# Raphael Vallat

*Research scientist (PhD)*

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🖰 https://raphaelvallat.com
French nationality

## Education

### Diploma

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| 2018–pres | Post-doctoral position, University of California Berkeley |
| | Lab: Center for Human Sleep Science |
| | Supervisor: Pr. Matthew Walker |
| 2017 | PhD in Neuroscience, *with honors*, Lyon 1 University |
| | Lab: Lyon Neuroscience Research Center (CRNL) |
| | Supervisor: Dr. Perrine Ruby |
| 2014 | Master degree in Neuroscience, *cum laude*, Lyon 1 University |
| 2012 | Bachelor degree of Cognitive Sciences, *ranked 1st*, Lyon 2 University |
| 2009 | Scientific baccalaureate, *cum laude* |

### Fellowship and awards

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| 2014–17 | Three-year PhD fellowship, from the French Ministry of Higher Education and Research |
| 2012–14 | Two-year merit scholarship, from the French Ministry of Education |

### Teaching activities (200h)

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| 2014–17 | Neurobiology / Neuroanatomy, 1st and 2nd year of Bachelor Degree |
| | Social science, 1st year of Medicine |
| | Neuro-imaging, Master degree in Neuroscience |
| | Supervision of two master students (Research master in Neuroscience) |
| | Elected representative of the non-permanent members in CRNL council |

## Skills

### Software development

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| 2018–pres | Pingouin: an open-source statistical package in Python |
| | EntroPy: complexity of EEG time-series in Python |
| | YASA (*Yet Another Spindle Algorithm*): a fast and robust sleep spindle detection algorithm. |
| 2017–pres | Sleep: an open-source Python software for visualization, analysis and staging of sleep data. |

### Neurosciences

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|---|---|
| Methodology | Polysomnography, actigraphy, resting-state and task fMRI, combined EEG-fMRI, behavior |
| Analysis | Signal processing, sleep scoring, statistics, machine-learning |
| | Functional and connectivity MRI analyses (*CONN Toolbox, SPM, FSL, Nilearn*) |
| Programming | Python, Matlab, LaTeX, HTML, Shell, R, Presentation |

### Formations

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|---|---|
| 2016 | fMRI course (3 days) organized by the Neuroscience and Cognition Doctoral School, Lyon, FR |
| 2015 | Second Brain Connectivity course (4 days) organized by the Grenoble Institute of Neuroscience, FR |
| 2014 | EEG-fMRI workshop (2 days) organized by Brain Products GmbH, Lyon, FR |

### Outreach

2019 Featured in several media articles about sleep science (e.g. New York Times, Discover Magazine)

2016 Organizer of the Doctoral Day of the Lyon Federative Research Structure in Health

2015 Featured speaker for a general public conference on sleep and dreams in Lyon city hall.

Organizer of a thematic week on neuroscience for high-school students

Organizer and chairman of *"Les Saisons du CRNL"* conference on neurosciences and society

### Languages

French  Mother tongue

English  Fluent

## Publications

### Peer-reviewed articles

2019  Combrisson E., Vallat R., ..., & Jerbi K. Visbrain: A multi-purpose GPU-accelerated open-source suite for multimodal brain data visualization. *Frontiers in Neuroinformatics.*

Vallat R., Meunier D., Nicolas A. & Ruby P. Hard to wake up? The cerebral correlates of sleep inertia assessed using combined behavioral, EEG and fMRI measures. *NeuroImage.*

2018  Vallat R. Pingouin: statistics in Python. *Journal of Open Source Software.*

Vallat R., Eichenlaub J-N., Nicolas A. & Ruby P. Dream recall frequency is associated with medial prefrontal cortex white-matter density. *Frontiers in Psychology.*

Vallat R., Eskinazi M., Nicolas A. & Ruby P. Sleep and dream habits in a sample of French students. *Journal of Sleep Research.*

2017  Vallat R., ..., & Ruby P. (2017). Increased Evoked Potentials to Arousing Auditory Stimuli during Sleep: Implication for the Understanding of Dream Recall. *Frontiers in Human Neuroscience.*

Vallat R., Chatard B., Blagrove M. & Ruby P. Characteristics of the memory sources of dreams: a new version of the content-matching paradigm to take mundane and remote memories into account. *Plos One.*

Combrisson E.*, Vallat R.*, ..., & Jerbi K. Sleep: an open-source python software for visualization, analysis and staging of sleep data. *Frontiers in Neuroinformatics. *Co-first authors*

### Oral presentations and posters

2017  Combrisson E.*, Vallat R.*, ..., & Jerbi K. Sleep: an open-source python software for visualization, analysis and staging of sleep data. *Poster/abstract for WSC conference (Czech Republic)*

Vallat R., Nicolas A. & Ruby P. Brain functional connectivity upon awakening from sleep predicts between-subject differences in dream recall frequency *(Oral presentation at IASD conference (USA))*

2016  Vallat R., Meunier D., Nicolas A & Ruby P. Sleep inertia and functional connectivity between brain regions at awakening: an EEG-fMRI study. *Oral presentation at IASD conference (Netherlands), Poster/abstract for ESRS conference (Italy) and FENS conference (Denmark)*

2015  Vallat R., Eichenlaub J-B., Morlet D. & Ruby P. Increased Evoked Potentials to Arousing Auditory Stimuli during Sleep: Implication for the Understanding of Dream Recall. *Oral Presentation for NPSA (Netherlands) and IASD (USA) conference, Poster/asbtract for ASSC conference (France)*

## Interests

Music  Guitar and string instruments (12 years, self-learner), music composition

Sports  Swimming (10 years), martial arts (7 years), ski, hiking, climbing

## List of referees

Post-doc PI:  Matthew Walker (mpwalker@berkeley.edu)

CRNL director:  Olivier Bertrand (olivier.bertrand@inserm.fr)

PhD supervisor:  Perrine Ruby (perrine.ruby@inserm.fr)