

# Sylvain Malacria

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## Research interest

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I am a research scientist (Chargé de Recherche 1ère classe) at Inria, in the Loki group. Prior to that, I spent 10 months at the University College London and two years at the University of Canterbury (New-Zealand). I did my Ph.D. with Eric Lecolinet at Télécom ParisTech, and passed my Master Graduate at UPMC in Computer Science with a specialty in Artificial Intelligence and HCI.

My research is typically stimulated by a user interface performance bottleneck that I then seek to remediate through interface design, and my interests are in the area of Human-Computer Interaction with additional focus on designing new interaction techniques. In particular, I study how to improve the transition from novice to expert mode with Graphical User Interfaces, especially in the context of command selection. I have also designed, implemented and evaluated several novel interaction techniques that improve expert users performance while navigating large documents on touch sensitive surfaces.

Beyond my immediate background in computer science, I draw on various set of skills, including interaction design, experimental psychology and statistical analysis.

## Experiences and Education

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| nov 2014 –           | <b>Research Scientist (CR1)</b><br>Inria Lille - Nord Europe , Lille, France                                                                                                                                                                                         |
| nov 2013 – sep 2014  | <b>Research Assistant</b><br>UCL/BBC London Media Technology Campus, UCL, London, United Kingdom<br>with Dr John Dowell                                                                                                                                              |
| nov 2011 – oct 2013  | <b>Post doctoral researcher</b><br>HCI and Multimedia Lab, University of Canterbury, Christchurch, New-Zealand<br>with Professor Andy Cockburn ( <a href="http://www.cosc.canterbury.ac.nz/andrew.cockburn/">http://www.cosc.canterbury.ac.nz/andrew.cockburn/</a> ) |
| jun 2011 – sept 2011 | <b>Post doctoral researcher</b><br>VIA group, Telecom ParisTech, Paris, France<br>with Dr Eric Lecolinet                                                                                                                                                             |
| oct 2007 – may 2011  | <b>Ph.D. in Computer Science</b> (With High Honors)<br>Title: Interaction techniques for touch-screens and digital pens<br>Advised by Eric Lecolinet<br>Telecom-ParisTech (Paris - France)                                                                           |
| 2005 – 2007          | <b>Master in Computer Science</b> (With Great Honors)<br>Artificial Intelligence and Decision<br>University Paris VI Pierre & Marie Curie, Paris, France                                                                                                             |
| 2003 – 2005          | <b>Bachelor in Computer Science</b> (With Honors)<br>University Paris VI Pierre & Marie Curie, Paris, France                                                                                                                                                         |

## Publications

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### International conference publications

- CHI 18 – A. Goguey, **S. Malacria**, C. Gutwin (2018). *Improving Discoverability and Expert Performance in Force-Sensitive Text Selection for Touch Devices with Mode Gauges*. 11 pages, To appear CHI '18 (AR: 25%) – PDF – Video
- CHI 18 – S. Siddhpuria, **S. Malacria**, M. Nancel, E. Lank (2018). *Pointing at a Distance with Everyday Smart Devices*. 8 pages, To appear CHI '18 (AR: 25%) – PDF – Video
- CHI 18 – A. Antoine, **S. Malacria**, G. Casiez (2018). *Using High Frequency Accelerometer and Mouse to Compensate for End-to-end Latency in Indirect Interaction*. 11 pages, To appear CHI '18 (AR: 25%) – PDF – ACM – Video – Web
- CHI 18 – J. Avery, **S. Malacria**, M. Nancel, G. Casiez, E. Lank (2018). *Introducing Transient Gestures to Improve Pan and Zoom on Touch Surfaces*. 8 pages, To appear CHI '18 (AR: 25%) – PDF – ACM – Video – Web
- UIST 17 – D. Masson, A. Goguey, **S. Malacria**, G. Casiez (2017). *WhichFingers: Identifying Fingers on Touch Surfaces and Keyboards Using Vibration Sensors*. 8 pages, UIST '17 (AR: 22%) – PDF – ACM – Video – Web
- CHI 17 – A. Antoine, **S. Malacria**, G. Casiez (2017). *ForceEdge: Controlling Autoscroll on Both Desktop and Mobile Computers Using the Force*. 10+2 pages, CHI '17 (AR: 25%) – PDF – ACM – Video – Web
- CHI 17 – E. Giannidakis, G. Bailly, **S. Malacria**, F. Chevalier (2017). *IconHK: Using Toolbar button Icons to Communicate Keyboard Shortcuts*. 10+2 pages, CHI '17 (AR: 25%) – PDF – ACM – Video
- CHI 16 – G. Bailly, S. Sahdev, **S. Malacria**, T. Pietrzak (2016). *LivingDesktop: Augmenting Desktop Workstation with Actuated Devices*. 10+3 pages, CHI '16 (AR: 23%) – PDF – ACM – Video
- MobileHCI 15 – M. Constantinides, J. Dowell, D. Johnson, **S. Malacria** (2015). *Exploring Mobile News Reading Interactions for News App Personalisation*. 6 pages, MobileHCI '15 (AR: 27%) – PDF – ACM – Video
- CHI 15 – **\*S. Malacria**, J. Aceituno, P. Quinn, G. Casiez, A. Cockburn, N. Roussel (2015). *Push-Edge and Slide-Edge: scrolling by pushing against the viewport edge*. 4 pages, CHI '15 (AR: 23%) – PDF – ACM – Video
- CHI 14 – C. Gutwin, A. Cockburn, J. Scarr, **S. Malacria**, S. Olson (2014). *Faster command selection on tablets with FastTap*. 10 pages, CHI '14 (AR: 23%) – PDF – ACM – Video
- UIST 13 – **\*S. Malacria**, J. Scarr, A. Cockburn, C. Gutwin, T. Grossman (2013). *Skillometers: reflective widgets that motivate and help users to improve performance*. 10 pages, UIST '13 (AR: 20%) – PDF – ACM – Video
- UIST 13 – P. Quinn, **S. Malacria**, A. Cockburn (2013). *Touch scrolling transfer functions*. 10 pages, UIST '13 (AR: 20%) – PDF – ACM – Video – Web
- CHI 13 – **\*S. Malacria**, G. Bailly, J. Harrison, A. Cockburn, C. Gutwin (2013). *Promoting Hotkey use through rehearsal with ExposeHK*. 10 pages, CHI '13 (AR: 20%) – PDF – ACM – Video
- CHI 13 – Q. Roy, **S. Malacria**, E. Lecolinet, Y. Guiard, J. Eagan (2013). *Augmented letters: mnemonic gesture-based shortcuts*. 4 pages, CHI '13 (AR: 20%) – PDF – ACM – Video
- CHI 13 – J. Scarr, A. Cockburn, C. Gutwin, **S. Malacria** (2013). *Testing the Robustness and Performance of Spatially Consistent Interfaces*. 10 pages, CHI '13 (AR: 20%) – PDF – ACM – Video
- AVI 12 – T. Pietrzak, **S. Malacria**, E. Lecolinet (2012). *S-Notebook: Augmenting Mobile Devices with Interactive Paper for Data Management*. 4 pages, AVI '12 (AR: 28%) – PDF – ACM
- Interact 11 – **\*S. Malacria**, T. Pietrzak, A. Tabard, E. Lecolinet (2011). *U-Note: Capture the class and access it everywhere*. 18 pages, Interact '11 (AR: 27%) – PDF – ACM
- CHI 10 – **\*S. Malacria**, Y. Guiard, E. Lecolinet (2010). *Clutch-free panning and integrated pan-zoom control on touch-sensitive surfaces: the cyclostar approach*. 10 pages, CHI '10 (AR: 22%) – PDF – ACM – Video

### International journal publications

- IJHCS 17 – J. Aceituno, **S. Malacria**, P. Quinn, N. Roussel, A. Cockburn, G. Casiez (2017). *The design, use, and performance of edge-scrolling techniques*. 49 pages, International Journal of Human-Computer Studies '17 – PDF – Elsevier
- PUC 15 – J. Dowell, **S. Malacria**, H. Kim, E. Anstead (2015). *Companion apps for information-rich television programmes: representation and interaction*. 14 pages, Personal and Ubiquitous Computing '15 – PDF – Springer
- CSUR 15 – A. Cockburn, C. Gutwin, J. Scarr, **S. Malacria** (2015). *Supporting Novice to Expert Transitions in User Interfaces*. 36 pages, ACM Computing Surveys '15 – PDF – ACM

#### International juried publications

- CHI EA 18 – A. Antoine, **S. Malacria**, G. Casiez (2018). *TurboMouse: Compensate for End-to-end Latency in Indirect Interaction*. 4 pages, To appear CHI EA '18 – PDF
- ETIS 17 – T. Pietrzak, G. Bailly, **S. Malacria** (2017). *Actuated Peripherals as Tangibles in Desktop Interaction*. 4 pages, ETIS '17 – PDF
- CHI EA 16 – C. Frisson, **S. Malacria**, G. Bailly, T. Dutoit (2016). *InspectorWidget: A System to Analyze Users Behaviors in Their Applications*. 7 pages, CHI EA '16 – PDF – ACM
- Mob EA 15 – M. Constantinides, J. Dowell, D. Johnson, **S. Malacria** (2015). *Habito News: a research tool to investigate news app interactions*. 1 pages, Mobile HCI EA '15 – PDF – ACM
- WSICC 14 – J. Dowell, **S. Malacria** (2014). *Concept mapping second screens to augment understanding of science on television*. 5 pages, WSICC Workshop '14 – PDF
- CHI EA 12 – S. Perrault, **S. Malacria**, Y. Guiard, E. Lecolinet (2012). *WatchIt: Simple Gestures for Interacting with a Watchstrap*. 1 pages, CHI EA '12 – PDF – ACM – Video
- CHI EA 11 – M. Baglioni, **S. Malacria**, E. Lecolinet, Y. Guiard (2011). *Flick-and-Brake: Finger Control over Inertial/Sustained Scroll Motion*. 6 pages, CHI EA '11 – PDF – ACM – Video
- PaperW 10 – T. Pietrzak, **\*S. Malacria**, E. Lecolinet, A. Tabard (2010). *What do U-Note? An Augmented Note Taking System for the Classroom*. 4 pages, PaperComp workshop '10 – PDF

#### Domestic publications

- IHM 16 – **S. Malacria**, A. Goguy, G. Bailly, G. Casiez (2016). *Étude de terrain sur l'utilisation des pavés tactiles*. 4 pages, IHM '16 – PDF – ACM – Video
- IHM TeC 16 – A. Antoine, **S. Malacria**, G. Casiez (2016). *Utilisation de la force sur pavés tactiles pour le défilement automatique*. 6 pages, IHM TeC '16 – PDF – ACM – Web
- IHM 15 – M. Berthelley, E. Cayez, M. Ajem, G. Bailly, **S. Malacria**, E. Lecolinet (2015). *Chord Pad, LociPad & In-OutPad: Trois techniques pour Explorer l'interaction gestuelle sur pavé tactile*. 6 pages, IHM '15 (AR: 50%) – PDF – ACM
- IHM 14 – T. Pietrzak, **S. Malacria**, G. Bailly (2014). *CtrlMouse et TouchCtrl: duplicating mode delimiters on the mouse*. 10 pages, IHM '14 (AR: 56%) – PDF – ACM
- IHM 13 – G. Bailly, **S. Malacria** (2013). *MenuInspector : Outil pour l'analyse des menus et cas d'étude*. 4 pages, IHM '13 (AR: 38%) – PDF – ACM – Web
- IHM 09 – **\*S. Malacria**, E. Lecolinet (2009). *U-Note : Classe augmentée et stylo numérique*. 4 pages, IHM '09 (AR: 35%) – PDF – ACM
- IHM 08 – **\*S. Malacria**, E. Lecolinet (2008). *Espace de caractérisation du stylo numérique*. 8 pages, IHM '08 (AR: 44%) – PDF – ACM

## Talks

- I presented (or will present) all the articles marked with an \* .
- Invited talk on *Advanced interaction techniques to favor the transition from novice to expert behavior*, October 1st 2017, 1st International Symposium on User Expertise and Interactive Systems, Paris, France.
- Invited talk on *Opportunities and limits of Adaptive User Interfaces*, June 27-28 2016, Technology and Routines workshop, Bavarian Academy of Sciences and Humanities, Munich, Germany.
- Invited talk on *Computing tools to empower users*, November 19 2015, UCLIC seminar, University College London, United Kingdom.
- Invited talk on *Improving user’s expertise with user interfaces* at SIGCHI Paris, February 7 2014, Laboratoire de Recherche en Informatique, France.
- invited talk on *Improving user’s intermodal expertise*, July 9 2013, UCL/BBC London Media Technology Campus, United Kingdom.
- Invited talk on *The design and evaluation of mechanisms promoting hotkey use*, April 19 2014, Inria Bordeaux, France
- Invited talk on *The design and evaluation of mechanisms promoting hotkey use*, April 25 2014, Max Planck Institute for Informatics, Germany.
- ACM SigCHI Paris “Interfaces de demain” showcase, July 7 2011, Paris.
- Bell-labs open days, May 11-13 2011, Villarsaux.
- Paris Region Innovation Tour 2008, 19th of November 2008, Cité des Sciences et de l’Industrie, Paris.

## Research activities

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### Reviewing

I frequently serve as a reviewer for the main HCI conferences, especially:

- ACM Symposium on User interface software and technology (UIST).
- ACM Conference on Human Factors in Computing Systems (CHI).
- ACM Conference on Interactive Tabletops and Surfaces (ITS).
- ACM Conference on Human-Computer Interaction with Mobile Devices and Services (MobileHCI).
- IFIP TC13 Conference on Human-Computer Interaction (INTERACT).
- The interdisciplinary journal of Human-Computer Interaction (Interacting With Computers).
- ACM Conférence francophone sur l’Interaction Homme-Machine (IHM).

### Volunteering

- Program Committee Member for CHI 2017 and CHI 2018 (Interaction Techniques, Devices, and Modalities subcommittee).
- Program Committee Member of the Mobile HCI 2016 conference.
- Program Committee Member of the French-speaking HCI conference (IHM 2014, 2015).
- Program Committee Member of Workshops for CHI 2014, CHI 2015 conferences.
- Program Committee Member of the Fifteenth Australasian User Interface Conference (AUIC 2014).
- UCLIC PhD showcase session chair (2014).
- Weekly meetings management in the HCI Lab of the University of Canterbury(2012-2013).
- ACM SigCHI Paris “Interfaces de demain” showcase, July 7 2011, Paris.
- Meetings management on Human Computer Interaction at Telecom ParisTech (2009-2011).

## Teaching

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Title	Location	Years	Total Volume
Gestural Interaction	IMT Lille Douai	2017-2018	3h lectures 4h guided classes
Advanced HCI	University of Lille	2017-2018	6h lectures 6h guided classes
Participatory Design	Institut Villebon	2015-2017	17h lectures 34h guided classes
HCI	University of Lille	2014-2017	24h lectures 48h guided classes
Interfaces & Interactivity	University College London	2013-2014	8h lectures 10h guided classes
Introduction to HCI	University of Canterbury	2011-2012	3h lectures
Programming paradigms	Telecom-ParisTech	2007-2010	50h guided classes
Java programming	Telecom-ParisTech	2007-2010	50h practical classes 14h guided classes 2h30 lectures
Introduction to HCI	Univ. Paris 6	2008-2009	3h lectures
Java Group projects	Telecom-ParisTech	2007-2009	50h guided classes
Micro-project	Telecom-ParisTech	2007-2008	12h guided classes

## Supervising

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- 2017-2020 Supervising Axel Antoine PhD thesis (co-director Géry Casiez)
- 2016-2019 Supervising Nicole Pong PhD thesis (co-directors Stéphane Huot and Nicolas Roussel)
- 2016-2017 Co-supervisor with Géry Casiez of Axel Antoine Master 1 and 2 summer internships (University of Lille)
- 2017-2018 Co-supervisor with Géry Casiez of Damien Masson Master 1 and Master 2 projects (University of Lille)
- 2016 Co-supervisor with Géry Casiez and Alix Goguy of Damien Masson undergraduate summer internship (University of Lille)
- 2016 Co-supervisor with Géry Casiez of Axel Antoine and Sofiane Rahahoui Master 1 projects (University of Lille)
- 2014 Supervisor of Hana Kim master student project. (University College London)
- 2012 Co-supervisor with Professor Cockburn of Joel Harrison honors project. (University of Canterbury)