

# Jimmy Petit, PhD

## Brain-Computer Interfaces

 September 3, 1996  
 jimmy.petit@irisa.fr  
 +33 6 77 98 21 57

## About Me

Throughout my research experiences, from my PhD to my postdoctoral work, I have focused on developing methods to personalise brain-computer interfaces (BCIs) to improve their usability and acceptability. In my current postdoctoral position at CNRS, I develop intelligent tutoring systems designed to adapt BCI learning based on users' brain activity and behaviour. During my postdoctoral research at Harvard Medical School, I evaluated individualized neurofeedback protocols in a clinical setting. During my PhD at the University of Lille, I worked on reactive BCIs, developing personalised methods for adapting stimulation parameters and covering the full interaction loop, from EEG signal processing to system usability assessment.

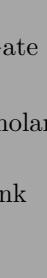
## Scientific interests

Brain-Computer Interface  
Human-Computer Interaction  
Statistics Machine Learning  
Signal Processing

## Languages

 English *Fluent*  
 French *Mother tongue*  
 Spanish *Scholar*

## Social Networks

 ResearchGate Link  
 Google Scholar  
 ORCiD Link  
 HAL Link

## Working Experience

Since December 2025	<b>Postdoctoral Research Fellow</b>	Centre National de la Recherche Scientifique (CNRS)
	Postdoctoral in the <i>Institut de Recherche en Informatique et Systèmes Aléatoires (IRISA)</i> , under the mentorship of Léa Pillette, Marc Macé, and Anatole Lécuyer. (Rennes, France)	
July 2023 to August 2025	<b>Postdoctoral Research Fellow</b>	Massachusetts Eye and Ear, <i>Harvard Medical School</i>
	Postdoctoral in the Dystonia and Speech Motor Control laboratory, under the supervision of Prof. Kristina Symonian, M.D., Dr.med. (Boston, USA)	
Oct 2019 to Jan 2023	<b>PhD</b>	CRISTAL, <i>Université de Lille</i>
	PhD in the CRISTAL BCI team, under the joint supervision of Prof. François Cabestaing and José Rouillard. Duration: 39 months. Defended: 6th of December 2022 (Lille, France)	
March to May 2022	<b>Research Mobility</b>	Institute of Psychology, <i>Universität Würzburg</i>
	Three-month research project with Prof. Andrea Kübler on tactile stimulations-based BCI and various EEG hardwares: standard EEG and around the ear EEG. Mobility grant MOBLILEX (Würzburg, Germany).	
February to July 2019	<b>Research Internship</b>	INRIA Rennes - Bretagne Atalante
	Internship for my master thesis in the HYBRID research team under the direction of Hakim Si-Mohammed, Ferran Argelaguet and Anatole Lécuyer (Rennes, France). The internship studied the feasibility of controlling a brain-computer interface using steady-state visually-evoked potentials via visuospatial attention dissociated from gaze.	
May to August 2018	<b>Research Internship</b>	Max Planck Institute for Intelligent Systems
	Internship in the Empirical Inference department under the direction of Moritz Grosse-Wentrup and Atalanti Mastakouri (Tuebingen, Germany). The internship focused on post-stroke motor rehabilitation through the use of virtual reality.	
May to August 2017	<b>Research Internship</b>	INRIA Rennes - Bretagne Atalante
	Internship in the HYBRID research team under the direction of Anatole Lécuyer and Hakim Si-Mohammed (Rennes, France). The internship studied the feasibility of integrating brain-computer interfaces with augmented reality and designing command spaces for interaction.	
Teaching at the <i>Faculté des Sciences et Technologies - Université de Lille</i>		
2020 – 2022	<b>Computer Science - Lab Sessions</b>	32 hours
	Introduction to Algorithmic and C Programming for students in 2 <sup>nd</sup> year of the Bachelor Degree <i>Électronique, Électrotechnique et Automatique</i>	
2020 – 2022	<b>Mathematics - Lab Sessions</b>	52.5 hours
	Linear Algebra on MATLAB for students in 3 <sup>rd</sup> year of the Bachelor Degree <i>Électronique, Électrotechnique et Automatique</i>	
2020 – 2022	<b>Signals and Systems - Lab Sessions</b>	38 hours
	Introduction to Signal Processing on MATLAB for students in 1 <sup>st</sup> year of the Master Degree <i>Automatique et Systèmes Électriques</i>	
Administrative Activity		
2020 – 2022	<b>Representative of the PhD students of my doctoral school</b>	Graduate School MADIS
	Member of the organising committee of the DDay 2020 & 2022: Information day for PhD students.	
Awards and Grant		
Janvier 2026	<b>CNRS Postdoctoral <i>Tremplin</i> Funding</b>	
	Internal CNRS funding program as part of the Dialog 2026 campaign	
March 2025	<b>BCI Meeting Student Award</b>	
	Award granted by the Young Talent Committee of the BCI Society for their 11th International Congress in Banff, Canada, from June 2 to 5, 2025	
June 2024	<b>PhD Thesis Award IFRATH 2023</b>	
	PhD Thesis award from the Federative Research Institute on Assistive Technologies for People with Disabilities (or l'Institut Fédératif de Recherche sur les Aides Techniques pour Personnes Handicapées, in French).	
December 2021	<b>Grant MOBLILEX (MOBilité – LILLE – EXcellence)</b>	
	Mobility grant from the University of Lille awarded to carry out a 3-month research stay at the Institute of Psychology, Universität Würzburg, under supervision of Prof. Dr. Andrea Kübler during the third and final year of my PhD.	

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## Peer-Reviewed Publications

### International Journal

- 2024      **Impact of Audio-Visual Complexity on Symptomatology of Laryngeal Dystonia: A Virtual Reality Study**  
*Jimmy Petit, Stefan K. Ehrlich, Garrett Tougas, Jacob M. Bernstein, Nicole E. Buie and Kristina Simonyan*  
The Laryngoscope  
DOI: 10.1002/lary.31800
- 2021      **EEG-based Brain–Computer Interfaces exploiting Steady-State Somatosensory-Evoked Potentials: A Literature Review**  
*Jimmy Petit, José Rouillard and François Cabestaing*  
Journal of Neural Engineering, IOP Publishing  
DOI: 10.1088/1741-2552/ac2fc4
- 2018      **Towards BCI-based Interfaces for Augmented Reality: Feasibility, Design and Evaluation**  
*Hakim Si-Mohammed, Jimmy Petit, Camille Jeunet, Ferran Argelaguet, Fabien Spindler, Andéol Évain, Nicolas Roussel, Géry Casiez, and Anatole Lécuyer*  
IEEE Transactions on Visualization and Computer Graphics  
DOI: 10.1109/TVCG.2018.2873737
- in preparation*
- **Enhancing rhythmic finger kinesthetic motor imagery for EEG-based BCI through passive movement calibration.**  
*T. Lefevre, J. Petit, K. Won, M. J-M Macé, A. Lécuyer and L. Pillette*
- **Toward EEG Neurofeedback Training using Thermal Imagery.**  
*T. Lefevre, E. Savalle, J. Petit, M. J-M. Macé, A. Lécuyer, L. Pillette*
- **Double-blind Sham-Controlled Personalised Closed-Loop Neurofeedback Brain-Computer Interface for Treatment of Laryngeal Dystonia**  
*J. Petit, S. K. Ehrlich, G. Tougas, J. M. Bernstein, N. E. Buie and K. Simonyan*
- **Effects of Selective Attention on SSSEP Using Around-the-Ear and Standard EEG**  
*J. Petit, J. Rouillard, F. Cabestaing, A. Kübler and M. Eidel*
- **Kinaesthetic Motor Imagery for Selective Amplitude Modulation of SSSEP by Somatosensory Gating**  
*J. Petit, J. Rouillard and F. Cabestaing*
- **Amplitude Estimation of Sinusoidal Components in EEG-based BCIs**  
*J. Petit, J. Rouillard and F. Cabestaing*
- 3 June 2025, **International Conference (In Proceedings) – Poster & Oral Presentation**  
Banff, **Adaptive Closed-Loop Neurofeedback Brain-Computer Interface for Treatment of Laryngeal Dystonia**  
*Jimmy Petit, Stefan K. Ehrlich, Garrett Tougas, Jacob M. Bernstein, Nicole E. Buie and Kristina Simonyan*  
2025 BCI Meeting (Selected for Oral Presentation and Poster, presented by Nyah Kshatriya) DOI: 10.3217/978-3-99161-050-2-061
- 30 Sept. 2024, **Impact of Surrounding Audio-Visual Complexity on Symptomatology of Laryngeal Dystonia: A Virtual Reality Study**  
Philadelphia, **Jimmy Petit, Stefan K. Ehrlich, Garrett Tougas, Jacob M. Bernstein, Nicole E. Buie and Kristina Simonyan**  
2024 International Congress of Parkinson and Movement Disorder Society – <https://www.mdsabstracts.org/abstract/> – (Poster)
- 11 Sept. 2024, **Recording the SSSEP with the cEEGGrid**  
Graz, **Jimmy Petit, Matthias Eidel†, José Rouillard, and Andrea Kübler**  
Austria 9th Graz Brain-Computer Interface Conference 2024. †: speaker  
DOI: 10.3217/978-3-99161-014-4-021
- 2022      **Design and study of two applications controlled by a Brain-Computer Interface exploiting Steady-State Somatosensory-Evoked Potentials.**  
*Jimmy Petit, José Rouillard and François Cabestaing*  
International Conference on Human Interaction & Emerging Technologies – IHET 2022  
DOI: 10.54941/ahfe1002787

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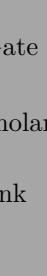
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## National Conference – Poster, Oral Presentation & Invited Seminar

- 28 Jan. 2026 **Adaptive User-Centred Brain-Computer Interface**  
*J. Petit*. Invited Seminar, POTIOC team, Inria
- 15 Apr. 2025 **Adaptive Closed-Loop Neurofeedback BCI for Treatment of Laryngeal Dystonia**  
*J. Petit*. Invited Seminar, BrainGate, Harvard and MGB
- Juin 2025 **Recording Steady-State Somatosensory-Evoked Potentials with the cEEGGrid Compact EEG**  
*J. Petit, J. Rouillard, F. Cabestaing, A. Kübler, and M. Eidelberg*  
Psychology and the Brain 50th Annual Conference, Würzburg, Germany  
(Poster, †: presented by)
- 2022 **Vers des interfaces cerveau-ordinateur exploitant la somesthésie**  
*Jimmy Petit, José Rouillard and François Cabestaing*  
Réunion d'Automne IFRATH (Oral Presentation)
- 2022 **Somatosensory Gating for an SSSEP-based BCI**  
*Jimmy Petit, José Rouillard and François Cabestaing*  
Journée CORTICO 2022 (HAL: hal-03651273)
- 2020 **Towards Brain-Computer Interfaces based on Steady-State Somatosensory-Evoked Potentials**  
*Jimmy Petit, José Rouillard and François Cabestaing*  
Journée CORTICO 2020 (HAL: hal-03034713)

## Education

- 2017 – 2019 **Master's degree of Science in Computer Science (SIF)** *Université de Rennes 1*  
The SIF master offers a wide choice of courses from various active research domains in Computer Science.
- 2016 – 2019 **Magisterium of Computer Science and Telecommunication** *École Normale Supérieure de Rennes*  
Education focused on research through projects in groups, lectures, seminars, article reading sessions, visits of laboratories, etc.
- 2013 – 2016 **Bachelor's degree of Science in Computer Science** *Université de Rennes 1*  
"Research & Innovation" learning.

## Other Training and Expertise

- July 2023 **MGBE HRA Good Clinical Practice (GCP) E6R2 On Demand** *Mass General Brigham*  
The content provides learners with international ethical and scientific quality standards for the design, conduct, data collection, and dissemination of human research studies, ensuring that the rights, safety, and well-being of participants are protected and that clinical trial data are credible and verifiable. Certification is valid for 3 years.
- July 2023 **MGBE HRA Clinical Research Boot Camp On Demand** *Mass General Brigham*  
Training on the ethical and regulatory aspects of conducting research involving human participants. Certification is valid for 3 years.
- English assessment  
April 2018 TOEIC: 895 points *École Normale Supérieure de Rennes*

## Computer skills

### Alphabetical order

  C/C++/C#    CSS    git    HTML    Java/Scala    LATEX  
  MATLAB    OCaml    Python    R    Scheme

### Libraries and Softwares

  ggplot2    MNE    NumPy    Panda    Scikit-learn  
  BCPy2000    OpenVibe    Unity

### Education-related tools

  CUDA    Hadoop    Kubernetes    MySQL    Neo4j    OpenMP