

Léa Pillette

PhD student on EEG-based Brain-Computer Interfaces

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Personal Statement

Currently, PhD Student at Inria, French Research Center dedicated to Digital Sciences. I have a multidisciplinary profile including knowledge in cognitive and computer science.

Education

Since Oct. 2016

PhD Student at University of Bordeaux / Inria Bordeaux Sud-Ouest / LaBRI, on "Redefining Formative Feedback in Brain-Computer Interface User Training", Bordeaux, France.

2013-2016

Master of engineering at Ecole Nationale Supérieure de Cognitique (National Institute of Technologies), Bordeaux, France.

2010-2013

Bachelor Degree in Applied Mathematics and Social Sciences at the Bordeaux 2 University, France.

2009-2010

Preparatory course in Mathematics Physics and Engineering Sciences at Lycée Dautet, La Rochelle, France.

2008-2009

French Scientific Baccalauréat passed with honors at Lycée Dautet, La Rochelle, France.

Skills domains

Languages

- | | Student | Professional |
|-----------|---------|--------------|
| ✓ English | ★★★★★ | (Level C2) |
| ✓ Spanish | ★★★★☆ | |
| ✓ Italian | ★★★☆☆ | |

Cognitive sciences skills

- ✓ Neurosciences
- ✓ Psychology
- ✓ Linguistics
- ✓ Philosophy
- ✓ Artificial Intelligence

Computer science

- ✓ Good command of Pack Office, SPSS, Microsoft Projects
- ✓ Programming skills
 - Python ★★★★★
 - C# ★★★★★
 - C++ ★★★★★
 - Unity ★★★★★
 - HTML, CSS, PHP ★★★★★
 - SQL ★★★★★
 - MatLab ★★★★★
 - R ★★★★★
- ✓ Human Factor Consideration during the development.

Experience

July-August 2017 (Contact: Andrzej Cichocki - a.cichocki@riken.jp)

RIKEN BSI summer program internship near Tokyo in Cichocki's Advanced Brain Signal Processing laboratory to decode the different types of **attention from electroencephalographic signals**.

March-September 2016 (Contact: Fabien Lotte - +336 44 29 53 95 - fabien.lotte@inria.fr)

Research internship at Inria Bordeaux Sud Ouest in design, implementation and evaluation of a learning companion for **Brain-Computer Interface** user training.

May-July 2015 (Contact: Cédric Sperat - +336 66 97 36 53 - csperat@gmail.com)

Internship as a **data scientist** at MATCHABLE Company. Semantical analysis of video players emotions.

July-August 2014 (Contact: Stéphane Maddens - +336 05 21 27 20 - s.maddens@vetbiobank.com)

Internship at VETBIOBANK Company. Designed and built a **web interface** destined to gather data on ongoing treatments in the veterinary practice.

Publications

Book chapter

- Lotte, F., Jeunet, C., Mladenovic, J., N'Kaoua, B., Pillette, L. (2018) « A BCI challenge for the signal processing community: considering the human in the loop », accepted in IET Book 'Signal Processing and Machine Learning for Brain-Machine Interfaces', Eds Tanaka & Arvaneh.

Scientific paper with Reviewing Comity

- Batail, J.-M., Bioulac, S., Cabestaing, F., Daudet, C., Drapier, D., Fouillien, M., Fovet, T., Hakoun, A., Jardri, R., Jeunet, C., Lotte, F., Maby, E., Mattout, J., Medani, T., Micoulaud-Franchi, J.A., Mladenovic, J., Perronet, L., Pillette, L., Ros, T., Vialatte, F. (authors in alphabetic order) (2017), « Neurofeedback research: a fertile ground for psychiatry? », submitted to L'Encéphale.

Conference papers with Reviewing Comity and Oral presentation

- Pillette, L., Jeunet, C., Mansencal, B., N'Kambou, R., N'Kaoua, B., & Lotte, F. (2018, June). « Towards Artificial Learning Companions for Mental Imagery-based Brain-Computer Interfaces. » Accepted in *Workshop Artificial Companion Affect Interaction Conference*.
- Pillette, L., Cichocki, A., N'Kaoua, B., & Lotte, F. (2018, April) « Toward distinguishing the different types of attention using EEG signals », Accepted to JJC-ICON.

Conference papers with Reviewing Comity and Poster presentation

- Pillette, L., Appriou, A., Cichocki, A., N'Kaoua, B., & Lotte, F. (2018) « Classification of attention types in EEG signals », Accepted to the International BCI Meeting.
- Appriou, A., Pillette, L., Cichocki, A., & Lotte, F. (2018) « BCPy, an open-source python platform for offline EEG signals decoding and analysis », Accepted to the International BCI Meeting.
- Pillette, L., Jeunet, C., Mansencal, B., N'Kambou, R., N'Kaoua, B., & Lotte, F. (2017, September). « PEANUT: Personalised Emotional Agent for Neurotechnology User-Training. » In *7th International BCI Conference*.

Teaching

Classes

- **February 2017 – April 2018:** "Knowledge and Representations" at Ecole Nationale Supérieure de Cognitique 110h.
- **November 2017:** Brain-Computer Interface classes to Cognitive Science university students 5h.
- **Since 2017:** Coach at DganjoGirls events, which promote gender equality in informatics.

Talk

- L. Pillette, "Which feedback should be given to maximize Brain-Computer Interface training", 2nd National Day about Neurofeedback at ESPCI school in Paris, France.

Example of Student projects supervised

- **November 2017 – April 2018:** Supervising the end of bachelor's project of three students from Bordeaux University about Orthosis and BCIs.
- **January 2016 – April 2017:** Supervising the end of master's project of Laura Lille whose objective is to create an adaptable video game controllable using EEG signals only.

Examples of Projects & Achievements

- Created of a web site about « **Optogenetics and Parkinson's** » illustrating my skills in documentary research and the comprehension of complex cerebral mechanisms, in collaboration with Mr. Boraud's research team.
- Developed a **simulator of different types of vision**: abnormal human vision and animal vision. This project gave me the opportunity to extend my knowledge in ethology, neurology, documentary researching and web programming.
- Developed a **serious game** to help students to learn history lessons. During this project, I learned a lot on the matter of user consideration in developing process, theories of learning, educational psychology recommendation for learning context.
- **Robotic modeling and simulation** of an industrial operator's gesture. I followed specialization classes on robotics during my last year of Master, during which I learned a lot about robotic and human origins of movements.
- Designed and implemented projects in *C#* such as a Scrabble, a role-play, or a scientific software to assess the differences in color naming.