

# Laurence Nigay

Professor of Computer Science  
at Université Grenoble Alpes

Head of the  
Engineering Human-Computer Interaction group



Date of birth: December 7th, 1965, France

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## 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 at Laboratoire Génie Informatique, 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
2004-09	Junior member of <i>Institut Universitaire de France</i>
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 34 members: 12 faculty members, 17 PhD students, 1 engineer, 4 post-doc/visitors

## Awards

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1994	City of Grenoble award: Best young researcher
2001	Best short paper award at IHM-HCI 2001
2002	CNRS Bronze Medal for Excellence in Research
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 (34th ACM International Conference on Human Factors in Computing Systems)

## 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)

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

From 1991-96 I taught HCI during several industrial training sessions, from 1994-99 I taught HCI at ENSTA-Paris (National Engineer School) and from 1996-2012 I taught HCI at the University of Nice in France. I also taught abroad (e.g., Graduate School, Computer Science Institute, Vietnam National University Hanoi-Vietnam) and during summer schools (e.g., Visualization Summer School, Sixth Summer School on Technology Enhanced Learning).

Last created course: Autumn 2015 Advanced HCI (Master level) dedicated to menu techniques with a lab course on developing a marking menu.

## Pedagogical and Administrative Duties

- From 1995-2000, I was 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.
- Since 2006, I am 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 promotion includes between 35 to 60 students that 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 co-created the Computer Engineering Masters Apprenticeship Program. This year (2017-2018) we have 19 apprentices.
- Since 2012, **I am 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 AR 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 both on, input multimodal user interfaces that support multiple input interaction modalities such as 2D/3D gesture, 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] [2] [3] [4] [5].

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. [6] [7] [8] [9].

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. [10] [11] [12]

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 [9] [13] [14] [15] [16] as well as in computer-supported collaborative work by focusing on design notations and software architectures. In particular I am interested by the link between multimodal and collaborative aspects of interaction. [17] [18]

Application domains include archaeology, games, cultural experiences (museum, ballet [8]) military cockpit [2], military command post [18], augmented surgery [6] [16], smart home [4] [15] and production maintenance [9].

## PhD students

### Currently co-advising 4 PhD students

Advisor or co-advisor of **18 students who defended their theses**: 8 of them are currently professors, lecturers or CNRS researchers.

## Publications

I have published more than 220 articles in conferences, journals and books. (complete list of publications available at: <http://iihm.imag.fr/nigay/NigayPubli-En.pdf>)

## Selected publications

### Multimodality

1. L. Nigay J. Coutaz. A Generic Platform for Addressing the Multimodal Challenge. Proceedings of ACM-CHI'95, ACM New York Publ., 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 Press, 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 Press, 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 Press, Tokyo, Japan, November 12-16, 2016, pp. 145-152.

#### Mixed systems

6. 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.
7. 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.
8. 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.
9. 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.*

#### Deformable user interfaces

10. 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 Press, Sam Jose, CA, USA, May 7-12, 2016, pp. 3793-3805. *Honorable mention.*
11. 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.*
12. 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 Press, Vienna, Austria, September 4-7, 2017, Article No. 4, 11 pages.

#### Mobility and Physical Interaction

13. 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 Press, Roma, Italy, May 25-29, 2010, pp. 173-180.
14. 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 Press, Nice, 24-27 October 2011, pp. 25-31. *Best long paper.*
15. 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 Press, Munich, Germany, August 27-30, 2013, pp. 89-98.
16. 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 Press, Seoul, Korea, April 18-23, 2015, pp. 2777-2786.

## CSCW

17. Y. Laurillau, L. Nigay. Clover Architecture for Groupware. Proceedings of CSCW'02, New Orleans, USA, November 2002, ACM Publ, ISBN:1-58113-560-2, pp. 236-245.
18. F. Jourde, Y. Laurillau, L. Nigay. COMM Notation for Specifying Collaborative and MultiModal Interactive Systems. Proceedings of ACM-EICS 2010, ACM SIGCHI Symposium on Engineering Interactive Computing Systems, ACM Press, Berlin, Germany, June 21-23, 2010, pp. 125-134.

## Professional service

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### Research animation

- Since 2009 **I am leading the Engineering Human-Computer Interaction group**. It includes four professors, six 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 27 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://ihm.imag.fr/publs/rapports/EHCIRreport.2009-June2014.pdf>.
- **I co-chair 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). The activity consists of inducing research collaborations between laboratories by identifying research themes for which Grenoble is strong. It is a challenging activity. The Labex displays three calls for project-teams (every two years, 280Keuros), exploratory projects (every year, 10keuros) and PhD fellowships (every year).
- 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 group on multimodality and am now managing the one 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, AmI, 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), **demonstration co-chair for CHI 2003** (USA) and for IUI 2004 (Portugal), **organizational overviews co-chair for Interact 2007** (Brazil), program chair for the French-speaking HCI conference in 2011 (France), **co-president and general co-chair for the French-speaking HCI conference in 2016** (Switzerland), doctoral consortium co-chair for EICS 2012 (Denmark), member of the steering committee of the EICS conference since 2015, **paper co-chair for EICS 2015** (Germany).

## 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.
- Reviewer of European Research Council (ERC) Advanced, Consolidator and Starting grants
- Member of the evaluation committees of several French research laboratories
- **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. Since 2016 **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 French Universities
- From 1999 to 2003 I was a member of the **French National Board of Universities (CNU)** section 27 Computer Science.
- Since 2005, member of the Habilitation committee of the University of Grenoble
- **Member (president or reviewer) of 56 PhD committees and 11 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 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 at the research committee** of “Mathematics, Sciences and Technologies of Information and Communication” research department, one of the six departments 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 all over the French Alps territory.

### 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 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)
  - 25-27 November 2008, ICT 2008, Lyon. Multimodal interaction - OpenInterface
  - 2-6 March 2010, CeBIT 2010, STIC, Hannover, Germany. Multi-touch interaction
- 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 (with various articles such as 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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- 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 Laboratory, part of Thales R&D  
Title: Interaction modality
- November 2008, ETSI European Telecommunications Standards Institute, Nice, 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  
eNTERFACE 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  
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, Toulouse, 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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### European projects

2006-09      Coordinator of the STREP FP6-35182 OpenInterface  
 Engineering multimodal interaction, 11 European partners  
 Total budget: 4Meuros. UJF Budget: 302Keuros

- 2003-06 Network of Excellence FP6-507609 SIMILAR  
Multimodal interfaces, 32 European partners  
Member of the steering committee made of 8 members  
Co-manager of the WP2 on the integration platform  
Member of the scientific committee of the annual 4 week workshop eNTERFACE  
UJF 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

- 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

- 2017-2012 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 position 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 (coordinator), IRIT (Uni. of Toulouse), LIG-IIHM  
Budget: 184Keuros
- 2016-2018 IoIT 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 Budget: One post-postdoctoral position 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 PhD grant
- 2013-16 Mobile Interaction, France, Motwin company  
Interaction techniques for mobile device  
Budget: 30 Keuros and a PhD 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 PhD 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.), coordinator BERTIN  
Collaborative and multimodal military command post for the control of unmanned  
aerial vehicles (UAV)  
5 partners: LIG-IIHM, BERTIN, Py Automation, SAGEM and EADS  
Budget: 75Keuros
- 2008-11 CARE project, ANR (French National Research Agency), Coordinator IMMERSION  
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 PhD 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