

# Jérémy Frey

Researcher in computer science

## contact

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## languages

French: mother tongue  
English: fluent  
Spanish: basic

## programming

object-oriented (Java, C++, C#)  
multi-paradigm (python, JS)  
imperative (C, Pascal)  
functional (Lisp)  
logic (Prolog)

## skills

HCI (3DUI, TUI, VR, ...)  
brain-computer interface  
physiological computing  
signal processing  
machine learning  
statistics  
ergonomics  
artificial cognition  
natural language processing  
SQL  
unix  
wearables  
DIY enthusiast

## hobbies

literature  
photography  
martial arts (pencak-silat)  
swimming, running

## interests

I explore how physiological computing can contribute to human-computer interaction and foster new communication channels among the general public. I came to think that the purpose of those technological artifacts is to enhance well-being and facilitate human relationships on the whole. Or at least this is the path into which I try to venture, hacking my way.

## education

2015	<b>PhD Computer Science</b>	University of Bordeaux, Bordeaux, France
	“Leveraging human-computer interactions and social presence with physiological computing”. Advisors: Martin Hachet & Fabien Lotte. Research team: Potioc (Inria)	
2011	<b>Master Cognitive Science</b>	University of Bordeaux, Bordeaux, France
	With honors, ranked second	
2009	<b>Bachelor Computer Science</b>	University of Bordeaux, Bordeaux, France

## internships

2015	<b>Combining head-mounted displays with EEG</b>	Musae Lab, INRS, Montreal, Canada
	Supervisor: Tiago H. Falk. Duration: 2 months.	
2011	<b>Investigation of cognitive and motor deficits in a robot-embodied model of the basal ganglia</b>	IMN, University of Bordeaux, Bordeaux, France
	Supervisor: André Garenne. Duration: 10 months.	
2010	<b>Conditioning robots</b>	EA-487 laboratory, University of Bordeaux, Bordeaux, France
	Supervisor: Jean-Marc Salotti. Duration: 10 weeks.	

## positions

2017 present	<b>Postdoctoral Researcher</b>	IDC Herzliya (usLAB team), Israel
2016 present	<b>CTO</b>	Ullo, La Rochelle, France
2016	<b>Research Engineer</b>	Inria (Athena team), Nice, France
2016	<b>Teaching Assistant (ATER)</b>	University of Bordeaux, Bordeaux, France
2012 2015	<b>Teaching Assistant (contrat doctoral)</b>	University of Bordeaux, Bordeaux, France

## supervision

2018	<b>Morgane Hamon</b>	M.S. cognitive science, 2nd year, University of Bordeaux
	Evaluation of a tangible and ambient biofeedback. Duration: 6 months. Co-supervising.	
2018	<b>Léo Cousin</b>	M.S. design, 2nd year, University Bordeaux Montaigne
	Design of a tangible and ambient biofeedback. Duration: 6 months. Co-supervising.	
2016	<b>Manon Bonnet-Save</b>	first year in engineering school ENSC
	Study the impact of flow on motor imagery based BCI. Duration: 2 months. Co-supervising.	

- 2015 **Maxime Daniel** M.S. computer science, 2nd year, University of Bordeaux  
 Create a virtual environment that could validate the use of electroencephalography as an evaluation tool for 3D interactions. Duration: 6 months. Co-supervising with Immersion company.
- 2015 **Maxime Duluc** last year in engineering school “Institut d’Optique Graduate School”  
 Objective: create an instrumented version of the tangible interface of electroencephalographic signals’ visualization “Teegi”. Duration: 6 months.
- 2015 **Alexis Gay** M.S. design, 2nd year, University Bordeaux Montaigne  
 Objective: co-designing a tangible representation of inner states, “Tobe”. Duration: 2 months. Co-supervising.
- 2014 **Aurélien Appriou** M.S. cognitive science, 1st year, University of Bordeaux  
 Objective: investigate the use of a brain-computer interface as a real-time measuring tool of visual comfort during the viewing of stereoscopic images. Duration: 2 months.
- 2013 **Léonard Pommereau** M.S. cognitive science, 1st year, University of Bordeaux  
 Objective: establish a protocol that could be used to evaluate visual comfort during the viewing of stereoscopic images using electroencephalography. Duration: 2 months.

## teaching

- M.S. 2nd year **Software engineering** University of Bordeaux, Bordeaux, France  
 10 hours
- M.S. 1st year **Human factors and human-computer interaction** University of Bordeaux, Bordeaux, France  
 6.25 hours
- M.S. 1st year **Software engineering** University of Bordeaux, Bordeaux, France  
 77 hours
- B.S. 3rd year **Network and object oriented programming** University of Bordeaux, Bordeaux, France  
 64 hours
- B.S. 1st year **Programming** University of Bordeaux, Bordeaux, France  
 60 hours
- B.S. 1st year **Unix and introduction to programming** University of Bordeaux, Bordeaux, France  
 74.67 hours
- B.S. 1st year **Office applications** University of Bordeaux, Bordeaux, France  
 13.33 hours

## reviewing

Transactions on Computational Intelligence and AI in Game; Pattern Recognition; ACM Journal on Computing and Cultural Heritage; Affective Computing and Intelligent Interaction; ACM CHI IEEE International Conference on Rehabilitation Robotics IOP Journal of Neural Engineering Journal of Human-Computer Studies Frontiers Human Neuroscience ACM IMWUNT IEEE Computer Graphics and Applications Transactions on Visualization and Computer Graphics

## publications

### articles in peer-reviewed journals

Classifying EEG Signals during Stereoscopic Visualization to Estimate Visual Comfort  
 Jérémy Frey, Aurélien Appriou, Fabien Lotte, Martin Hachet  
*Computational Intelligence and Neuroscience (2016). 2016*

## EEG-based neuroergonomics for 3D user interfaces: opportunities and challenges

Jérémy Frey, Martin Hachet, Fabien Lotte

*Le travail humain (2016). 2016*

## Émersions sensorielles

Jérémy Frey

*CORPS 13 (2015) pp. 113-121. 2015*

## international peer-reviewed conferences/proceedings

### Breeze: Sharing Biofeedback Through Wearable Technologies

Jérémy Frey, May Grabli, Ronit Slyper, Jessica R. Cauchard

*CHI - ACM Conference on Human Factors in Computing Systems, 2018*

### "Teegi's so cute!": Assessing the Pedagogical Potential of an Interactive Tangible Interface for Schoolchildren

Stéphanie Fleck, Charlotte Baraudon, Jérémy Frey, Thibault Lainé, Martin Hachet

*Interaction Design and Children Conference, 2018*

### Evaluation of a congruent auditory feedback for Motor Imagery BCI

Emmanuel Christophe, Jérémy Frey, Richard Kronland-Martinet, Jean-Arthur Micoulaud-Franchi, Jelena Mladenović, Gaëlle Mouglin, Jean Vion-Dury, Solvi Ystad, Mitsuko Aramaki

*International BCI meeting, 2018*

### Active Inference for Adaptive BCI : application to the P300 Speller

Jelena Mladenović, Jérémy Frey, Emmanuel Maby, Mateus Joffily, Fabien Lotte, Jérémie Mattout

*International BCI meeting, 2018*

### Remote Biofeedback Sharing , Opportunities and Challenges

Jérémy Frey, Jessica R. Cauchard

*WellComp, UbiComp '18 Workshop, 2018*

### Exploring Biofeedback with a Tangible Interface Designed for Relaxation

Morgane Hamon, Rémy Ramadour, Jérémy Frey

*PhyCS - International Conference on Physiological Computing Systems, 2018*

### Inner Garden: Connecting Inner States to a Mixed Reality Sandbox for Mindfulness

Joan Sol Roo, Renaud Gervais, Jérémy Frey, Martin Hachet

*CHI - ACM Conference on Human Factors in Computing Systems, 2017*

### The Impact of Flow in an EEG-based Brain Computer Interface

Jelena Mladenović, Jérémy Frey, Manon Bonnet-Save, Jérémie Mattout, Fabien Lotte

*Graz BCI Conference, 2017*

### Endowing the Machine with Active Inference: A Generic Framework to Implement Adaptive BCI

Jelena Mladenović, Mateus Joffily, Jérémy Frey, Fabien Lotte, Jérémie Mattout

*NeuroAdaptive Technology Conference, 2017*

### Tobe: Tangible Out-of-Body Experience

Renaud Gervais, Jérémy Frey, Alexis Gay, Fabien Lotte, Martin Hachet

*TEI - ACM Conference on Tangible, Embedded and Embodied Interaction, 2016*

### Framework for electroencephalography-based evaluation of user experience

Jérémy Frey, Maxime Daniel, Julien Castet, Martin Hachet, Fabien Lotte

*CHI - ACM Conference on Human Factors in Computing Systems, 2016*

### Remote Heart Rate Sensing and Projection to Renew Traditional Board Games and Foster Social Interactions

Jérémy Frey

*CHI EA - ACM Conference on Human Factors in Computing Systems Extended Abstracts, 2016*

### Comparison of a consumer grade EEG amplifier with medical grade equipment in BCI applications

Jérémy Frey

*International BCI meeting, 2016*

### Comparison of an open-hardware electroencephalography amplifier with medical grade device in brain-computer interface applications

Jérémy Frey

*PhyCS - International Conference on Physiological Computing Systems, 2016*

### **Recent advances in EEG-based neuroergonomics for Human-Computer Interaction**

Jérémy Frey, Martin Hachet, Fabien Lotte

*Proceedings of the 1st International Neuroergonomics Conference, 2016*

### **Heart Rate Monitoring as an Easy Way to Increase Engagement in Human-Agent Interaction**

Jérémy Frey

*PhyCS - International Conference on Physiological Computing Systems, 2015*

### **Continuous Mental Effort Evaluation during 3D Object Manipulation Tasks based on Brain and Physiological Signals**

Dennis Wobrock, Jérémy Frey, Delphine Graef, Jean-Baptiste Rivière, Julien Castet, Fabien Lotte

*INTERACT '15, 2015*

### **Pointing in Spatial Augmented Reality from 2D Pointing Devices**

Renaud Gervais, Jérémy Frey, Martin Hachet

*INTERACT '15, 2015*

### **Estimating Visual Comfort in Stereoscopic Displays Using Electroencephalography: A Proof-of-Concept**

Jérémy Frey, Aurélien Appriou, Fabien Lotte, Martin Hachet

*INTERACT '15, 2015*

### **Review of the use of electroencephalography as an evaluation method for human-computer interaction**

Jérémy Frey, Christian Mühl, Fabien Lotte, Martin Hachet

*PhyCS - International Conference on Physiological Computing Systems, 2014*

### **Teegi: Tangible EEG Interface**

Jérémy Frey, Renaud Gervais, Stéphanie Fleck, Fabien Lotte, Martin Hachet

*UIST - ACM User Interface Software and Technology Symposium, 2014*

### **Assessing the zone of comfort in stereoscopic displays using EEG**

Jérémy Frey, Leonard Pommereau, Fabien Lotte, Martin Hachet

*CHI EA - ACM Conference on Human Factors in Computing Systems Extended Abstracts, 2014*

## **miscellaneous**

### **Dišimo: Anchoring Our Breath**

Jelena Mladenović, Jérémy Frey, Jessica R. Cauchard

*CHI EA - ACM Conference on Human Factors in Computing Systems Extended Abstracts, 2018*

### **When HCI Meets Neurotechnologies: What You Should Know about Brain-Computer Interfaces**

Jérémy Frey, Camille Jeunet, Jelena Mladenović, Fabien Lotte, Léa Pillette, Fabien Lotte

*CHI EA - ACM Conference on Human Factors in Computing Systems Extended Abstracts, 2017*

### **Scientific Outreach with Teegi, a Tangible EEG Interface to Talk about Neurotechnologies**

Jérémy Frey, Renaud Gervais, Thibault Lainé, Maxime Duluc, Hugo Germain, Stéphanie Fleck, Fabien Lotte, Martin Hachet

*CHI EA - ACM Conference on Human Factors in Computing Systems Extended Abstracts, 2017*

### **VIF: Virtual Interactive Fiction (with a twist)**

Jérémy Frey

*Pervasive Play, CHI '16 Workshop, 2016*

### **Introspectibles: Tangible Interaction to Foster Introspection**

Renaud Gervais, Joan Sol Roo, Jérémy Frey, Martin Hachet

*Computing and Mental Health, CHI '16 Workshop, 2016*

## **book chapters**

### **Neurophysiological markers for passive BCIs**

Raphaëlle N. Roy, Jérémy Frey

*Brain Computer Interfaces: Methods, Applications, Perspectives, Wiley-ISTE, 2016*

### **Marqueurs neurophysiologiques pour les interfaces cerveau-ordinateur passives**

## thesis

Leveraging human-computer interactions and social presence with physiological computing  
Jérémy Frey  
*PhD thesis, Univ. Bordeaux, 2015*

## scientific outreach

- 2018 **Panel: “Comment faire de l'innovation en neurofeedback au regard de l'enjeu du placebo ?”** 3rd AFPBN Neurofeedback National Day, Lyon
- 2017 **Inaugurating a living lab dedicated to education, demonstrating how Teegi could be used by teachers** Canopé 57, Metz
- 2016 **Invited talk “Physiological computing and spatial augmented reality: reflecting on inner state”** Paris Open Source Summit, Paris
- 2016 **Demonstrating “Teegi” during the event “Fête de la science”** Cité des Sciences, Paris & Cap Sciences, Bordeaux
- 2016 **Invited talk “Toward popular brain-computer interfaces”** Colloquium “What’s up in you mind?”, Paris
- 2016 **Co-animating a workshop presenting OpenViBE software** 6<sup>th</sup> BCI meeting, Pacific Grove, USA
- 2016 **Participation to a film debate about HER** “Géocinema 2016” event, Bordeaux
- 2016 **Demonstration of “Tobe”, a tangible out-of-body experience** “TEI ’16 – Conference on Tangible Embedded and Embodied Interaction”, Eindhoven, The Netherlands
- 2015 **Demonstration of “Teegi” during “robot maker's day”** ENSEIRB-MATMECA graduate school, Bordeaux
- 2015 **Demonstration of “Teegi”, a tangible interface for electroencephalographic signals' visualization** IIT Techfest festival, Mumbai, India
- 2014 **Participation to the film debate “ExistenZ : faut-il avoir peur de la réalité virtuelle ?”** University of Bordeaux cultural service
- 2013 **Accompanying high-school students during a laboratory visit for “Fête de la science”** Bordeaux
- 2013 **Conference and panel “L'homme 'augmenté': notre avenir est-il 'cyborg' ?”** “Nancy Renaissance” event, Nancy
- 2013 **Conference “Demain les objets sont connectés ! – L'activité cérébrale pilote directement l'ordinateur : présentation de l'interface cerveau-ordinateur”** “Semaine Digitale” event, Bordeaux
- 2013 **Animating a workshop about brain-computer interfaces for high-school students** Bordeaux
- 2013 **Animating a stand presenting Inria research institute** “Aquitec” event, Bordeaux
- 2012 **Interview with high-school students about tactile interfaces** Bordeaux