

# Laurence Nigay

Professor of Computer Science  
Université Grenoble Alpes  
Institut Universitaire de France

Head of the  
Engineering Human-Computer Interaction group



Date of birth: December 7th, 1965, France

Office: Laboratoire LIG, Bât. IMAG Bureau 353  
150 place du Torrent, Domaine Universitaire  
38401 Saint Martin d'Hères, France

Phone: +33 4 57 42 15 36

Email: [Laurence.Nigay@univ-grenoble-alpes.fr](mailto:Laurence.Nigay@univ-grenoble-alpes.fr) Web: <http://iihm.imag.fr/nigay/>

## Degrees awarded

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1988-89	Software Engineering Masters degree, Université Joseph Fourier Grenoble 1
1989-90	Masters of Research degree, Université Joseph Fourier Grenoble 1
1990-94	Ph.D. thesis, Université Joseph Fourier Grenoble 1
2001	Habilitation à diriger des recherches, Université Joseph Fourier Grenoble 1

## Career after PhD degree

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1993-94	Teaching assistant, Grenoble INP (Grenoble Institute of Technology)
1994-98	Lecturer, Université Joseph Fourier Grenoble 1
1998-05	Lecturer 1 <sup>st</sup> class, Université Joseph Fourier Grenoble 1
2001-02	Sabbatical University of Glasgow, Scotland Glasgow Interactive Systems Group, Department of Computing Science
<b>2004-09</b>	<b>Junior member of Institut Universitaire de France</b> (Academic Institute of France)
2005-09	Professor, Université Joseph Fourier Grenoble 1
2009-	Professor 1 <sup>st</sup> class, Université Joseph Fourier Grenoble 1 (Sept. 2009) Professor Exceptional class, Rank 1, Université Grenoble Alpes 1 (Sept. 2013) Professor Exceptional class, Rank 2, Université Grenoble Alpes 1 (Sept. 2016) Head of the Engineering Human-Computer Interaction Group 12 faculty members (~35 members with post-doctoral fellows, PhD and Masters students, Engineers and visiting scientists)
<b>2019-</b>	<b>Senior member of Institut Universitaire de France</b> (Academic Institute of France, 2% of French University professors)
2020-	Head of the Interactive and Cognitive Systems department of the Laboratoire Informatique de Grenoble (LIG) and a member of the LIG Executive Committee

## Awards

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1994	City of Grenoble award: Best young researcher
2001	Best short paper award at IHM-HCI 2001
2002	<b>CNRS Bronze Medal for Excellence in Research</b> <b>National Medal for excellence in research</b>
2003	Université Joseph Fourier Grenoble 1: Gold medal for excellence in research
2005	Université Joseph Fourier Grenoble 1: Gold medal for excellence in research
2011	Best research paper award at IHM 2011
2013	Best research paper award at INTERACT 2013 and IHM 2013
2015	Distinguished Speaker of the ACM (three years)
2016	Best research paper award at IHM 2016
2016	Honorable mention award (top 4% of 2325 submissions) ACM CHI 2016 (34 <sup>th</sup> ACM International Conference on Human Factors in Computing Systems)
2019	Ten-Year Technical Impact Runner-up Award ACM ICMI 2019
2020	Honorable mention award (top 6%) ACM AVI 2020

## Teaching

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Since 1990, I have been teaching computer science at the University of Grenoble. The taught topics include programming, software architecture and Human-Computer Interaction (HCI) at different levels, from the first year of the University to the Masters level. I have created several HCI related courses including multimodal interaction, ubiquitous and mobile computing and groupware-CSCW.

Average: 7 courses per year (~200 hours)

Last created course: Advanced HCI (Master level) dedicated to menu techniques with a lab course on developing a marking menu.

From 2006-2015 I taught Multimodal Interaction at TU/e Technical University Eindhoven, Netherlands (one week every year).

From 1991-1996 I taught HCI during several industrial training sessions. From 1994-1999 I taught HCI at ENSTA-Paris (National Engineer School) and from 1996-2012 I taught HCI at the University of Nice in France. In addition to Eindhoven I also taught internationally at (e.g., Graduate School, Computer Science Institute, Vietnam National University Hanoi-Vietnam 1999 and Masters program, University of Fribourg in Switzerland 2018) and during summer schools (e.g., Visualization Summer School 2004, Sixth Summer School on Technology Enhanced Learning 2009).

## Pedagogical and Administrative Duties

- From 1995-2000, I was deeply involved in teaching administration in the two first years of the University (Licence 1 and Licence 2) and in particular in pluridisciplinary programs Chemistry-Computer Science.
- From 2005-2019, I was the **Director of the Masters in Computer Engineering** at the University of Grenoble that includes five key themes, Software Engineering, HCI, Distributed Systems, Embedded Systems and Information Systems. Every year the

cohort includes between 35 to 60 students who I select from amongst approximately 290 candidates. The challenge as a director of a Masters is to define a teaching program that is attractive and useful for the future engineers and to manage the numerous teachers who are all experts in their domains in this Masters. In 2007 I **created the Computer Engineering Masters Apprenticeship Program**. This year (2023-2024) we have 26 apprentices.

- From 2012-2019, I was co-managing the specialized program “**Ubiquitous and Interactive Systems**” (30 ECTS) of the International Masters of Science in Informatics at Grenoble. This international Masters involves research level courses in HCI and these courses are delivered in English.

## Research

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My research focuses on the fundamental and conceptual aspects of interaction, novel interaction techniques as well as engineering of Human-Computer Interaction (HCI). My research program and contributions cover three complementary facets, from theory to implementation: scientific foundations to support high level reasoning (design spaces, properties, and interaction models), new interaction techniques to address novel contexts of use, and technological development to facilitate the implementation of user interfaces. For each facet of my work, I apply specific scientific methods. For instance, validating novel techniques involves empirical studies by conducting lab-based experiments and/or field-based experiments; validating a software platform involves the development of several types of applications. Demonstration of the benefit of the platform is attained through its use by researchers outside of the team or by industrial partners.

Within the domain of HCI, my research studies centre on new interaction techniques, Multimodal, Augmented Reality (AR) and deformable user interfaces such as menu techniques (ACM-CSUR article 2017), fusion mechanisms, service/component-based approaches for the development of multimodal and augmented reality interfaces.

Multimodal interaction is the central theme of my research with pioneering work on scientific foundations, software architecture, and software platforms for multimodality. I have been working on multimodal interaction since 1990: my focus is on both, input multimodal user interfaces that support multiple input interaction modalities such as 2D/3D gesture, microgesture, eye-gaze, speech and direct manipulation, as well as on output multimodal interfaces applied to visualization of large information spaces and interaction modalities for collaborative navigation in large information spaces. My research goal is to characterize multimodal interaction (CARE properties Complementarity Assignment Redundancy and Equivalence), to formalize the properties, to explore the design space and to study the software development. Some proposed software platforms for multimodal interaction include ICARE, OpenInterface and DynaMo. I was the coordinator of the STREP project FP6-35182 (budget 4Meuros, 11 European partners) OpenInterface dedicated to the development of multimodal interfaces. [1-7].

My work on multimodal interaction drives me to study Mixed Systems (Augmented Reality and Augmented Virtuality), that combine “the best” of the digital and physical worlds. In this context, I examine tangible user interfaces, augmented objects, embodied user interfaces, mobile augmented reality and computer assisted surgery. In the domain of Mixed

Systems, I proposed design spaces, interaction models, properties (perceptual/cognitive continuity), software tools and new interaction techniques. [8-12].

My work on deformable user interfaces is concerned with the physical deformation of controls and displays. Deformable user interfaces define a novel form of sequential multimodality through physical shape and size changes. [13-15]

I also have a long-standing interest in interaction techniques for mobile devices for which multimodal interaction plays a key role [5], including new menu techniques, double-sided multi-touch techniques and mobile augmented reality [11] [12] [16-19] as well as in computer-supported collaborative work by focusing on design notations and software architectures. In particular I am interested in the link between multimodal and collaborative aspects of interaction. [20] [21]

Application domains include archaeology, games, cultural experiences (museum, ballet [10]) military cockpit [2], military command post [21], augmented surgery [8] [19], smart home [4] [18] and production maintenance [11].

## PhD students

Currently advising 4 PhD students

Principal advisor of **23 students** who defended their theses: Eight of them are currently professors, lecturers or CNRS directors/researchers. Two of them have created and are leading a new HCI team in two French universities. One of them is leading an HCI team and one of them received the national Bronze medal from CNRS.

## Publications

I have published more than 250 articles in conferences, journals and books. (complete list of publications available at: <http://iihm.imag.fr/nigay/NigayPubli-En.pdf>)

## Selected publications

### Multimodality and Modality

1. L. Nigay J. Coutaz. A Generic Platform for Addressing the Multimodal Challenge. Proceedings of ACM-CHI'95, ACM, Denver, May 1995, pp. 98-105.
2. J. Bouchet and L. Nigay. ICARE: A Component-Based Approach for the Design and Development of Multimodal Interfaces. Proceedings of ACM-CHI'04, Extended Abstracts, Vienna, Austria, April 2004, ACM, pp. 1325-1328.
3. M. Serrano, L. Nigay. OpenWizard: A Wizard of Oz Component-Based Approach for Rapidly Prototyping and Testing Input Multimodal Interfaces. Journal on Multimodal User Interface, Springer-Verlag, Volume 3, Number 3 / April, 2010, pp. 215-225.
4. P-A. Avouac, P. Lalanda, L. Nigay. Autonomic Management of Multimodal Interaction: DynaMo in action. Proceedings of ACM-EICS 2012, ACM SIGCHI Symposium on Engineering Interactive Computing Systems, ACM, Copenhagen, Denmark, June 25-28, 2012, pp. 35-44.
5. S. Pelurson, L. Nigay. Bimanual Input for Multiscale Navigation with Pressure and Touch Gestures. Proceedings of ACM-ICMI 2016, the 18th International Conference on Multimodal Interfaces, ACM, Tokyo, Japan, November 12-16, 2016, pp. 145-152.

6. A. Chaffangeon Caillet, A. Goguey, L. Nigay.  $\mu$ Glyph: a Microgesture Notation. Proceedings of ACM-CHI'23, the 2023 Conference on Human Factors in Computing Systems, ACM, Hamburg, Germany, April 23-28, 2023, Article No. 269, pp. 1-28.
7. G. Faisandaz, A. Goguey, C. Jouffrais, L. Nigay.  $\mu$ GeT: Multimodal eyes-free text selection technique combining touch interaction and microgestures. Proceedings of ACM-ICMI 2023, the 25th ACM International Conference on Multimodal Interaction, ACM, Paris, France, October 9-13, 2023, pp. 594–603.

#### Mixed systems

8. E. Dubois, L. Nigay, J. Troccaz, O. Chavanon, L. Carrat. Design Space for Augmented Surgery, an Augmented Reality Case Study. Proceedings of INTERACT'99, A. Sasse & C. Johnson Eds, IFIP IOS Press Publ., Edinburgh, 1999, pp. 353-359.
9. C. Coutrix, L. Nigay. OP: A Novel Programming Model for Integrated Design and Prototyping of Mixed Objects. Proceedings of INTERACT '11, Springer LNCS (Lecture Notes in Computer Science), Vol. 6948, Portugal, September 5-9, 2011, pp. 54-72.
10. A. Clay, N. Couture, L. Nigay, et al. Interactions and systems for augmenting a live dance performance. Proceedings of IEEE-ISMAR 2012, 11th IEEE International Symposium on Mixed and Augmented Reality, IEEE, Atlanta, USA, Nov. 5-8, 2012, 10 pages.
11. T. Vincent, L. Nigay, T. Kurata. Precise pointing techniques for handheld Augmented Reality. Proceedings of INTERACT 2013, the 14th IFIP TC13 Conference on Human-Computer Interaction, Springer, Cape Town, South Africa, Sept. 2-6, 2013, pp. 122-139. Best long paper.
12. A. Chaffangeon Caillet, A. Goguey, L. Nigay. 3D Selection in Mixed Reality: Designing a Two-Phase Technique To Reduce Fatigue. Proceedings of IEEE-ISMAR 2023, 2023 IEEE International Symposium on Mixed and Augmented Reality, IEEE, Sydney, Australia, October 16-20, 2023, pp. 800-809.

#### Deformable user interfaces

13. S. Robinson, C. Coutrix, J. Pearson, J. Rosso, M. F. Torquato, L. Nigay, M. Jones, Emergeables: Deformable Displays for Continuous Eyes-Free Mobile Interaction. Proceedings of ACM-CHI'16, the 34th International Conference on Human Factors in Computing Systems, ACM, San Jose, CA, USA, May 7-12, 2016, pp. 3793-3805. Honorable mention.
14. J. Rosso, C. Coutrix, M. Jones, L. Nigay. Impact of Mobile Tangible Slider Design and its Reachability on Pointing Performance. Conférence IHM 2016, 28ème Conférence francophone sur l'interaction homme-machine, Fribourg, Suisse, 25-28 octobre 2016, ACM Press, pp. 70-78. Best long paper.
15. M. Ortega, J. Maisonnasse, L. Nigay. EXHI-bit: a mechanical structure for prototyping EXpandable handheld interfaces. Proceedings of ACM-MobileHCI 2017, the 19th International Conference on Human-Computer Interaction with Mobile Devices and Services, ACM, Vienna, Austria, September 4-7, 2017, Article No. 4, 11 pages.

## Mobility and Physical Interaction

- 16.J. Francone, G. Bailly, E. Iecolinet, N. Mandran, L. Nigay. Wavelet Menus on Handheld Devices: Stacking Metaphor for Novice Mode and Eyes-Free Selection for Expert Mode. Proceedings of ACM-AVI 2010, ACM, Roma, Italy, May 25-29, 2010, pp. 173-180.
- 17.J. Francone, L. Nigay. Using the User's Point of View for Interaction on Mobile Devices. Proceedings of IHM 2011, 23ème Conférence francophone sur l'interaction homme-machine, ACM, Nice, 24-27 October 2011, pp. 25-31. Best long paper.
- 18.W. Delamare, C. Coutrix, L. Nigay. Mobile Pointing Task in the Physical World: Balancing Focus and Performance while Disambiguating. Proceedings of MobileHCI 2013, the 15th International Conference on Human-Computer Interaction with Mobile Devices and Services, ACM, Munich, Germany, August 27-30, 2013, pp. 89-98.
- 19.M. Guillon, F. Leitner, L. Nigay. Investigating Visual Feedforward for Target Expansion Techniques. Proceedings of CHI 2015, the 33th international conference on Human factors in computing systems, ACM, Seoul, Korea, April 18-23, 2015, pp. 2777-2786.

## CSCW

- 20.Y. Laurillau, L. Nigay. Clover Architecture for Groupware. Proceedings of CSCW'02, New Orleans, USA, November 2002, ACM, pp. 236-245.
- 21.F. Jourde, Y. Laurillau, L. Nigay. COMM Notation for Specifying Collaborative and MultiModal Interactive Systems. Proceedings of ACM-EICS 2010, ACM, Berlin, Germany, June 21-23, 2010, pp. 125-134.

## Professional service

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### Research leadership

- Since 2023 I **co-created and am co-director of the 38M€ national network, eNSEMBLE, on the Future of Collaboration**. This network brings together 80 computer science and social science research teams. (Network duration 2023-2031)
- Since 2020 I **have been leading the Interactive and Cognitive Systems department** of the Laboratoire Informatique de Grenoble (LIG) and I am a member of the LIG Executive Committee. This department includes four research groups including my group. As a leader of the department, my key role is to induce collaboration between the four groups, to animate joint events (e.g. seminars, doctoral days) as well as support department members. Furthermore, a post-doctoral fellowship is awarded each year to support a project between two groups in the department.
- Since 2009 I **am leading the Engineering Human-Computer Interaction group**. It includes three professors, eight lecturers, one CNRS researcher and one CNRS research engineer part time. Since 2009: (1) we have recruited one Professor, one CNRS researcher, one CNRS research engineer and four lecturers; (2) two members have been promoted to full Professors; (3) 2 Habilitation theses and more than 30 PhD theses have been defended. The group received in 2015 a first class review by the national High Council for the Evaluation of Research and Higher Education (HCERES) highlighting the quality of the research and publications and encouraging us to maintain this level of quality. My report on the team activities is available at:



<http://iihm.imag.fr/publs/rapports/EHCIReport.2009-June2014.pdf>.

- Since its creation and from 2012 to 2020 I **co-chaired one of the four research actions “Authoring Augmented Reality” of the PERSYVAL-Lab** (Labex on Pervasive systems and algorithms at the convergence of physical and digital worlds). PERSYVAL-Lab federates 800 researchers and academics from 10 laboratories in Grenoble. The activity induced research collaborations between laboratories. This was a challenging activity. PERSYVAL-Lab runs three calls for project-teams (every two years, 280Keuros), exploratory projects (every year, 10keuros) and PhD fellowships (every year). PERSYVAL-Lab has been successfully renewed until 2029.
- From 2020 to Jan. 2023 I **was a member of the scientific board of the MIAI Grenoble Alpes (Multidisciplinary Institute in Artificial Intelligence)**. The role is the operational management of the MIAI scientific activities. We had one meeting per month and we managed the call for chairs, for research projects and for post-doctoral fellowships.
- From 1998-2004, I was **vice-chair of the IFIP working group WG 2.7/13.4 “User Interface Engineering”**.
- I was responsible for the **CNRS national working groups on multimodality and on Mobility and Ubiquity** (co-creator of the French UBIMOB conference in 2004). In 2016 the conference UBIMOB was a satellite workshop of the COMPAS (Parallelism, Architecture, System) conference.

## Conferences

I have been active in the program committees of many international conferences in HCI (ACM-AVI, ACM-CHI, ACM-EICS, BCS-HCI, INTERACT, ACM-IUI, ACM-MobileHCI, ACM-MULTIMEDIA, Aml, COOP, IHM, IEEE-ISMAR).

In particular, I have been **program co-chair** for EHCI 1998 (Greece), **technical&paper co-chair** for BCS-HCI 1998 and 2006 (UK), **tutorial co-chair** for BCS-HCI 2003 (UK), **associate chair** for CHI 2000 (The Netherlands) and CHI 2024 (USA), **demonstration co-chair** for CHI 2003 (USA) and for IUI 2004 (Portugal), **organizational overviews co-chair** for Interact 2007 (Brazil), **sub-committee chair** for Interact 2019 (Cyprus), **associate chair** for Interact 2021, **program chair** for the French-speaking HCI conference in 1996, 2011 and in 2023 (France), **co-president and general co-chair** for the French-speaking HCI conference in 2016 (Switzerland), **doctoral consortium co-chair** for EICS 2012 (Denmark), EICS 2014 (Italy) and EICS 2024 (Italy), **member of the steering committee** of the EICS conference since 2015, **paper co-chair** for EICS 2015 (Germany), **member of the editorial board** of ISS 2022.

## Journals

I am a member of the editorial board of the **Journal of Multimodal User Interfaces (JMUI)** edited by Springer, editor of a Special Issue on the challenges of engineering multimodal interaction with two colleagues from the University of Glasgow, a member of the editorial board of the **PACM on Human-Computer Interaction journal** edited by ACM, a member of the editorial board of the **journal Technique et Science Informatiques** (Computer Science and Technology) edited by Hermès Science and a member of the advisory board of the international journal **Interaction Intelligence Information**. From 1998 to 2007 I was also a member of the editorial board of the **AFIHM journal, RIHM**.

## Research evaluation

- Member of the evaluation panel for **the European Research Council (ERC)**: Advanced grants 2012, 2014 and 2016 as well as Starting grants 2021 and 2023.
- Reviewer of European Research Council (ERC) Advanced, Consolidator and Starting grants
- Member of the evaluation committees of several French research laboratories (**national High Council for the Evaluation of Research and Higher Education, HCERES**)
- President (three years) and Member of several project evaluation committees (COSINUS, CONTINT, BLANC) of ANR, **the French National Research Agency**. Being president of an evaluation committee involves the dispatch of the short and long proposals (~160 projects step 1 & ~65 projects step 2), a review of the received comments, the animation of the 3-day committee meeting (27 members) and a final report to ANR about the review process. From 2016-2017 member of the Scientific Advisory board of ANR for the challenge "Information and Communication Society".
- Member of the national **Inria** (French national institute for research in computer science and control) evaluation committee (evaluation of research, hiring and promotion). The workload is weighted at 8 hours per month.
- Member of selection **committees for recruiting Professors and Lecturers** in several Universities (more than 20 committees in France and abroad).
- From 1999 to 2003 I was a member of **the French National Board of Universities** (CNU) section 27 Computer Science. The CNU establishes the list of qualified persons who can then apply for an associate professor or professor position in a French university.
- Since 2005, member of the **Habilitation committee** of the University of Grenoble, selecting colleagues for accreditation so that they can supervise theses and then apply to become professors.
- **Member (president or reviewer) of 72 Ph.D. committees and 17 Habilitation committees**

## Management of research

- 2010-2013: Member of the **ICT steering committee of ANR**, the French National Research Agency.
- Feb 2013-Sept. 2014: Member of the **CNRS (French National Center for Scientific Research) scientific committee INS2I** (Institute for Information Sciences and Technologies)
- 2010-2013: **Leader of the national ALLISTENE (the Digital Sciences and Technologies Alliance) programmatic group** on "content, knowledge, interfaces, interaction and robotics" (6 national programmatic groups). The goal of ALLISTENE is to coordinate its members (Universities, Engineering Schools, INRIA, CNRS, CEA) in terms of foresight and overall research strategy. The three co-leaders of the group were B. Claverie, E Dombre and H. Maître. The group included 15 members. Since it was the beginning of ALLISTENE, a first important task of the group was to define the research themes and their grand challenges for France. In addition we were



solicited by the Coordination Committee on specific issues including the call for projects of the French National Research Agency and specific subjects (complex systems, handicap, H2020) for the national research strategy. This involved at least 7 meetings per year (group meetings, general assembly) and the editing of several documents and reports.

- Until 2007, member of the **management committee of the national CNRS research group GdR I3** – Information - Intelligence – Interaction.
- Elected member of **laboratory committees**: 95-98 Lab. CLIPS, 2007-2016 Lab. LIG
- 2014: National Research Strategy led by the **French Ministry of Higher Education and Research**. I was part of the group of experts dedicated to challenge 7 “The Information and Communication Society” and I actively contributed to the written report on the national strategy.
- Since October 2015: Elected as member of the research committee of **“Mathematics, Sciences and Technologies of Information and Communication” research center**, one of the six centers of ComUE Université Grenoble Alpes. The ComUE UGA brings together the higher education and research establishments (universities, grandes écoles, research bodies, and university teaching hospital) from throughout the French Alps territory. In particular, the committee runs a call for projects every year and defines the Grenoble faculty positions and their evaluation committees every year.

#### Association

- **AFIHM**: I am a founding member of the French Association for Computer-Human Interaction (AFIHM: Association Francophone d’interaction Homme-Machine). From 2006 to 2012 I was the president and since then a member of the committee managing the publications and scientific events of AFIHM.
- **SIF**: From 2011 to 2014 I was a member of the scientific committee (12 members) of the French Association for Computer Science (SIF).

#### Science Popularization and Industrial Events

- Exhibit stands (Industrial Events)
  - 2-4 December 2020, FID 2020, The Defense Innovation Forum, Microgesture-based interaction in cockpit design, demonstration broadcast on national television news
  - 5-8 March 2019 Global Industry, Lyon France, exhibition stand with two prototypes (mobile augmented reality and deformable device).
  - 25-27 November 2008, ICT 2008, Lyon. Multimodal interaction - OpenInterface
  - 2-6 March 2010, CeBIT 2010, STIC, Hannover, Germany. Multi-touch interaction
- 5 December 2024 « Les innovantes » Inria Lille France  
An event designed to promote computer science among secondary school pupils, and in particular female students. (80 students attended)  
Presentation: Introduction to the field of HCI and its applications

- National Science days (La fête de la Science) organized by CNRS
  - 15-16 October 2004, demonstration stand: Mobile Augmented Reality Game
  - 14-16 November 2008, demonstration stand: Beyond keyboard-mouse-screen  
13682 participants
  - 21-24 October 2010, demonstration stand: Exploring a map with a *cubtile*
- Software/Application
  - I3D (Glasses-free monocular 3D) application on iTunes downloaded more than 1.5 million times and the video on YouTube viewed more than 2 million times (also featured in various articles in Wired 2011 and MacStories 2011)
  - Service Tracker: Face tracking as an Android service  
2012 Deposit with APP: the European body for protecting authors' and publishers' digital works IDDN.FR.001.170016.000.S.P.2013.000.4000

#### Invited lectures at Universities/Institutes since 2000

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- March 2022, Collège de France (France's most prestigious higher education and research establishment)  
Title: Interaction modality and multimodality
- January 2022, Kaizen Solutions, a company specialized in augmented reality  
Title: Interactive Augmented reality
- October 2020, University of Swansea UK - MIAI Grenoble Alpes (Multidisciplinary Institute in Artificial Intelligence)  
Title: Multimodal interaction: Transition between modalities
- October 2020, Laboratory seminar, LIG Grenoble, France  
Title: Transition between modalities
- October 2019, ENS Rennes, France (one of the major French Grandes Ecoles)  
Title: Pointing techniques
- July 2019, Grenoble Centre for Cognitive Science, France  
Title: Mobile Augmented Reality
- November 2018, JST (Japan) – ANR (France) Joint symposium: Symbiotic Interaction (organizer and speaker)  
Title: Human-Computer Interaction and Symbiotic Interaction
- July 2018, MIAI Grenoble Alpes (Multidisciplinary Institute in Artificial Intelligence)  
Title: Artificial intelligence and Human intelligence
- February 2018, Bilateral workshop on Cyber-physical Systems and IoT, Kobe University (Japan) – University of Grenoble Alpes  
Title: Usable Digital World
- January 2018, IFIP W2.7 Group, Aachen, Germany  
Title: Prototyping EXpandable Handheld Interfaces
- July 2016, Institute of Research and Technology (IRT) b<>com, Rennes, France  
Title: Distant Pointing - Digital and Physical Targets
- July 2015, Eindhoven University of Technology - User Centred Engineering Group, The Netherlands  
Title: Visual feedforward for target expansion techniques

- March 2015, University Grenoble Alpes and CPU - Conference of University Presidents  
Seminar on research and the digital world, Grenoble, France  
Title: Making the digital world usable and accessible
- December 2014, IFIP W2.7 Group, National School of Civil Aviation ENAC, Toulouse, France  
Title: Design Framework for Handheld Augmented Reality
- April 2014, The Pole Optique Rhône-Alpes ORA (optics-photonics), Grenoble, France  
Title: Smart home and HCI: Distant Interaction for controlling lighting sources
- January 2014, ECCAMI Excellence Center for Computer Assisted Medical Interventions, THALES workshop, Grenoble, France  
Title: HCI and medical context: Augmented Reality, Multi-Surface and Distant Interaction
- May 2013, Laboratoire d'Informatique Fondamentale, Orléans, France  
Title: Human-Computer Interaction: Interaction modality and multimodality
- December 2012, IFIP W2.7 Group, SEE-Electricity, Electronics and ICT Society, Paris, France  
Title: Design space for handheld Augmented Reality
- December 2011, IFIP W2.7 Group, Bloomberg Company, New York ,USA  
Title: Adaptable multimodal interfaces in pervasive environments
- January 2010, THALES Research & Technology, Delft, The Netherlands  
Workshop organized by the Human Factors and Cognition Lab., part of Thales R&D  
Title: Interaction modality
- November 2008, ETSI European Telecommunications Standards Institute, France  
1st ETSI Workshop on Multimodal Interaction on Mobile Devices  
Title: Multimodal Interaction and OpenInterface Project Introduction
- September 2007, EMODE workshop organized by THALES, Paris, France  
Title: OpenInterface platform
- November 2006, Philips Research, Eindhoven, The Netherlands  
Informatica Colloquium  
Title: Interaction modality and multimodality
- June 2006, Université de Paris 8, Paris, France  
Study day on Tangible User Interfaces  
Title: Mixed Reality and Tangible User Interfaces
- January 2006, European Commission, Luxembourg  
European Workshop on Interactive Systems & New Interface Technologies  
Preparation of the Seventh Framework Programme (FP7 2007-2013)  
Title: Engineering for Multimodal Human-Computer Interaction
- July 2005, University of Mons, Belgium  
eINTERFACE 05: summer workshop on multimodal interfaces  
Titles: 1- The OpenInterface architecture 2- HCI and multimodality
- July 2005, The French Association of Aeronautics and Astronautics, Grenoble, France  
Title: Multimodal interaction for Military Aircraft Cockpits
- June 2005, France Télécom, Paris, France  
Title: Multimodal Interaction

- April 2005, Swiss Federal Institute of Technology (EPFL), Switzerland  
Study day organized by the NoE FP6 SIMILAR  
Title: HCI - Multimodal Interaction Fusion/Fission
- March 2005, Institut Universitaire de France, Museum of Grenoble, France  
Title: From Graphical User Interfaces to Pervasive Computing
- May 2004, Swiss Federal Institute of Technology (EPFL), Switzerland  
Multimodal day organized by the NoE FP6 SIMILAR  
Title: Modality and multimodality
- March 2004 THALES/TRT, Paris, France  
Human-Computer Interaction Day  
Title: Interaction modality and multimodality
- March 2004, CNRS Research Group GDR-I3, LIP6, Paris, France  
Visualization day Title: Large Information Spaces: Interaction Techniques
- March 2004, ENS-Lyon, LIP, Lyon, France (one of the major French Grandes Ecoles)  
Title: Modality and multimodality
- October 2003, University of Bordeaux 1, LABRI, Bordeaux, France  
Title: Interaction techniques for navigation tasks
- December 2002, CNRS Research Group GDR-I3, Nancy, France  
Title: Mobile computing, data access and human-computer interaction
- Oct. 2002, Concerted Action-Cognitive Sciences, Ministry of Research, France  
Title: Mobile Augmented Reality: Application to Archaeology
- June 2002, University College London, Interaction Centre, UK  
Title: Multimodality and Augmented Reality systems
- January 2002, University of Sheffield, UK  
Title: Augmented Reality systems
- June 2001, University of Glasgow, UK  
Title: Consistency in Augmented Reality
- August 2000, Queens University, Canada  
Title: Augmented Reality and Multimodality
- May 2000 ACM HCI local chapter, University Toulouse III, IRIT, Toulouse, France  
Title: Augmented Reality and Multimodality

## Grant history

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### National network

2023-2031 Co-director of the national network "eNSEMBLE" on the future of collaboration  
I co-created, submitted and am a co-director of the eNSEMBLE network that brings together 80 computer science and social science research teams. The scientific program includes five Targeted Projects on collaboration and transversal actions including education (National Masters' program) and technology development. Four waves of doctoral grants will be awarded (80 doctoral grants) as well as post-doctoral grants.

**Total budget: 38.25 Meuros**

## European projects

- 2006-09    Coordinator of the STREP FP6-35182 OpenInterface  
Engineering multimodal interaction, 11 European partners  
**Total budget: 4Meuros. Grenoble Budget: 302Keuros**
- 2003-06    Network of Excellence FP6-507609 SIMILAR  
Multimodal interfaces, 32 European partners  
Member of the steering committee comprised of 8 members  
Co-manager of the WP2 on the integration platform  
Member of the scientific committee of the annual 4 week workshop eINTERFACE  
**Grenoble budget: 132Keuros**
- 1998-02    European TMR TACIT Research Network  
Theory and Applications of Continuous Interaction Techniques
- 1992-95    ESPRIT B.R.A. (Basic Research Action) 7040 AMODEUS  
Asseying Means Of DEsign Expression for Users & Systems  
Member of the Research Package "System Modeling"
- 1989-92    ESPRIT B.R.A. (Basic Research Action) 3066 AMODEUS  
Assimilating MOdels of DEsigners, Users and Systems  
Member of the Research Package "System and Architecture Modeling"

## International projects

- 2015-19    EPSRC: Research Grant Breaking the Glass:  
Multimodal, Malleable Interactive Mobile surfaces for Hands-In Interactions  
Partners: Uni of Swansea (UK), BBC R&D (UK), Bristol University (UK)  
**My team: non-funded partner**
- 2011-14    Coordinator of the AMIE project, a joint ANR (French National Research Agency)  
and JST (Japan Science and Technology Agency) project  
Augmented Mobile Interactive Experience  
4 partners: AIST-Tsukuba, LIG-IIHM, Schneider and DIGITAL companies  
**Budget: 216 Keuros**
- 2006-09    MoSAIC project, ICT-Asia project  
Mobile Search and Annotation using Images in Context  
2 French partners (Grenoble and Lyon), 4 Asian partners (Singapore, Taiwan,  
Japan and Vietnam)  
**Budget: Travel grant (meetings in Asia)**

## National and industrial projects

- 2022-2026 Coordinator of the MIC project, ANR (French National Research Agency)  
Microgesture in Context  
6 partners: Inria Lille, Univ. Toulouse 2, CNRS-IPAL-Singapore, The Institute for Blind Children, IMMERSION company, LIG-IIHM  
**Total budget: 597 Keuros**  
**Grenoble budget: 86Keuros and a doctoral grant**
- 2019-2023 iGlove project, Carnot Institute LSI (Software and Intelligent Systems)  
Interactive Glove for microgesture-based interaction  
**Budget: 1 year engineer and 5keuros**
- 2019-2020 HUMID project, THALES Avionics  
DGA (French Army Research Dept.) Man Machine Teaming  
Head-Up Multimodal Interactive Display  
**Budget: 190Keuros**
- 2017-2022 AN@TOMY2020 project, ANR (French National Research Agency) project  
Augmented reality and embodied interaction to facilitate learning of functional anatomy  
6 partners, TIMC, GIPSA, LJK, LIBM-Lyon, LIG-IIHM labs, Anatoscope company  
**Budget: 134Keuros**
- 2017-2019 LUG2 project, Single Inter-Ministry Fund (FUI), Coordinator MicroDB company  
Human-Computer Interaction and Visualization for Acoustic Imagery  
6 partners (3 academic partners and 3 industrial partners)  
**Budget: One post-postdoctoral grant and travel grant**
- 2016-2019 AP2 project, ANR (French National Research Agency)  
Interaction techniques for collaboratively manipulating 2D and 3D data displayed on an horizontal or vertical surface  
3 partners: IMMERSION company (coord.), IRIT (Uni. of Toulouse), LIG-IIHM  
**Budget: 184Keuros**
- 2016-2018 IoT project team, PERSYVAL-Lab (Labex on Pervasive systems and algorithms at the convergence of physical and digital worlds)  
Internet of Interactive Things - Interacting with the Internet of Things  
4 partners: LIG-Drakkar, CEA-LETI, VERIMAG, LIG-IIHM  
**Total budget: 230 Keuros**  
**Grenoble budget: One post-postdoctoral grant and travel grant**
- 2014-2018 Member of the ISAR project, ANR (French National Research Agency) project  
Interaction with Spatial Augmented Reality  
3 partners: INRIA Bordeaux (coordinator), LIG-IIHM, Diotasoft company  
**Budget: 265 Keuros**



- 2013-2017 LBA project team, PERSYVAL-Lab (Labex on Pervasive systems and algorithms at the convergence of physical and digital worlds)  
Living Book of Anatomy – Augmented reality and embodied interaction  
Co-managing with J. Troccaz, O. Palombi and V. Cahouet  
4 partners: TIMC Lab, GIPSA Lab, INRIA and LIG  
**Total budget: 250 Keuros**
- 2013-16 Augmented surgery, France, BBRAUN AESCULAP SAS company  
Multimodal interaction in the operating room  
**Budget: 30 Keuros and a doctoral grant**
- 2013-16 Mobile Interaction, France, Motwin company  
Interaction techniques for mobile device  
**Budget: 30 Keuros and a doctoral grant**
- 2013 Transport Simulation, France, CORYS French company, 4 months  
Visualization/Interaction techniques  
**Budget: 35 Keuros**
- 2012-15 FENICS project, Coordinator AIRBUS  
Multimodal interaction for Civil Aircraft Cockpits  
22 partners including AIRBUS, DASSAULT Aviation, THALES Avionics  
**Budget: 50Keuros and a doctoral grant**
- 2012-13 Carnot Institute LSI (Software and Intelligent Systems)  
Face-tracking techniques on smartphones and tablets  
**Budget: 55Keuros**
- 2011-14 DELIGHT project, Single Inter-Ministry Fund (FUI), Coordinator Schneider  
Physical interaction for selecting LED light sources  
11 partners (3 academic partners and 8 industrial partners)  
**Budget: 241Keuros**
- 2010-12 Project for a company with a business incubator  
Menu techniques  
**Budget: 12Keuros**
- 2008 CNRS multidisciplinary project (PEPS)  
Art and Science – Interactive art  
**Budget: Travel grant for meetings (one year)**
- 2008-11 Authority Sharing project, DGA (French Army Research Dept.)  
Collaborative and multimodal military command post for the control of unmanned aerial vehicles (UAV)  
5 partners: LIG-IIHM, BERTIN (coord.), Py Automation, SAGEM and EADS  
**Budget: 75Keuros**

- 2008-11 CARE project, ANR (French National Research Agency),  
Coordinator IMMERSION company  
Cultural experience: Augmented Reality and Emotion  
3 academic partners and 2 industrial partners  
**Budget: 173Keuros**
- 2005 PACR Usage, France Télécom R&D project  
Multimodality and Plasticity  
**Budget: 50Keuros**
- 2005 Mobile AR, France Télécom R&D project  
Mobile augmented reality  
**Budget: 40Keuros**
- 2005 Multimodality, THALES Avionics project  
Multimodality: State of the art  
**Budget: 24Keuros**
- 2004-07 Multimodal dialogue, France Télécom R&D project  
**Budget: 30Keuros and a doctoral grant**
- 2003-06 VERBATIM project, Ministry of Research (RNRT)  
Formal specification of multimodal interaction  
**Budget: 107Keuros**
- 2003-06 NAVGRAPH project, French Ministry of Research (ACI)  
Interaction techniques for large graphs  
**Budget: 16Keuros**
- 2003-06 INTUITION project, DGA (French Army Research Dept.), coordinator THALES  
Input multimodality for Military Aircraft Cockpits  
4 partners: LIG-IIHM, LIMSI (Orsay), IRIT (Toulouse) and THALES  
**Budget: 174Keuros**
- 2002-04 HOURIA project, France Télécom R&D project  
Exploratory project on augmented reality  
**Budget: 50Keuros**
- 2001-04 MMM project, French Ministries of Research and Industry  
Augmented surgery  
3 partners: LIG-IIHM, TIMC-IMAG and the firm PRAXIM  
**Budget: 114Keuros**
- 2001-02 Specific Action CNRS  
Information Visualization  
**Budget: 3Keuros (travel grant)**
- 2000-01 NIM project, France Télécom R&D project  
Exploratory project on multimodal interfaces  
**Budget: 220K Francs**

- 1999-01    MAGIC project, France Télécom R&D project  
Exploratory project on collaborative augmented reality  
**Budget: 767K Francs**
- 1998        IMAG project, local grant  
Design method for augmented surgery  
**Budget: 250K Francs**
- 1998-00    RICOM project, CNRS and IMAG project  
Multimodal and collaborative information retrieval  
**Budget: 90K Francs**
- 1997-99    SIRII project, French Ministries of Research and Industry  
Intelligent information retrieval  
**Budget: 137K Francs**