Michel Beaudouin-Lafon

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Biography

Michel Beaudouin-Lafon is Professor of Computer Science at Université Paris-Sud (France) since 1992 and senior member of the prestigious Institut Universitaire de France since 2011. He was director of LRI, the laboratory for computer science joint between Université Paris-Sud and CNRS, from 2002 to 2009. Under his tenure the lab grew from 160 to 280 faculty, staff and Ph.D. students. LRI is one of the leading French labs in computer science and is internationally recognized in areas including quantum computing, graph theory, software engineering, distributed computing, databases, machine learning and human-computer interaction.

Michel has worked in human-computer interaction (HCI) for over 20 years and was elected to the ACM SIGCHI Academy in 2006: "*The CHI Academy is an honorary group of individuals who have made extensive contributions to the study of human-computer inteaction and who have led the shaping of the field*."

His research interests include fundamental aspects of interaction, engineering of interactive systems, computer-supported cooperative work and novel interaction techniques. His current research is conducted in the In Situ group, a joint lab between LRI and INRIA (http://insitu.lri.fr). In 2011 he was awarded a 22M€ grant for the Digiscope "Equipment of Excellence" project to create a unique network of nine interactive rooms interconnected with high-end video-conferencing.

Michel has advised twenty-four Ph.D. students, twelve of whom have continued a research career. He is on the editorial board of three international journals (ACM TOCHI, IJHCS, JCSCW) and has sat on many program committees (especially ACM CHI, ACM UIST, ACM CSCW, INTERACT, AVI). He was a member of the European Research Council (ERC) evaluation panel for Advanced Grants and Synergy Grants and has conducted numerous expertise both nationally and internationally.

Michel founded AFIHM, the Francophone association for human-computer interaction, in 1996 and was a member of the ACM Council and the ACM Publications Board from 2002 to 2008. He chaired the ACM UIST conference in 2002 and the E-CSCW conference in 2004. He has been papers chair for the ACM CHI conference in 2001, subcommittee chair for CHI in 2010 and program chair for the ACM UIST conference in 2008. He was technical program chair of the ACM CHI conference in Paris in 2013, which attracted a record attendance of 3550 participants for 1000 presentations over 4 days.

Education

1977-79	*Classes Préparatoires* (prep school), Bordeaux
1979-82	*Grande Ecole* (engineering school in Computer Science), ENSEEIHT, Toulouse
1982	Engineering degree in Computer Science and Applied Mathematics, Toulouse
1982-85	Ph.D. thesis at *Laboratoire de Recherche en Informatique*, Univ. Paris-Sud
1992	*Habilitation à diriger des recherches*, Univ. Paris-Sud

Employment

1984	Lecturer, Université Paris-Sud
1988	Assistant Professor, Université Paris-Sud
1992	Professor, Université Paris-Sud
1992-93	Sabbatical at Univ. Toronto, Xerox PARC, DEC PRL, Rank Xerox EuroPARC
1997	Full professor, Université Paris-Sud, promoted to *Classe exceptionnelle* in 2006
1998-00	Visiting professor, Aarhus University (Denmark)
2010-12	Sabbatical at Stanford University
2011-16	Senior member of *Institut Universitaire de France*

Honors

Member of the ACM CHI Academy, 2006.

ACM SIGCHI Lifetime Service Award, 2015.

Best paper awards at ACM CHI 2012, IIHM 2009, IHM 2006, IHM-HCI 2001.
Honorable mention at ACM CHI 2012, Notable mention at ACM UIST 2011.

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Research

My research interests cover a broad spectrum of Human-Computer Interaction (HCI). My original interest was in engineering of interactive systems. I still think it is too complicated to program even simple interactions, and I have workd on integrating state machines, which are well-suited to describing interactions, into existing toolkits [8]. I am also interested in understanding the fundamental aspects of interactive computation [6], in connection with my work on instrumental interaction (see below).

Another fundamental aspect of HCI that I have studied extensively is the basic task of pointing. Pointing is typically modeled with Fitts' law, which links the pointing time to the index of difficulty (ID) of the task. Together with Yves Guiard we have studied pointing with very high indices of difficulty (up to ID = 30 vs. about 8 for classical pointing tasks) that require panning and zooming to navigate the information world [5]. We found that Fitts' law still held in these conditions and devised novel techniques such as Semantic Pointing that improve pointing performance in an unobtrusive way.

This work has influenced another long stream of research on novel interaction techniques (e.g., [1]). Most notably, I have defined an interaction model called *instrumental interaction* [3], in which interaction is mediated by instruments or tools that can be defined independently of the objects they operate on. My current work in this area is conducted on the WILD platform that I have coordinated. WILD consists of an 18'x6', 131 million pixels wall display, a multitouch table, a motion-tracking system and an 18-computer visualization cluster. Such environments require a complete re-thinking of basic interaction technique, including pointing [10], to support *multi-surface interaction* [9].

I have also had a long interest in computer-supported cooperative work [2]. I have worked on shared editing, media spaces and, in the context of the European project InterLiving, on communication technologies for the home. The €22M Digiscope project that I am coordinating is creating a network of 10 high-end interactive rooms (including WILD) to explore co-located and remote collaboration in such environments [9]. Finally, I am interested in design and research methods in HCI. Together with Wendy Mackay, we have worked on prototyping techniques [4] in the context of participatory design, and on Touchstone, a platform for designing, running and analyzing controlled experiments [7].

Selected publications

1. T. Baudel & M. Beaudouin-Lafon, "CHARADE: Remote Control of Objects Using Free-Hand Gestures", *Communications of the ACM*, Vol 36, n° 7, July 1993, pp 28-35.

2. M. Beaudouin-Lafon (editor), *Computer-Supported Co-operative Work*, Trends in Software 7, John Wiley & Sons, 1999. Available on-line at http://www-ihm.lri.fr/~mbl/TrendsCSCW

3. M. Beaudouin-Lafon, "Instrumental Interaction: an Interaction Model for Designing Post-WIMP User Interfaces", in *Proc. ACM Human Factors in Computing Systems* (CHI 2000), ACM, 2000, pp 446-453.

4. M. Beaudouin-Lafon & W.E. Mackay, "Prototyping Tools and Techniques", *Human Computer Interaction Handbook*, J.A. Jacko and A. Sears (eds), Lawrence Erlbaum Associates, 2002, pp 1006-1031.

5. Y. Guiard & M. Beaudouin-Lafon, "Target acquisition in multiscale electronic worlds", *International Journal of Human Computer Studies* (IJHCS), Elsevier, 61(6):875-905, Dec. 2004.

6. M. Beaudouin-Lafon, "Human-Computer Interaction", *Interactive Computation: The New Paradigm*, D. Goldin, S. Smolka, P. Wegner (eds), Springer, 2006, pp 227-254.

7. W. Mackay, C. Appert, M. Beaudouin-Lafon, O. Chapuis, Y. Du, J-D. Fekete, Y. Guiard, "Touchstone: Exploratory Design of Experiments", Proc. *ACM Human Factors in Computing Systems* (CHI'07), ACM, 2007, pp 1425-1434.

8. C. Appert & M. Beaudouin-Lafon, "SwingStates: adding state machines to Java and the Swing toolkit", *Software: Practice and Experience*, 38(11):1149-1182, 2007.

9. M. Beaudouin-Lafon, S. Huot, M. Nancel, W. Mackay, E. Pietriga, R. Primet, J. Wagner, O. Chapuis, C. Pillias, J. Eagan, T, Gjerlufsen, C. Klokmose, "Multi-surface Interaction in the WILD Room", *IEEE Computer*, April 2012, pp 48-56.

10. M. Nancel, O. Chapuis, E. Pietriga & M. Beaudouin-Lafon, "Mid-air Pointing on Ultrawalls", *ACM Transactions on Computer-Human Interaction (TOCHI)*, 22(5) article 21, 62 pages, 2015.

154 publications including 1 book, 11 edited books or special issues, 18 book chapters, 10 journal articles, 53 articles in top international conference. 11 articles with over 100 citations, h-index 33.

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Teaching

I have taught in every teaching program of the Computer Science department, Université Paris-Sud, at both the undergraduate and graduate levels. Apart from my research specialty, Human-Computer Interaction, I have taught Data structures and algorithms, Imperative programming, Object-oriented programming, Compilation, Software engineering, and Machine architecture.

I created several new courses at the undergraduate level: Computer graphics and interaction, Advanced computer graphics, Introductory human-computer interaction. At the graduate level, I created two new courses: Fundamentals of human-computer interaction and Groupware and computer-supported cooperative work, and I co-created the course Design and evaluation of interactive systems with Wendy Mackay.

I have also taught at summer schools and abroad, in particular during my two-year visit at Aarhus University in Denmark. During my stay at Stanford, I have taught a course with Wendy Mackay (CS477) on *Reinventing Interactive Systems*.

I was vice-president for teaching of the Computer Science department at Univ. Paris-Sud (1993-98). I have created and am chairing the Interaction specialty of the Masters in Computer Science at Univ. Paris-Sud & Univ. Paris-Saclay, and the Univ. Paris-Sud branch of the European Human-Computer Interaction & Design Masters of EIT Digital.

Ph.D. students

Currently co-advising 6 Ph.D. students. Advisor of 16 Ph.D. students and co-advisor of 8 Ph.D. students who defended their theses; 14 of them have continued into research in academia or industry, including 1 junior CNRS researcher, 2 senior INRIA researchers, 5 assistant professors in French universities.

Professional service

JOURNALS AND CONFERENCES
Editorial boards: ACM Books, ACM TOCHI, Int. J. Human-Computer Studies, CSCW Journal, JIPS.

Conference chair or co-chair: ACM UIST (2001), E-CSCW (2005), IHM (2004).

Program committee chair: ACM CHI (2001, 2010), ACM UIST (2008), IHM (1995, 2007).

Numerous participations in the program committees of the top HCI conferences: ACM CHI, ACM UIST, ACM CSCW, Interact, AVI, E-CSCW, etc.

MANAGEMENT OF RESEARCH
Director of LRI, (2002-2009) a joint research lab between Université Paris-Sud and CNRS: 280 members including 100 faculty and researchers and 125 PhD. students.

Member (2003-2010) of the steering committee of Digiteo, a research park in computer science gathering 2000 researchers from 10 research organizations, including Université Paris-Sud, CNRS, INRIA, CEA, Ecole Polytechnique.

Member of the ANR (National Research Agency) area committee for Computer Science (2009-2012).

RESEARCH EVALUATION
Member of the evaluation panel for the European Research Council: Advanced grants & Synergy grants.

Expert for several foreign agencies: EPSRC (UK), NSERC (Canada), COFECUB (Brazil).

Member of the evaluation committees of several French research laboratories.

Member of the scientific committee of IRCAM (Paris).

Member of 59 PhD. committees and 13 habilitation committees.

Member of the hiring committees of several universities.

SOCIETIES
Founder and first president (1996-98) of AFIHM, the Francophone association in human-computer interaction. Vice-president (2002), member of the board (2002-2006).

Elected member-at-large of the ACM Council (2000-2008, 2 terms). Member of the ACM Publications board (2002-2009, 2 terms). Member of the ACM Europe Council (2009-2015) and EUACM (2015-).