

Claire Pleche

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RESEARCH EXPERIENCE

PhD candidate	2022 - PRESENT
Donders Institute for Brain, Cognition and Behaviour - Donders Center for Neuroscience Nijmegen, the Netherlands	
Research Intern / Lab Manager	2021 - 2022
Max Planck Institute for Human Development Berlin, Germany	
LNC2 - Ecole Normale Supérieure	2021 - 2022
Paris, France	
Karolinska Institute	2021
Stockholm, Sweden	
Lyon Neuroscience Research Center	2018 - 2021
Lyon, France	
Integrative Neuroscience and Cognition Center	2020
Paris, France	

EDUCATION

Master of Science in Cognitive Science, major in Neuroscience	2019-2022
Ecole Normale Supérieure de Paris, France	
Bachelor of Science in Biology, major in Animal Physiology	2016-2019
Claude Bernard University Lyon 1, France	

RESEARCH EXPERIENCE

POSITIONS

PhD candidate (Sept 2022 - Sept 2026)

Decision-making under uncertainty in volatile multisensory environments..

Donders Institute, Radboud University, Nijmegen, Netherlands – Multisensory perception, Attention, Learning Group (U. Noppeney)

Research tasks: experiment design, data collection (behavior, eye tracker, eeg, meg), bayesian modeling, brain imaging analysis.

Research support:

- MEG lab support (demo/tour of the lab for external groups or visiting researchers, technical support...)
- EEG experimental training for PhDs, Research assistants, PostDocs...
- Set-up of a new space for experimental research. Two behavior - eye tracker - EEG cabins, one

Teaching Duties:

- Teaching Assistant for NeuroImaging I - Neurophysiology (EEG, MEG, OPM)

Supervision Duties:

- Lab rotation 28h

Other Activities:

- Organization of the Donders Discussions conference 2023

Courses followed:

- Linear Algebra
- Probability Theory
- Dutch A1, A2, B1 level

MSc 2 Intern (Sept 2021 - July 2022)

Probing a role of neural variability in flexible decision-making under uncertainty.

Max Planck Institute for Human Development, Berlin, Germany – Lifespan Neural Dynamics Group (D. Garrett & J. Kosciesza)
Preparatory semester supervised by Valentin Wyart - Inference and Decision-making team, Computational and Cognitive Neuroscience Lab-ENS

Tasks: Preprocessing and analysis of fMRI, behavioral, pupillometric data.

The aim of the project was to assess how the variability of the neural signal, here BOLD responses, is linked to flexible adaptation of behavior when facing uncertainty. Pupillometric data was also recorded to investigate the potential role of neuromodulation underlying the variations in neural variability.

Intern (Feb 2021 – Aug 2021)

Mechanisms of observational learning of threats: A dual brain investigation.

Department of Clinical Neuroscience, Karolinska Institutet, Sweden – Emotion Lab (A. Olsson & Y. Pan)

Tasks: acquisition and analysis of MEG, structural MRI, eye-tracker (pupil diameter and gaze-location), skin conductance and fNIRS data.

The aim of this project was to investigate brain-to-brain connectivity between two participants where one watched the other being exposed to threats (electrical shocks).

Intern (Sep 2020 – Jan 2021).

Behavioral and neural basis of implicit learning and mnemonic rewiring.

Centre de Recherche en Neurosciences de Lyon, France - MEMO Team (D. Nemeth)

Tasks: Acquisition and analysis of EEG, rTMS, ASRT task, neuropsychological tests.

The aim of this project is to understand the role of the dlPFC in modifying habits by inhibiting it with rTMS.

MSc 1 Intern (Dec 2019 – May 2020).

Perception of speech in infants and adults.

Integrative Neuroscience and Cognition Center, Paris, France - Language and Cognition group (J. Gervain, I. de La Cruz Pavia & A. Martinez)

Methods: Acquisition of fNRIS with infants, acquisition and analysis of a behavioral speech comprehension task in adults.

Lab Manager (Jan 2019 – Aug 2019).

Behavioral and neural basis of implicit learning and mnemonic rewiring.

Centre de Recherche en Neurosciences de Lyon, France - MEMO Team (D. Nemeth)

Tasks: Set up a research project with ethics submission, behavioral data analysis, literature review.

BSc 3 Intern (Feb 2019 – May 2019).

Behavioral and neural correlates of memory in naturalistic environments.

Centre de Recherche en Neurosciences de Lyon, France - IMPACT Team (E. Macaluso)

Methods: fMRI, virtual reality paradigm.

Intern (May 2018 – July 2018).

Effects of rhythmical musical primes on grammatical judgments.

Centre de Recherche en Neurosciences de Lyon, France - Auditory Cognition and Psychoacoustics Team (B. Tillmann & A. Fiveash)

Methods: auditory grammatical judgment tasks in children and adults.

EXPERIENCE WITH SOFTWARES AND PROGRAMMING:

MATLAB, R, Python, SPSS, JASP, SPM, Fieldtrip, MVPA-Light, Shell.

ADMINISTRATION

Ethics for applied research 2020

Development, writing of and submission of a research protocol, approved by an Ethics Committee (Comité de Protection des Personnes EST I).

Training of Good Clinical Practice received at Centre de Recherche en Neurosciences de Lyon (CRNL), France.

Research management

Set up, organization and management of documentation and administration required prior to start of experiments.

Joined multiple groups within the CRNL to establish intercenter/team organization and management, including in COVID crisis management.

Inventory and orders of material.

PUBLICATIONS

Published or accepted

Vékony T., **Pleche C.**, Pesthy O., Janacsek K., Nemeth D. (in press) The effects of speed and accuracy instructions on cued probabilistic learning. *npj Sci. Learn.* 7, 27 (2022). <https://doi.org/10.1038/s41539-022-00144-9>

Fanuel, L., **Pleche, C.**, Vékony, T., Janacsek, K., Nemeth, D., & Quentin, R. (2022). How does the length of short rest periods affect implicit probabilistic learning? *Neuroimage: Reports*, 2(1), 100078. doi:10.1016/j.ynirp.2022.100078

Foudil, SA., **Pleche, C.** & Macaluso, E. Memory for spatio-temporal contextual details during the retrieval of naturalistic episodes. *Sci Rep* 11, 14577 (2021). <https://doi.org/10.1038/s41598-021-93960-9>

Vékony T, Török L, Pedraza F, Schipper K, **Pleche C.**, Tóth L, Janacsek K, Nemeth D. (2020) Retrieval of a well-established skill is resistant to distraction: Evidence from an implicit probabilistic sequence learning task. *PLoS ONE* 15(12): e0243541. <https://doi.org/10.1371/journal.pone.0243541>

In-Prep or pre-prints

Kosciessa J., **Pleche C.** et al., (in prep). State shifts during uncertainty processing.

Schipper K., **Pleche C.**, Nemeth D. (in prep) Interactive learning systems underlying behavioral addictions.

Nemeth D., Schipper K., **Pleche C.**, Janacsek K. Competitive Neurocognitive Functions Can Tell Us What to Learn and When: In Schools and Beyond. Preprints 2020, 2020060050 (doi: 10.20944/preprints202006.0050.v1).

TALKS & POSTERS

TALKS

2021

Pleche C., Vékony T., Pesthy O., Janacsek K., Nemeth D. The effects of speed and accuracy instructions on probabilistic learning. Research presented at Colloque des Jeunes Chercheur.ses en Sciences Cognitives (CJC-SCo), Online.

POSTERS

2019

Vékony T, Török L, Pedraza F, Schipper K, **Pleche C.**, Tóth L, Janacsek K, Nemeth D. Retrieval of a well-established skill is resistant to distraction : evidence from an implicit probabilistic sequence learning task. Poster presented at the International meeting of the LabEx CORTEX, Lyon, France.

RELATED RESPONSIBILITIES / ACTIVITIES

2023-Now

Committee of Donders Discussions Conference

2021-2022

Co-Head of Project at FRESCO (French federation of cognitive science students and young professionals) – Student Interactive Online Guide

Organization of « Forum des Sciences Cognitives » - Funding Committee (Online)

2020

Representative of 1st year Master students

Organization of « Forum des Sciences Cognitives » - Speaker Committee (Online)

2018

Tutor in Biology at Claude Bernard University Lyon 1 (Lyon, France)

OTHER WORK EXPERIENCE

Volunteer – Les Eco-Charlie, Paris, France (Sept 2019 - Feb 2020)

Surfing Instructor – Bundoran Surf Company, Bundoran, Ireland (Summer 2017 & 2018)

Volunteer – Northwestern Coastal Clean Ups, Bundoran, Ireland (Summer 2017 & 2018)

McDonald's Crew Member – McDonald's, Villeurbanne, France (Sept 2017 - May 2018)