

Céline COUTRIX

Born June 04, 1982. French. Two children, born in 2013 and 2017.

Ph.D. in Computer science, Human Computer Interaction

CNRS Researcher

Contact

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Awards and Fellowships

- 2018 **Honorable Mention** (Top 5% of >2500 submissions) at ACM CHI 2018²
- 2017-2020 **Research and doctoral supervision grant** (PEDR)
- 2017 National **CNRS Bronze Medal** for promising research
- 2017 **Humboldt Research Fellowship for Experienced Researchers** (12+4 months)
- 2016 **Best Paper Award** at ACM IHM 2016¹
- 2016 **Honorable Mention** (Top 4% of ~2325 submissions) at ACM CHI 2016 ²
- 2005 - 2008 **MENRT Scholarship** of the French Ministry of National Education, Research and Technology for a three-year doctoral program

¹The ACM IHM conference follows a very rigorous reviewing process, comparable to ACM CHI

²The ACM CHI conference is one of the top publication venues (among all conferences and journals), thanks to its rigorous review process, its low acceptance rate, its visibility and its large number of attendees.

Education

- 2007 – 2010** **Research Student in Interactive Art**
Installation & relational devices, Locative medias
Top French art school, École Nationale Supérieure des Arts Décoratifs, Paris, France
- Oct. 2005–May 2009** **Ph.D. in Computer Science (Human Computer Interaction)**
“Mixed Reality Interfaces: Design and Prototyping”
Advisor Pr, Dr Laurence Nigay
University of Grenoble 1 (UJF)
Grenoble Informatics Laboratory (LIG)
EHCI research group, Grenoble, France
Funded by the French government
- 2004 – 2005** **Research Master of Science in Informatics**
University of Grenoble 1 (UJF)
Grenoble Informatics Laboratory (LIG)
EHCI research group, Grenoble, France
With honors
- 2002 – 2005** **Engineering Master of Science in Informatics**
Top French computer science engineering school ENSIMAG, Grenoble, France
With honors
- 2000 - 2002** **Classes préparatoires**
(Very demanding 2 years undergraduate program to enter the French “Grandes écoles”;
followed by a national competitive examination, and according to the rank,
admittance to a top-level engineering school)
Top 12% of candidates
- 2000** **A-levels, major in mathematics and art**
With highest honors

International Experience

2016 – Present	1st grade CNRS Researcher Research on Interaction with Tangible Objects LIG Laboratory, EHCI research group	Grenoble, France
2016 - 2018	Visiting researcher Research on Tangible Interaction University of Stuttgart, Institute for Visualization and Interactive Systems, Human Computer Interaction Group	Stuttgart, Germany
2010 – 2015	2nd grade CNRS Researcher Research on Interaction with Physical-Digital Objects LIG Laboratory, EHCI research group	Grenoble, France
2009 – 2010	External Researcher Research on Interactive Arts Top French art school, École Nationale Supérieure des Arts Décoratifs	Paris, France
2009 – 2010	Post-Doctoral Researcher Research on Ubiquitous Computing Software development, in C# and C++, with the MultiTouch sdk (http://multitouch.fi/) HIIT Laboratory, UIx research group	Helsinki, Finland
2005 – 2009	Research associate Research on mixed reality Software development with Java & C++, with ARToolKit, Phidgets and Qt LIG Laboratory, EHCI research group	Grenoble, France
2005 – 2008	Assistant Lecturer Teaching Computer Science to specialists and non-specialists University of Grenoble 2, Pierre Mendès-France	Grenoble, France
2004 – 2005	Research Intern Research on Mixed Reality Software development of an augmented reality multimodal and mobile game, in Java with Swing and JOGL LIG Laboratory, EHCI research group	Grenoble, France
Jul.–Sept. 2004	Intern Collaboration with artist Joëlle Bitton, on her « Passages » project Software development of Passages with Isis and C Media Lab Europe (European research partner of the MIT Media Lab), Human Connectedness group	Dublin, Ireland

Skills

With most efficiency and expertise first

Code

Languages C/C++, Objective-C, R, Processing, Java, Javascript, Ada, SQL, C#
Tools Qt, Arduino, Phidgets, Multitouch.fi, ARToolKit, OpenGL, Swing, Isis, tcl/tk
Environments XCode, QtCreator, Eclipse
Version control Git, Subversion

Operating systems

MacOS, Unix/Linux (bash/tcsh), Windows

Documents & Presentations

Languages Latex, HTML, CSS
Software Microsoft Office/Apple iWork/OpenOffice, Photoshop/Gimp, Illustrator

Languages

Assessed on a scale from A1 to C2, according to the [common European framework of reference for languages](#).

French C2 (native)
English C2
Spanish B2
Catalan B2
German C1
Finnish A1

Research

CNRS researcher in Laboratoire d'Informatique de Grenoble (LIG), EHCI research group, Grenoble, France.
Ph.D. from University of Grenoble 1 (UJF), in the Grenoble Informatics Laboratory (LIG), Engineering of Human-Computer Interaction (EHCI) research group in Grenoble, with advisor Laurence Nigay (Pr., Dr.).

Practical Realizations

- 2014 – 2015 Zoomable Resizable Slider**
a tangible slider that can be zoom in/out in motor and visual space in order to balance between performance and minimum size
- 2011 – 2012 Affective Gestures**
Study showing to which extent we can identify the emotion a user is explicitly expressing through 2D and 3D gestures
- 2010 FizzyVis applied to JatsiTatsi**
Large multitouch wall installed at Pori Jazz Festival (Finland)
Collaboration with social scientists and computer scientists
- 2009 – 2011 The Common Touch**
A large multitouch wall exploiting engagement and affective input of the audience.
Design, take part in software development.
Collaboration with artists and computer scientists.
- 2009 Euclide**
Affective & collective multimodal interaction with a digital puppet in a science museum.
Took part in design and software development.
Collaboration with designers and computer scientists.
- 2007 – 2009 OP**
Software tool for rapid prototyping of mixed physical-digital objects, extending Qt (toolkit for Graphical User Interfaces).
Design and software development.
Used for the software development of ORBIS & Roam (below).
About 8000 lines of code
- 2008 Roam**
Tool for taking picture without requiring attention.
Took part in design, software development.
Collaboration with a designer.
- 2007 – 2008 Snap2Play**
Mixed reality game on mobile phone.
Took part in design, supervising a master student for software development and evaluation.
Collaboration with information retrieval researchers.
- 2007 ORBIS**
Mixed object for watching personal pictures.
Took part in design and software development.
Collaboration with a designer.
- 2005 RAZZLE (Augmented Reality puZZLE)**
Augmented reality multimodal mobile game.
Took part in design, software development, and evaluation.
Collaboration with computer scientists and ergonomists.
About 5000 lines of code
- 2004 Passages**
Public space installation that aims to connect intimately people in different cities.
Software development.
Collaboration with an artist in Media Lab Europe.

Statement

In the last decades, new interaction paradigms emerged that seeks to smoothly merge physical and digital worlds. The design of such mixed physical-digital systems gives rise to further design challenges due to the new roles that physical objects can play in an interactive system. In this context, my work encompasses both research in-the-small and in-the-large, by contributing respectively with new interaction techniques improving user experience and new design methods improving designer experience.

In-the-small

Mixed physical-digital objects give opportunities for new interaction techniques as their hardware capabilities increase. My work addresses several problems related to the interaction with mixed physical-digital objects: First, as the use of interactive systems is intertwined with our everyday life, I address the need for users to affectively manipulate objects. To answer this problem, I proposed (1) a study showing to which extent we can identify the emotion a user is explicitly expressing while manipulating a mixed object through 2D and 3D gestures. I proposed (2) interactive art installations in order to explore aesthetic experience of interaction and (3) an interaction technique to present information in a playful way.

Second, my work addresses the need for users to interact efficiently with mixed objects in the physical environment, possibly at a distance and where potential targets can be dense and occluding each other. To answer to this problem, I supervised a PhD student to propose and compared several usable interaction techniques for distal selection of physical targets.

In-the-Large

The inherent problem of emerging interaction paradigms like mixed systems is that we develop ad-hoc systems without keeping track of the design process. Because of this lack of capitalization on our experience, we are forced to begin the next design from scratch, facing again similar design problems. We also face comprehension problems when explaining the choice of a design to other designers. In addition, we are not able to explore the design space in a systematic way, and always find a better solution after the development is finished. Even though several conceptual results exist for understanding and designing such systems, they do not address the entire design space and remain local, and not related to each other. As a consequence, it is difficult to compare existing mixed reality systems and explore new designs.

Besides, conceptual tools need corresponding prototyping tools to facilitate development, in order to put them in use during design. Indeed, design takes advantages of this concrete generative approach through prototyping. Even though conceptual results and toolkits exist, they are not related to each other. As a consequence, it is hard to move smoothly back and forth between conceptual design and concrete prototyping activities when designing a new system. Addressing these problems, my research aims at helping the design of mixed systems, by defining a uniform and unifying design framework. First, through a conceptual interaction model, I provide a global understanding of the design of mixed systems. This interaction model proposes a description for each design solution of mixed interactive systems, in order to keep track of the design and share it with pairs. It provides a framework and characteristics for exploring the design space and for comparing design solutions. Second, I make the conceptual tool useable during design, thanks to a prototyping tool based on my interaction model, capitalizing on existing toolkits. This toolkit has been already used to develop several systems.

To sum up, my research addresses the two following research questions:

- A unifying design model that encompasses a wide range of previous results on the design of mixed systems,
- A software tool, for rapidly developing mixed objects, that is based on the underlying concepts of the model.

One of the key points of my research is to unify existing results both in terms of design and development. My goal is not to define yet another model or prototyping tool. Based on my research results, designers know how to use validated and consensual works in a systematic way during the design phase. Developers are able to develop prototypes based on the key concepts of my design framework while keeping the benefits of existing toolkits.

Publications (total 43)

International refereed journal articles (1)

- 1 Chin, You, **Coutrix**, Lim, Chevallet, Nigay (2009)
Mobile phone-based mixed reality: the Snap2Play game. The Visual Computer, Springer Berlin / Heidelberg Publ., ISSN 0178-2789, Volume 25, Number 1, January 2009 (Print), ISSN 1432-2315, August 2008 (Online), pp. 25-37, 13 pages. DOI=<http://dx.doi.org/10.1007/s00371-008-0283-3>

Book Chapter (3)

- 3 **Coutrix**, Cunin, Okura, Serrano
De part et d'autre de l'interface : les continuités esthétiques et scientifiques. In SIMULATION TECHNOLOGIQUE ET MATÉRIALISATION ARTISTIQUE : Une exploration transdisciplinaire arts/sciences, Bianchini, S., Delprat, N., Jacquemin, C., Eds., Editions L'Harmattan, janvier 2012, ISBN 978-2-296-55938-7, 30 pages.
- 2 **Coutrix**, Nigay
An Integrating Framework for Mixed Systems. In The Engineering of Mixed Reality, Dubois, E., Gray, P., Nigay, L. (Eds.), Springer, ISBN: 978-1-84882-732-5, 2010, 22 pages.
- 1 Nigay, **Coutrix**, Renevier
Systèmes interactifs mixtes : Fusion des mondes physique et numérique. In Interfaces numériques (Collection information, hypermédias et communication), Chapitre 3, Hermès Science, 15 juin 2007, ISBN13 978-2-7462-1695-2, 18 pages.

International refereed conference long papers (16)

- 16 Rosso, **Coutrix**, Jones, Nigay
Simulating an Extendable Tangible Slider for Eyes-Free One-Handed Interaction on Mobile Devices. Proceedings of the International Conference on Advanced Visual Interfaces (AVI'18), May 29 - June 1, Resort Riva del Sole, Castiglione della Pescaia, Grosseto, Italy, ACM. Article 16, 8+1 pages. DOI=<https://doi.org/10.1145/3206505.3206510> Acceptance rate: 25%.
- 15 Kim, **Coutrix**, Roudaut
Morphees+: Studying Everyday Reconfigurable Objects for the Design and Taxonomy of Reconfigurable UIs . In Proceedings of the SIGCHI Conference on Human Factors in Computing Systems (CHI'18), April 21-26, Montréal, Canada, ACM. Paper 619, 10+3 pages. DOI=<https://doi.org/10.1145/3173574.3174193> Acceptance rate: 25%. **HONORABLE MENTION AWARD (TOP 5% OF >2500 SUBMISSIONS)**
- 14 Kim, **Coutrix**, Roudaut
KnobSlider: Design of a Shape-Changing UI for Parameter Control. In Proceedings of the SIGCHI Conference on Human Factors in Computing Systems (CHI'18), April 21-26, Montréal, Canada, ACM. Paper 339, 10+3 pages. DOI=<https://doi.org/10.1145/3173574.3173913> Acceptance rate: 25%.
- 13 Delamare, Janssoone, **Coutrix**, Nigay
Designing 3D Gesture Guidance: Visual Feedback and Feedforward Design Options. In Proceedings of the International Working Conference on Advanced Visual Interfaces (AVI'16), June 7-10, Bari, Italy, ACM. pp. 152-159. 8 pages. DOI=<http://dx.doi.org/10.1145/2909132.2909260> Acceptance rate: 27.4%.
- 12 * Robinson, **Coutrix**, Pearson, Rosso, Torquato, Nigay, Jones
Emergeables: Deformable Displays for Continuous Eyes-Free Mobile Interaction. In Proceedings of the SIGCHI Conference on Human Factors in Computing Systems (CHI'16), May 7-12, San Jose, CA, USA, ACM, pp. 3793-3805. 10+3 pages. DOI=<http://dx.doi.org/10.1145/2858036.2858097> Acceptance rate: 23.4%. **HONORABLE MENTION AWARD (TOP 4% OF ~2325 SUBMISSIONS)**
- 11 * **Coutrix**, Masclet

- Shape-Change for Zoomable TUIs: Opportunities and Limits of a Resizable Slider.** In Proceedings of the 15th IFIP TC13 Conference on Human-Computer Interaction (INTERACT'15), September 14-18, 2015, Bamberg, Germany, Springer. 18 pages. DOI=http://dx.doi.org/10.1007/978-3-319-22701-6_27 Acceptance rate: 29.5%
- 10 Delamare, Coutrix, Nigay
Designing Guiding Systems for Gesture-Based Interaction. In Proceedings of the 7th ACM SIGCHI Symposium on Engineering Interactive Computing Systems (EICS'15), June 23-26, 2015, Duisburg, Germany, pp. 44-53. 10 pages. DOI=<http://dx.doi.org/10.1145/2774225.2774847> Acceptance rate: 29.7%
- 9 Delamare, Coutrix, Nigay
Mobile Pointing Task in the Physical World: Balancing Focus and Performance while Disambiguating. In Proceedings of the 15th International Conference on Human-Computer Interaction with Mobile Devices and Services (MobileHCT'13), August 27-30, 2013, Munich, Germany, 10 pages. DOI=<http://dx.doi.org/10.1145/2493190.2493232> Acceptance rate: 23%
- 8 Delamare, Coutrix, Nigay
Designing Disambiguation Techniques For Pointing in the Physical World. In Proceedings of the fifth ACM SIGCHI Symposium on Engineering Interactive Computing Systems (EICS'13), June 24-27, 2013, London, UK, 10 pages. DOI=<http://dx.doi.org/10.1145/2494603.2480309> Acceptance rate: 22%
- 7 * Coutrix, Mandran
Identifying Emotions Expressed by Mobile Users through 2D Surface and 3D Motion Gestures. In Proceedings of the 14th ACM International Conference on Ubiquitous Computing (Ubicomp'12), September 5-8, 2012, Pittsburgh, Pennsylvania, United States, 10 pages. DOI=<http://dx.doi.org/10.1145/2370216.2370265> Acceptance rate: 19.3%
- 6 * Coutrix, Nigay
OP: A Novel Programming Model for Integrated Design and Prototyping of Mixed Objects. In Proceedings of the 13th IFIP TC13 Conference on Human-Computer Interaction (Interact'11), Part III, 5-9 September 2011, Lisbon, Portugal, Springer, LNCS 6948, pp. 54-72, 18 pages. DOI=http://dx.doi.org/10.1007/978-3-642-23765-2_5 Acceptance rate: 27.6%
- 5 Coutrix, Kuikkaniemi, Kurvinen, Jacucci, Avdoueviski, Mäkelä
FizzyVis: Designing for Playful Information Browsing on a Multitouch Public Display. In Proceedings of the the conference on Designing Pleasurable Products and Interfaces (DPPI'11), 22-25 June 2011, Milan, Italy, ACM, 8 pages. DOI=<http://dx.doi.org/10.1145/2347504.2347534>
- 4 Coutrix, Jacucci, Advoueviski, Vervondel, Cavazza, Gilroy, Parisi
Supporting Multi-user Participation with Affective Multimodal Fusion. In Proceedings of the 9th International Conference on Creating, Connecting and Collaborating through Computing (C5'11), Kyoto, Japan, January 18-20 2011, IEEE, 8 pages. DOI=<http://dx.doi.org/10.1109/C5.2011.14>
- 3 * Coutrix, Jacucci, Spagnolli, Ma, Helin, Richard, Parisi, Roveda, Narula
Engaging Spect-actors with Multimodal Digital Puppetry. In Proceedings of the 6th Nordic Conference on Human-Computer Interaction (NordCHI'10), Reykjavik, Iceland, October 16 - 20, 2010, ACM Press, 10 pages. DOI=<http://dx.doi.org/10.1145/1868914.1868934> Acceptance rate: 27.5%
- 2 Chin, You, Coutrix, Lim, Chevallet, Nigay
Snap2Play: A Mixed-Reality Game based on Scene Identification. In Proceedings of the 14th International IEEE and ACM Multimedia Modeling Conference (MMM'08), Springer LNCS (Lecture Notes in Computer Science), Advances in Multimedia Modeling, Volume 4903/2008, Kyoto, Japan, January 9-11 2008, pp. 220-229. 10 pages. DOI=http://dx.doi.org/10.1007/978-3-540-77409-9_21 Acceptance rate: 18% for oral papers
- 1 * Coutrix, Nigay
Mixed Reality: A Model of Mixed Interaction. In Proceedings of the 8th International Conference on Advanced Visual Interfaces (AVI'06), Venezia, Italy, 23-26 may 2006, ACM Press, pp. 43-50, 8 pages. DOI=<http://dx.doi.org/10.1145/1133265.1133274> Acceptance rate: 25%

International refereed conference short papers (3)

- 3 Pearson, Robinson, Coutrix, Jones

- Evaluating Deformable Devices with Emergent Users.** In Proceedings of the 19th International Conference on Human-Computer Interaction with Mobile Devices and Services (MobileHCI'17), Vienna, Austria, September 4-7 2017, ACM Press, Article 14, 5+2 pages. DOI=<http://dx.doi.org/10.1145/3098279.3098555>
Acceptance rate: 20%
- 2 * **Coutrix**, Nigay
Balancing Physical and Digital Properties in Mixed Objects. In Proceedings of the 9th International ACM Conference on Advanced Visual Interfaces (AVI'08), Naples, Italy, May 28-30 2008, ACM Press, pp. 305-308, 4 pages. DOI=<http://dx.doi.org/10.1145/1385569.1385619>
- 1 You, Chin, Lim, Chevallet, **Coutrix**, Nigay
Deploying and Evaluating a Mixed Reality Mobile Treasure Hunt: Snap2Play. In Proceedings of the 10th International Conference on Human-Computer Interaction with Mobile Devices and Services (MobileHCI'08), Amsterdam, the Netherlands, September 2-5 2008, ACM Press, pp. 335-338, 4 pages. DOI=<http://dx.doi.org/10.1145/1409240.1409282>

French national refereed conference long papers (7)

- 7 Rosso, **Coutrix**, Jones, Nigay
Deformable Tangible Slider for Eyes-Free One-Handed Thumb Interaction on Mobile Devices. In Actes de la 29ème conférence francophone sur l'Interaction Homme Machine (IHM'17), Poitiers, France, 29 août - 1er septembre 2017, ACM, pp. 21-31. 10+1 pages. DOI=<http://dx.doi.org/10.1145/3132129.3132134>
- 6 Rosso, **Coutrix**, Jones, Nigay
Impact of mobile tangible slider design and its reachability on pointing performance. In Actes de la 28ème conférence francophone sur l'Interaction Homme Machine (IHM'16), Fribourg, Switzerland, 25-28 octobre 2016, ACM, pp. 70-78. 10+2 pages. DOI=<http://dx.doi.org/10.1145/3004107.3004123> **BEST PAPER AWARD**
- 5 Kim, **Coutrix**, Roudaut
KnobSlider: design of a shape-changing device grounded in users' needs. In Actes de la 28ème conférence francophone sur l'Interaction Homme Machine (IHM'16), Fribourg, Switzerland, 25-28 octobre 2016, ACM Press, pp. 91-102. 10+2 pages. DOI=<http://dx.doi.org/10.1145/3004107.3004125>
- 4 Bortolaso, Dubois, Bach, Nigay, **Coutrix**
Conception de systèmes interactifs mixtes : articulation d'une méthode informelle et d'un modèle d'interaction. In Actes de la 21ème conférence francophone sur l'Interaction Homme Machine (IHM'09), Grenoble, France, 13-16 novembre 2009, ACM Press, pp. 293-302, 10 pages. DOI=<http://dx.doi.org/10.1145/1629826.1629874>
- 3 * **Coutrix**, Nigay
Interagir avec un objet mixte : Propriétés physiques et numériques. In Actes de la 19ème conférence francophone sur l'Interaction Homme Machine (IHM'07), IRCAM, Paris, France, 13-15 novembre 2007, ACM Press, pp. 51-58, 8 pages. DOI=<http://dx.doi.org/10.1145/1541436.1541447>
- 2 * **Coutrix**, Nigay, Pasqualetti, Renevier
RAZZLE : de la conception à l'évaluation d'un système mobile et multimodal. In Actes des Troisièmes Journées Francophones: Mobilité et Ubiquité (UBIMOB'06), Paris, France, 5-8 septembre 2006, ACM Press, pp. 1-8, 8 pages.
- 1 * **Coutrix**, Nigay, Renevier
Modèle d'Interaction Mixte : la Réalité Mixte à la Lumière des Modalités d'Interaction. In Actes des Deuxièmes Journées Francophones: Mobilité et Ubiquité (UBIMOB'05), Grenoble, France, 31 mai-3 juin 2005, ACM Press, pp. 153-160, 8 pages. DOI=<http://dx.doi.org/10.1145/1102613.1102646>

Other publications (13)

- 13 Kim, **Coutrix**, Roudaut
KnobSlider: A Shape-Changing Interface for Parameter Control. Position paper for the workshop on Shape Changing Robotic Structures and Interfaces at the 2018 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS'18), Madrid, Spain on 5 October 2018. 1 page.

- 12 Kim, Aliva, Kosch, **Coutrix**, Roudaut
Using Shape-Changing Interfaces to Foster Inclusive Education for Visually Impaired People. Position paper for the workshop on Inclusive Educational Technologies: Emerging Opportunities for People with Visual Impairments at the SIGCHI Conference on Human Factors in Computing Systems (CHI'18), April 21, 2018, Montréal, Canada. 3+1 pages.
- 11 Kim, **Coutrix**, Roudaut
Empowering Makers to Create Reconfigurable Objects. Position paper for the workshop on Maker Movements, Do-It-Yourself Cultures and Participatory Design: Implications for HCI Research at the SIGCHI Conference on Human Factors in Computing Systems (CHI'18), April 21, 2018, Montréal, Canada. 4+1 pages.
- 10 Kim, **Coutrix**, Roudaut
Leveraging Everyday Deformation for Shape-Changing Interfaces. Position paper for the workshop on Sharing Perspectives on the Design of Shape-Changing Interfaces at the SIGCHI Conference on Human Factors in Computing Systems (CHI'16), May 8, 2016, San Jose, CA, USA. 4 pages.
- 9 Delamare, **Coutrix**, Nigay
A Tool for Optimizing the Use of a Large Design Space for Gesture Guiding Systems. Demonstration paper in adjunct Proceedings of the 7th ACM SIGCHI Symposium on Engineering Interactive Computing Systems (EICS'15), June 23-26, 2015, Duisburg, Germany. 4 pages.
- 8 **Coutrix**, Delamare, Guillon, Kurata, Leitner, Nigay, Vincent
Techniques de Pointage à Distance : Cibles Numériques et Cibles Physique. In Actes des 10èmes journées francophones Mobilité et Ubiquité (UbiMob'14). 5 pages.
- 7 * **Coutrix**, Rivière, Borgiel, Castet, Couture, Ullmer, Geelhaar, Reuter, Takouachet, Kolski, Lepreux, Legardeur, Kubicki, Jansen, Bouadid
Methods for Designing Tangible UI: A First Comparative Case Study. Work-inProgress paper in Adjunct Proceedings of the Seventh International Conference on Tangible, Embedded and Embodied Interaction (TEI'13), February 10-13, 2013, Barcelona, Spain. 7 pages.
- 6 Delamare, **Coutrix**, Nigay
Pointing in the Physical World for Light Source Selection. Position paper for a workshop of the ACM conference on Designing Interactive Systems (DIS'12), Newcastle, UK, June 11-15, 2012, 4 pages.
- 5 **Coutrix**, Avdouevski, Jacucci
The Common Touch: Aesthetic and affective interaction in semi-public settings. Position paper for a workshop of the 8th International Conference on Pervasive Computing (Pervasive'10), Helsinki, Finland, may 17-20, 2010, 2 pages.
- 4 * **Coutrix**, Narula, Helin, Jacucci, Roveda
Interactivity of an Affective Puppet. In Adjunct Proceedings of the 11th International Conference on Ubiquitous Computing (UbiComp'09), Orlando, Florida, September 30th - October 3rd 2009, ACM Press, 2 pages.
- 3 * **Coutrix**
Helping the Design of Mixed Systems. In Adjunct Proceedings (Doctoral Colloquium) of the 6th International Conference on Pervasive Computing (Pervasive'08), Sydney, Australia, may 19-22 2008, Austrian Computer Society Publ., pp. 154-159, 6 pages.
- 2 * **Coutrix**
Modèle d'Interaction pour les systèmes mixtes. In Actes (Doctoral Consortium) de la 19ème conférence francophone sur l'Interaction Homme Machine (IHM'07), IRCAM, Paris, France, 13-15 novembre 2007, ACM Press, pp. 229-232, 4 pages.
- 1 * **Coutrix**
Le Modèle d'Interaction Mixte : Un cadre pour la conception des systèmes mixtes. Rencontres des Jeunes Chercheurs en Interaction Homme-Machine (RJC-IHM'06), Anglet, France, 12-15 novembre 2006, 4 pages.

Projects Fundings

- 2015–2018 (3 ans) PhyFlex (Physically Flexible Control for Human-Computer Interaction)**
Funding 200 k€ from ANR (French National Agency for Research) starting grant
Research PhyFlex opens new perspectives on TUI based on the flexibility provided by the dynamic change of shapes of input devices.
Role Principal investigator and coordinator (200k€)
Consortium CNRS (coordinator), Bristol Interaction and Graphics (UK)
Impact 3 CHI long papers, including 2 with honorable mention award (top 4-5%), 3 IHM long papers including 1 best paper award, 1 AVI paper, 1 MobileHCI paper, and 4 workshop papers.
- 2015–2018 (3 years) IoIT (Internet of Interactive Things)**
Funding 220 k€ from local LabEx (PERSYVAL-Lab)
Research Novel means for user interaction with energy-efficient 5G and IP connected Things, with distributed routing and resource allocation algorithms, and lightweight security and privacy protocols.
Consortium LIG (coordinator), CEA, Verimag
Role Project partner (LIG)
- 2014–2017 (3 years) ISAR (Interaction with Spatial Augmented Reality)**
Funding 664 k€ from ANR (French National Agency for Research)
Research Design, implementation and evaluation of interaction techniques with spatial Augmented Reality, directly projecting in physical space information coming from the digital world.
Consortium INRIA (coordinator), CNRS, Diotasoft
Role Project partner (CNRS) manager (265k€)
Impact 2 publications, including 1 CHI paper with honorable mention award
- 2013–2015 (2 years) TAPIOCA (TAngibilité Physiologique Instrumentée : Outil mixte redimensionnable pour la Conception d'Artefact)**
Funding 20 k€ from local LabEx (PERSYVAL-Lab)
Research Identifying and engineering gesture recognition-based interactive systems of the future, based on resizable mixed tools.
Consortium LIG (coordinator), GIPSA-Lab, G-SCOP, LJK
Role Project partner co-manager (20 k€)
Impact 3 publications
- 2011–2013 (3 years) DELIGHT**
Funding 2663 k€ from FUI (Fond Unique Interministériel)
Research Design and prototyping of interaction techniques for novel LED lightning systems. Evaluation in hotels and workspaces.
Consortium Schneider Electric (coordinateur), Saint Gobain, Texas Instruments, SONEPAR, Ecole Nationale des Travaux Public de l'Etat, Université Paul Sabatier, UJF, Centre de Recherche de l'Institut Paul Bocuse, EFS Electronique, Ingelux, Motwin
Role Project partner (UJF) manager (242 k€)
Impact 8 publications for UJF partner, a commercial product for the whole project

2009–2011 (2 years)	S3 (Screen × Space × Social activity)
Funding	360 k€ from TEKES (National Technology Agency of Finland)
Research	Build, test and evaluate prototypes that interlink physical and virtual spaces and foster engaging and fun social activity and rich interaction using large-scale digital displays in connection with physical spaces.
Consortium	Helsinki Institute for Information Technology (coordinator), University of Art and Design, Elisa, Nokia Siemens Networks, Pelika.net, Porijazz, Fullsteam Agency, Lacquer
Role	Project partner (HIIT)
Impact	2 publications and public installation in Pori Jazz Festival (155 000 visitors)
2007–2010 (3 years)	CALLAS (Conveying Affectiveness in Leading-Edge Living Adaptive Systems)
Funding	6.5 M€ from European Commission (IP FP6)
Research	Design and development of a Framework based on a plug-in multimodal architecture, invariant to configuration of Multimodal Components, to interpret and process emotional aspects in real-time for easy and fast development of applications for Art and Entertainment.
Consortium	Engineering Ingegneria Informatica SpA (coordinator), British Broadcasting Corporation, VTT Technical Research Centre of Finland, Studio Azzurro, XIM, Digital Video, Humanware, NEXTURE Consulting srl, University of Augsburg, National Technical University of Athens, Université de Mons, University of Teesside, Aalto University, Telecom Paristech, Scuola Normale Superiore of Pisa, University of Reading, Fondazione Teatro Massimo, Human Interface Technology Laboratory New Zealand.
Role	Project partner (Aalto University) manager (starting from October 1st, 2009)
Impact	Contributed to 6 publications out of a total of 84 publications for the project
2007–2009 (3 years)	CARE (Cultural Experience: Augmented Reality and Emotion)
Funding	ANR (French National Agency for Research)
Research	Definition of new interfaces for interaction based on emotions and augmented reality. Definition of a design and evaluation method of the experience of the user in a cultural context through emotions and augmented reality.
2008 (1 year)	Simulation and Materialization
Funding	CNRS (French National Centre for Scientific Research)
Research	Collaboration between art & science laboratories around the simulation and materialization theme.
2006–2008 (2 years)	MoSAIC (Mobile Search and Annotation using Images in Context)
Funding	ICT-Asia (French program to foster cooperation and networking in research and training in ICT in Asia).
Research	Development of a novel contextual information access framework and robust visual indexing and matching algorithms for mobile media search applications.
2006–2009 (33 months)	OpenInterface
Funding	European project (STREP FP6)
Research	Design and development of a platform for rapid prototyping of multimodal interactive systems as a central tool for user centred iterative design.
2005–2006 (10 months)	RA-Mobile

Funding Industrial project with France Telecom R&D
Research Mobile Augmented Reality.

Talks

Conferences

For the 15 publications marked with (*), I delivered the presentation, either through a talk (11), a demonstration (1) or a poster presentation (3).

Invited talks

<i>Towards physically flexible interaction</i>	Second Forum Ouvert Œuvres et Recherches in Le Fresnoy , Tourcoing, France November 22nd, 2018
<i>Physically Flexible Control</i>	Collaborative research center SFB-TRR 161 in University of Stuttgart and streamed to University of Konstanz, Germany October 17th, 2016
<i>Let's get physical</i>	Interactions and Cognition Department of LIRIS lab , Lyon, France November 27, 2015
<i>Shape-Change for Zoomable TUIs</i>	Bristol Interaction and Graphics Group , UK November 6, 2015
<i>Interaction à distance pour le contrôle de la lumière par l'utilisateur final</i>	Cluster Lumière meeting in Smart Electric , Lyon, France January 20th, 2015
<i>Concevoir l'interaction avec l'informatique diffusée dans les objets</i>	Summer School on Ambient Intelligence organized by CNRS GDR I3 , Lille, France July 7, 2011
<i>L'Homme augmenté en IHM</i>	Augmented Human group in ISCC , Paris, France December 7, 2010
<i>Large multitouch public displays in an artistic and entertainment context</i>	Multitouch interfaces workshop in HIIT , Helsinki, Finland November 26, 2009
<i>Interfaces for Art & Entertainment</i>	TAUCHI , Tampere, Finland November 11, 2009
<i>Réalité mixte mobile</i>	French working group on mobility (GTMOB) meeting in INRESTS , Lille, France December 1, 2005

Supervision

Post-docs

MIRA SARKIS (March 2017 –)
Involvement Co-advised (25%) with Andrzej Duda (50%) and Laurence Nigay (25%)
Subject Using radio signal for interaction

PhD students

HYUNYOUNG KIM (October 2015 – October 2018)
Involvement Co-advised (70%) with Anne Roudaut (Bristol University, 30%)
Subject Physically flexible control
Impact 2 publications

JUAN PABLO ROSSO PIRELA (October 2015 – September 2018)
Involvement Co-advised (60%) with Laurence Nigay (20%)
and Matt Jones (Swansea University, 20%)
Subject Distant interaction in the physical world:
Shape-changing TUI on mobile devices
Impact 2 publications, among them one best paper award

CAMERON STEER (September 2015 – September 2018)
Involvement Co-advised (10%) with Matt Jones (Swansea University, 70%),
Rory Wilson (Swansea University, 10%) and Phil Stenton (BBC, 10%)

WILLIAM DELAMARE (October 2011 – October 2015)
Involvement Co-advised (50%) with Laurence Nigay (50%)
Subject Techniques for interacting with augmented physical targets
Impact 7 publications, among them MobileHCI'13 (AR: 23%) and EICS'13 (AR: 22%)
Career Defended on November 2nd, 2015
Post-doc with Pourang Irani at HCI Lab,
University of Manitoba (from January 2016)

Master students

MATTHIEU LE FLOHIC	(June – August 2018)
Involvement	Co-advised (50%) with Alexandra Voit (50%)
Subject	Ambient notifications through shape-change in domestic environments
MAXIME ISNEL	(January – June 2018)
Involvement	Co-advised (30%) with Sybille Caffiau (60%)
Subject	Shape-changing interfaces for older adults, application to the smart home
BENJAMIN DÉFOSSÉ	(January – June 2018)
Involvement	Co-advised (30%) with Sybille Caffiau (60%)
Subject	Shape-changing interfaces for visually impaired users, application to the smart home
ZYTA WAWRZEŃCZYK	(February – June 2016)
Involvement	Co-advised (30%) with Laurence Nigay (30%) and Andrzej Duda (40%)
Subject	Using radio signals for interaction
JUAN PABLO ROSSO PIRELA	(February – June 2015)
Involvement	Co-advised (60%) with Laurence Nigay (20%) and Matt Jones (Swansea University, 20%)
Subject	Distant interaction in the physical world: Shape-changing TUI on mobile devices
Career	PhD student (awarded Université Joseph Fourier scholarship)
NICOLAS BELLEVILLE	(February – May 2015)
Involvement	Full supervision (100%)
Subject	Shape-changing Tangible Interaction: From a slider to a knob
SILVAN CABOT	(February – June 2014)
Involvement	Co-advised (70%) with Cédric Masclet (G-SCOP Laboratory, 30%)
Subject	Opportunities of a slider in the non-dominant hand for WIMP interactions
Career	Start-up Founder
ÉMILIE ANNWEILER	(February – June 2007)
Involvement	Co-advised (40%) with Laurence Nigay (30%) and Joo Hwee Lim (I2R Singapore, 30%)
Subject	Mixed reality game on mobile phone
Career	Continued in a development team in Singaporean company (Aksaas Pte Ltd)

Bachelor students

HARIS CAUSEGIC	(December 2016 – May 2017)
Involvement	Co-advised (33%) with Alexandra Voit (33%) and Hyunyoung Kim (33%)
Subject	Ambient notifications through shape-change in domestic environments
ANDREAS KORGE	(November 2016 – April 2017)
Involvement	Co-advised (33%) with Miriam Greis (33%) and Hyunyoung Kim (33%)
Subject	Exploring the suitability of shape-changing tangible interfaces to communicate uncertainty
BENJAMIN LAUSENAZ	(April – June 2015)
Involvement	Co-advised (50%) with Yann Laurillau (50%)
Subject	Suitability of various tangible devices for various visual tasks
DAMIEN BARBUT	(February – June 2007)
Involvement	Co-advised (30%) with Laurence Nigay (70%)
Subject	Mixed reality mobile game

Responsibilities in Scientific Community

Program committees & Editor

- ACM IHM 2019 Program Chair
- ACM IHM 2018 Doctoral Consortium Chair
- ACM Mobile HCI 2018 program committee member
- Member of the ANR committee for the 2018 generic call for funding in "CE33: Interaction, Robotics — Artificial Intelligence"
- Guest editor of IEEE Pervasive Computing Magazine's special issue on *Physical Computing: Flexible and Shape-Changing Interfaces*
- ACM Mobile HCI 2017 Doctoral Consortium Chair
- Associate Chair of main international HCI conference ACM CHI in 2017 ("Interaction Techniques, Devices and Modalities" subcommittee)
- Program committee member of the conference on mobile and ubiquitous multimedia ACM MUM in 2016
- Associate Chair of the French National HCI Conference ACM IHM in 2015
- ACM IHM 2014 Demonstration Chair

Organizer of scientific events

- Organized the French Human-Computer Interaction summer school (RJC-IHM'15).
- Co-organized the French National HCI Conference IHM 2009.

Reviewer

- Conferences
 - ACM CHI 2011, 2013, 2014, 2015, 2016, 2017, 2018, 2019,
 - ACM UIST 2014, 2018,
 - ACM TEI 2017, 2018 (WiP),
 - ACM DIS 2018,
 - UbiComp 2010 (adjunct), 2013,
 - ACM Mobile HCI 2012, 2013, 2014, 2015,
 - ACM ITS/ISS 2010, 2011, 2013, 2015, 2018,
 - IFIP Interact 2011, 2013, 2015, 2017,
 - ACM AVI 2008, 2012, 2014,
 - ACM IUI 2014, 2017,
 - ACM Nordi'CHI 2016,
 - ACM EICS 2010, 2014,
 - ACM IHM 2015, 2016,
 - ACM Multimedia 2010,
 - ICPR 2012,
 - Ubimob 2013,
- The Engineering of Mixed Reality Book 2009
- Journals
 - Taylor & Francis *Human Computer Interaction* 2015
 - Elsevier *International Journal of Human-Computer Studies* 2013,
 - Springer *Personal and Ubiquitous Computing* 2013,
 - IEEE *Transactions On Affective Computing* 2016,
 - IEEE *Computer Graphics and Application* 2012,

- IEEE *Pervasive Computing* 2017 (Special Issue on Physical Computing: Flexible and Shape-Changing Interfaces),
- ACM *Journal on Computing and Cultural Heritage* 2013,
- Hermès *Technique et Science Informatiques* 2009 2011,
- Funding organizations
 - ANR (Agence Nationale de la Recherche) 2014, 2016, 2018
 - Région Aquitaine 2014
 - FWO (Research Foundations Flanders) 2014 2015
 - [French-German University](#) 2016

Juries

- PhD committee of [Mathieu Le Goc](#) at AVIZ, INRIA and Université Paris Sud (2016)
- Lecturer position # 1388 at ISTIC Rennes 1 University (2016)
- Lecturer position # 1690 at Polytech Nantes (2016)
- Final Product and Interaction Design Diploma (DSAA) at Pole Supérieur de Design in Villefontaine (2015)

Active member in the scientific community

- Took part in the [Dagstuhl seminar on Shape-Changing Interfaces](#)
- Member of AFIHM (French association for Human-Computer Interaction) and ACM.
- Member of the [board of AFIHM](#) (2014 – 2016), as deputy secretary (2014) and secretary (2015).
- Took part in the French Human-Computer Interaction students meeting in November 2006 (RJC-IHM'06).

Popularization and public relations

- Chief Editor of the [magazine of the Laboratoire d'Informatique de Grenoble](#), targeting partners (both paper - 250 copies - and online).
- Member of [Narkolepsy](#) in 2009, a Grenoble-based association: organization of PLAY IN, first edition of a pluridisciplinary game-related event during which spectators are encouraged to perform (re)creative disobedience, technological reinvention of everyday life, and reappropriate freely the urban environment.
- Member of the 2007/2008 editorial board of « Visions Croisées », multidisciplinary general-public magazine focusing on research in Grenoble Universities.

Local group involvement

- Management of research group's meetings, writing workshops and presentations (2010 – 2015),
- Management hardware and lab/demo room (2009 – 2010).

Dissemination

Press

- **Revue i-mag** (n. 45, 2010, in French) special issue on women in computer science ("TIC au féminin"): <http://aae-ensimag.fr/actualites/article/revue-i-mag-n-45-tic-au-feminin>

Web

- **South Wales Evening Post Website** (2016) article on our co-author Matt Jones mentioning our ACM CHI 2016 paper *Emergeables: Deformable Displays for Continuous Eyes-Free Mobile Interaction*: <http://m.southwales-eveningpost.co.uk/smartphone/story-29672239-detail/story.html>

- **INRIA Grenoble website** (2016, in French) article about FabLabs and the prototypes of our ACM CHI 2016 paper *Emergeables: Deformable Displays for Continuous Eyes-Free Mobile Interaction*: <http://www.inria.fr/centre/grenoble/actualites/des-boutons-tangibles-emergeant-de-nos-telephones-tactiles>
- **CNRS INS2I website** (2016, in French) article about shape-changing devices in HCI ("Une forme qui s'adapte au fond") mentioning our ACM CHI 2016 paper *Emergeables: Deformable Displays for Continuous Eyes-Free Mobile Interaction*: <http://www.cnrs.fr/ins2i/spip.php?article1987>
- **Elsevier SciTech Connect** (2016) article ("Smartphone market stagnating? Time to break the glass and seek disruptive solutions") about our ACM CHI 2016 paper *Emergeables: Deformable Displays for Continuous Eyes-Free Mobile Interaction*: <http://scitechconnect.elsevier.com/smartphone-market-stagnating-seek-disruptive-solutions/>
- **Article on the ENSIMAG website** (2017) to report on my CNRS Bronze Medal and invite female students to do research: <http://ensimag.grenoble-inp.fr/recherche/celine-coutrix-medaille-de-bronze-du-cnrs-2017-877621.kjsp>
- **Article on the website of Universität Stuttgart** (2017) to report on my Humboldt fellowship: <https://www.beschaefigte.uni-stuttgart.de/uni-aktuell/meldungen/coutrix/>

Teaching

From 2005 to 2017, I gave a total of **334.5 hours** of lectures, at:

- Universität Stuttgart (Computer Science and Architecture departments) in Stuttgart, Germany
- Université Joseph Fourier (UFR IM2AG and Polytech, Computer Science department) in Grenoble, France
- Grenoble-INP (E.N.S.I.M.A.G., Computer Science department) in Grenoble, France
- Université Pierre Mendès France (IUT2, Computer Science and UFR ESE, Economics departments) in Grenoble, France
- Aalto University (Department of Design) in Helsinki, Finland (one invited course)

I addressed a **large panel of students**, from 1st year to Master students, studying various domains like economics, computer science, design, architecture or IT for health.

I taught a wide range of topics, from Human-Computer Interaction, HTML/CSS, Javascript, Arduino, C, Databases and ACCESS to Microsoft and Open office.

My role ranged from assistant lecturer to coordinator of the course. I was involved in designing courses and their support materials, evaluations and grading.

I also followed a teacher training program for 16.5 days during my doctoral studies .

2016 – 2017

Topic	Tangible Interaction (part of a multimodal interaction for ubiquitous computers lecture)
Level	Master
Public	Computer science (Stuttgart)
Volume	1.5h (course)
Role	Designed the course
Topic	Tangible Interaction: Introduction Design and Prototyping (Fachpraktikum, i.e. practical course)
Level	Master
Public	Computer science (Stuttgart)
Volume	22.5h (course and project)
Role	Designed the course and evaluation
Topic	Introduction to Arduino Prototyping (part of a Material and Structure course)
Level	Master
Public	Architecture students (Stuttgart)
Volume	3h (course)
Role	Designed the course
Topic	Tangible Interaction: Introduction, Design and Prototyping
Level	Research Master
Public	Computer science
Volume	9h (course) + 3h (project) = <i>16.5h Eq.TD</i>
Role	Designed the course and evaluation

2015 – 2016

Topic	Tangible Interaction: Introduction, Design and Prototyping
Level	Research Master
Public	Computer science
Volume	7h (course) = <i>10.5h Eq.TD</i>
Role	Designed the course and evaluation

2014 – 2015

Topic Human-Computer Interaction
Level Master
Public IT for Health
Volume 16h (project) = 16h Eq.TD

Topic Tangible Interaction: Introduction, Design and Prototyping
Level Research Master
Public Computer science
Volume 6h (course) + 1h30 (project) = 11.25h Eq.TD
Role Designed the course and evaluation

Topic Multimodal and Mobile Interaction
Level Professional Master
Public Computer science
Volume 12h (JavaScript project) = 8h Eq.TD

2013 – 2014

Topic Multimodal and Mobile Interaction
Level Professional Master
Public Computer science
Volume 12h (JavaScript project) = 8h Eq.TD

2012 – 2013

Topic Mixed Reality Systems: Introduction, Design and Prototyping
Level Research Master
Public Computer science students
Volume 4h30 (course) + 4h30 (Arduino project) = 13.5h Eq.TD
Role Designed and coordinated the course and evaluation

2011 – 2012

Topic Human-Computer Interfaces
Level Master (4th year E.N.S.I.M.A.G.)
Public Computer science students
Volume 16h30 (course) + 19h30 (project) = 37.75h Eq.TD

2009 – 2010

Topic Prototyping Tangible Interfaces
Level Master
Public Interaction design students
Volume 1h (course)
Role Designed the course

2007 – 2008

Topic C language
Level Bachelor (1st year)
Public Computer science students
Volume 32h
Role Designed the exam

Topic Web Sites Design
Level Master
Public Students in economics
Volume 24h
Role Designed entire course and evaluation

2006 – 2007

Topic Databases and ACCESS
Level Bachelor (3rd year)
Public Students in economics
Volume 20h
Role Designed the exam

Topic Internet & eMails, and advanced office with Word, PowerPoint, & OpenOffice
Level Bachelor (2nd year)
Public Students in economics
Volume 48h
Role Designed part of the course

2005 – 2006

Topic Office with Word, Excel
Level Bachelor (1st year)
Public Students in economics
Volume 74h

Art

External researcher in the research, creation and innovation program at Ecole Nationale Supérieure des Arts Décoratifs in Paris.

Statement

My artistic research aims at exploring ordinary social interactions and our relationships with others whether related or strangers. I am interested in artistic devices that bring communication, thinking, and questioning into our relationship with other people. I work on testing interactions that reveal and question the dynamic of our social behaviour.

I am also interested in the consequences of ubiquity on the temporality and spatiality of our relationships, as well as the influence of the environment and context on these relationships. Usage of technologies is in a permanent “here and now” mode, that changes our relations. We can communicate almost anywhere anytime, with a distant person and in a different environment. In this realm, my work aims at exploring technologies and their interaction with the private/public, with social and affective behaviours, and with relationship to the familiar/stranger.

I work on linking my research in human-computer interaction and in art, in order to always view human computer interaction from an unorthodox viewpoint – from the way we build interfaces to the modalities we use to interact.

Realizations

2010 The Common Touch

Touchable wall exploiting engagement and affective input of the audience

2009 Hide and Seek

Ambiguous hide & show game on iPhone or iPod touch

2008 Waiting Room

Pouch for mobile phones preserving imaginary waiting & excitement

2007 Playground

Installation conveying social dimension of game and frustration similar to a stage

Exhibitions

- **May 23th - June 16th, 2011: The Common Touch** was exhibited at ENSAD in Paris, France
- **March 26, 2010: Hide and Seek** was exhibited during Pixelache festival in the Kerava Art Museum, in Helsinki, Finland
- **February 23, 2007 – March 24, 2007: Playground** was exhibited in the Galerie Du Bellay, in Mont-Saint-Aignan, France