation of **new musical research groups** (orchestration, rhythm, voice).

2006

Frank Madlener succeeds Bernard Stiegler as the director of IRCAM: IRCAM's artistic policy becomes the institute's general policy.

The first edition of the multidisciplinary journal **L'Étincelle** on musical creation at IRCAM is published.

Launch of **the Musique/Sciences book** collection in collaboration with Editions Delatour France.



TEACH

IRCAM is involved in passing on musical practices and technologies.

Four programs make up the backbone of IRCAM's educational offer:

- **The International Cursus Program for Composition and Computer-Music.** This Master's-level program is carried out with numerous partners, including several European conservatories.
- **The ATIAM program** (acoustic, signal processing applied to music), with an international calling, is organized in conjunction with the University Pierre et Marie Curie and with Télécom ParisTech.
- **The Master's Degree in Sound Design** is implemented with the École supérieure des beaux-arts du Mans.
- **The annual multidisciplinary academy ManiFeste in Paris** supports young artists and the production of collaborative projects. This academy is a part of the European network ULYSSES and focuses on a broad definition of the profession of performer as well as the use of technology in the performing arts as can be seen in the projects *In Vivo Danse*, *In Vivo Théâtre*, and *In Vivo Vidéo*.

In Vivo Danse, séance de travail © IRCAM



TRANSMIT

- 20 YOUNG COMPOSERS come to study composition and computer-music during the Cursus program
- 22 MASTER OF SCIENCE STUDENTS study at IRCAM in partnership with the UPMC and Télécom ParisTech
- 290 PEOPLE TAKE PART in IRCAM's 25 professional training classes
- 250 TO 300 YOUNG ARTISTS for ManiFeste, the Academy
- 24,000 HOURS OF CLASSES ARE TAUGHT BY THE IRCAM TEAM EVERY YEAR

IRCAM's online resources are an essential tool for the transmission of the institute's knowledge intended to be used by both professionals and the general public.

- **The Brahms database** - documentation for works written after 1945
- **The Sidney database** - technical documentation of works
- **The Repertoire database** - resources for performance and the understanding of works found in the IRCAM repertoire
- **The European ULYSSES Platform**
- **The Gateway to Contemporary Music**
- **The IRCAM Multimedia Library** that includes CNRS documentation
- **IRCAM's Cultural Outreach program** is designed for those located furthest from creative venues
- **The Workshops of Creation** for vocational high schools address visual arts, sonic arts, and new technologies via a program designed to strengthen social fabric
- **The Images of a Work** documentary film series follows a musical work from its genesis to its premiere

2007

2008

2010

2012

Launch of a new collection of contemporary music recordings, **Sirènes**.

The UPMC joins the French Ministry of Culture and Communication and the CNRS in **the mixed research lab STMS**.

First edition of **ManiFeste**, an international festival and multidisciplinary academy.

Creation of the new **Cursus 2 program** for young composers.

Implementation of **industrial valorization**.

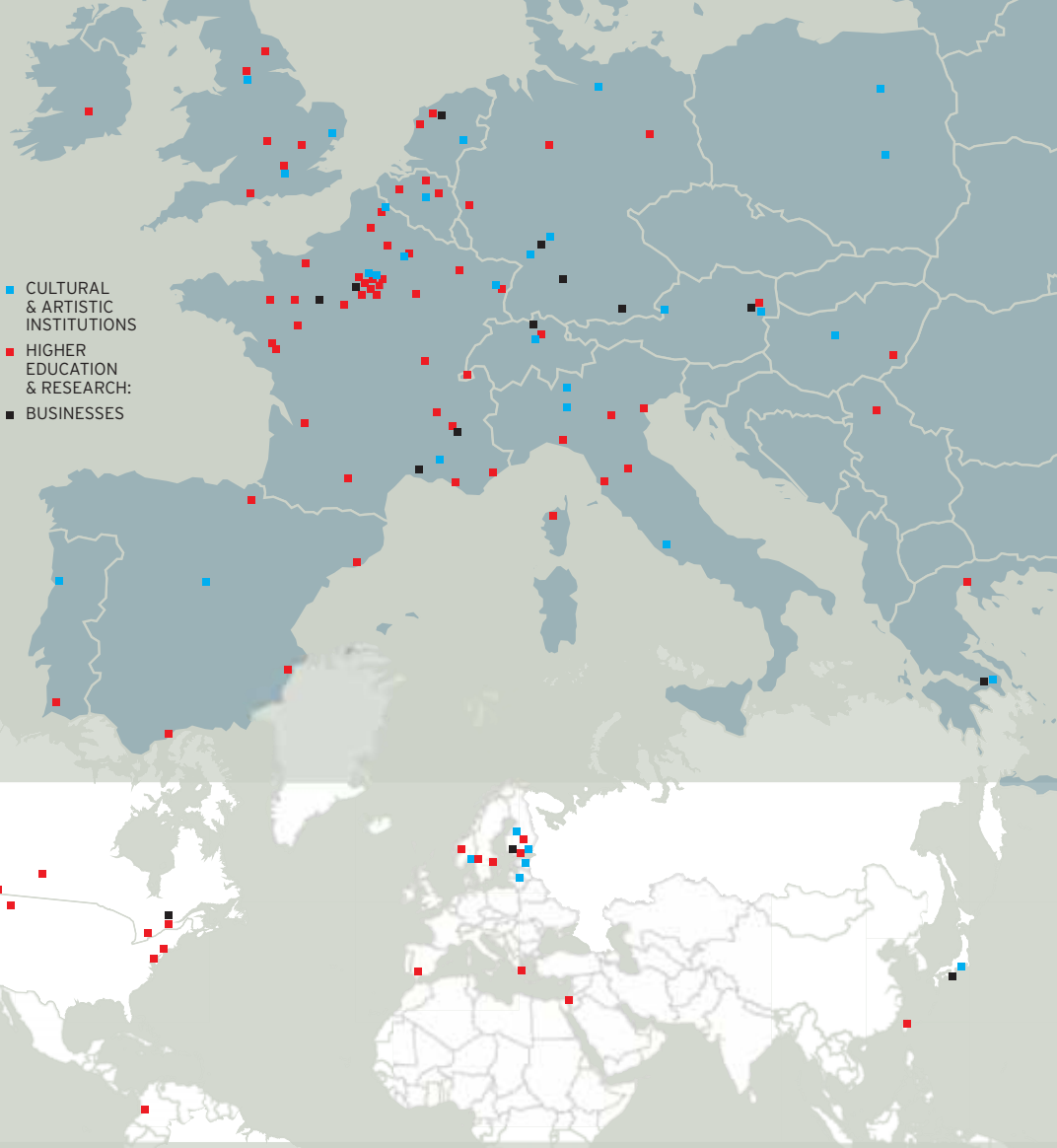
Constitution of the **Inria / IRCAM** common research team on synchronous languages for music.

Launch of **IRCAM Tools**, a collection of plugins developed in the IRCAM labs and commercialized by Flux::

Inauguration of the new multi-channel system of sound diffusion in the Espace de projection using the **Wave Field Synthesis and Ambisonic** systems.

ALLIANCES & PARTNERS

- CULTURAL & ARTISTIC INSTITUTIONS
- HIGHER EDUCATION & RESEARCH:
- BUSINESSES



CULTURAL & ARTISTIC INSTITUTIONS: Centre Pompidou, Unverscience, Le CENTQUATRE-PARIS, Conservatoire national supérieur de musique et de danse de Paris, Comédie de Reims, Ensemble intercontemporain, Fémis, Opéra Comique, Opéra de Lille, Le Fresnoy-Studio national des arts contemporains (Tourcoing), Ulysses Network (European academies), Varèse Network (European festivals), and multiple festivals in France, Europe, and Asia (Avignon, Lucerne, Strasbourg, Tokyo, Wrocław) | **HIGHER EDUCATION & RESEARCH:** Acoustics Research Institute (Austria) | Atelier les Feuillantines (Paris) | BEK (Norway) | Bel Canto Vocal Acoustics Laboratory (Canada) | Brock University (Canada) | CEA (Saclay) | Centre canadien d'études allemandes et européennes (Canada) | The Center for Applied Mathematics (Portugal) | Centre de recherches sur les arts et le langage (Paris) | Centre Emotion (Paris) | CIRMMT (Canada) | CMPCP (Great Britain) | CNAM (Paris) | CNMAT (United States) | Cnsmddp (Paris) | Columbia University (United States) | Compagnie Emio Greco & Peter Scholten (Amsterdam) | Compagnie Lubat | DGA (Paris) | E Voce di u comune | École des mines de Paris | École polytechnique | EHESS (Paris) | ENS (Paris) | ENSAD (Paris) | ENSCI (Paris) | ESEO (Angers) | Faculty of Music, University of Arts (Belgrade) | Festivoce (Pigna) | Fraunhofer HHI (Germany) | Gdr ISIS | Goldsmiths University of London (Great Britain) | Grame (Lyon) | GREYC (Caen) | Harvard University (United States) | Haute école de musique de Genève | Helsinki University of Technology (Finland) | Hôpital européen Georges Pompidou (Paris) | IBISC (Évry) | IDEAT-Sorbonne (Paris) | IEM, University of Music and Performing Arts (Austria) | IMASSA (Paris) | In-Situ-Inria (Saclay) | Ina-GRM (Paris) | INIST (Nancy) | Inria Rhône-Alpes | INSA (Lyon) | Institut d'Alembert (UPMC) | Institut de mathématiques de Jussieu (Paris) | Institut Pasteur | Interaction Design Centre (Limerick) | IPEM, Université de Gand (Belgium) | IRCCyN, École Centrale de Nantes | IRISA (Rennes) | IRIIT (Toulouse) | IRMA (Paris) | ISVR, University of Southampton (Great Britain) | ITEM (Paris) | ITEM (Le Mans) | Joanneum Research, Institute for Information and Communication Technologies (Austria) | KTH (Sweden) | La Kitchen (Paris) | Laboratoire Cognition & Usages (Paris) | Laboratoire d'ethnomusicologie du Musée de l'Homme (Paris) | LaBRI (Bordeaux) | LACL (Créteil) | LAM (Paris) | LAUM (Le Mans) | LEAD (Dijon) | LIENS (Paris) | LIMSI (Orsay) | LINA (Nantes) | LIP6 (Paris) | LIST (Saclay) | LIX (Palaiseau) | LMA (Marseille) | LRI (Paris) | MIM (Marseille) | MINT (Paris) | MIT (United States) | MoDyCo (Nanterre) | MTG (Spain) | NIPG, Berlin Technical University (Germany) | Observatoire international de la création musicale (Montréal) | Open University (Great Britain) | PETRA - Unité de Recherche Interdisciplinaire Octogone (Toulouse) | Philharmonie de Paris | PILE (Paris) | Psychomuse (Nanterre) | PuceMuse (Rungis) | Queen Mary University (England) | REVES-Inria (Sophia-Antipolis) | RWTH Aachen, Institut für Technische Akustik (Germany) | SFAM (Paris) | Signal Processing Lab, University of Cambridge (Great Britain) | STEIM (Pays-Bas) | TechCICO (Troyes) | Télécom ParisTech | The Vision, Image Processing & Sound (VIPS) laboratory (Italy) | TU Delft (Holland) | UCSD (United States) | UGDIST, Genova University (Italy) | UNIFI Florence (Italy) | Unité de neuropsychologie, département de Neurologie, Hôpital universitaire de Zurich (Switzerland) | ZHDK, IAD Interaction Design (Switzerland) | **UNIVERSITIES:** Université catholique de Louvain (Belgium) | Université de technologie de Compiègne | Public University of Navarre (Spain) | Technische Universität Berlin (Germany) | University College Of London (Great Britain) | Ben Gourion (Israel) | Anvers (Belgium) | Alicante, Spain (LSI, GRFIA, CM Lab) | Bielefeld (Germany) | Bucharest (Roumania) | Canberra (Australia) | Crete (Greece) | Graz (Austria) | Huddersfield (Great Britain) | Jyväskylä (Finland) | Laval | Lille-3 | Lisbon (Portugal) | Malaga (Spain) | Montreal (Canada) | Oslo (Norway) | Paris Descartes | Paris-1, Géographie Cité | Picardie-Jules Verne | Pise (Italy) | Reims | Thessalonique (Greece) | Victoria (Canada) | Vienna (Austria) | Washington (Seattle) | York (Great Britain) | Zurich (Switzerland) | IUAV (Italy) | Javeriana Cali (Colombie) | Marc Bloch (Strasbourg) | National Cheng Kung (Taiwan) | Paris Dauphine | Paris-8, Laboratoire d'informatique avancée de Saint-Denis | **BUSINESSES:** 01dB | Arkamys | Arturia | As An Angel | AudioGaming | BeTomorrow | Cantoche | Cyanide | Cycling'74 (United States) | Da Fact | Dassault Systèmes | EDF | EMI | Europ-Archive | Exalead | ExeQuo | Flying Eye (Germany) | France Télécom R&D | Haption | Kelis | Navidis | No Design | Nokia Research Center (Finland) | NRRIA/Alapage | On-dim | Orbe | Orosys | Phonotonic SAS | PSA | Renault | Sky-Deutschland (Germany) | SNCF | SonicEmotion (Switzerland) | Sony (Japan) | Sony Eutec (Germany) | Sony CSL (Paris) | Studio Chinkel | Technicolor | Thalès Research | Universosnc | Velti (Greece) | Vocally | Voxler | xFace (Austria) | Xtranormal (Canada) | Yacast