Raphael Vallat

Research scientist (PhD)

✉ *raphaelvallat9@gmail.com*
https://raphaelvallat.com
French nationality

Education

Diploma

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

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)

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

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

Methodology Polysomnography, actigraphy, resting-state and task fMRI, combined EEG-fMRI, behavior

Analysis Signal processing, sleep scoring, circadian rhythm, statistics, machine-learning
Functional and connectivity MRI analyses *(CONN Toolbox, SPM, FSL, Nilearn)*

Programming Python, Matlab, LaTeX, HTML, Shell, R, Presentation

Formations

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

2020 Vallat R.*, Shah V., Redline S., Attia P. & Walker M. Broken sleep predicts hardened blood vessels. *PLoS Biology. *Co-first authors*

Ben Simon E.*, Vallat R.*, Barnes C. & Walker M. Sleep Loss and the Socio-Emotional Brain. *Trends In Cognitive Sciences. *Co-first authors*

2019 Vallat R. & Ruby P. Is it a good idea to cultivate lucid dreaming? *Frontiers in Psychology.*

Plailly J., Villalba M., Vallat R., ..., Nicolas A. & Ruby P. Incorporation of fragmented visuo-olfactory episodic memory into dreams and its association with memory performance. *Scientific Reports.*

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

2019 The neural correlates of sleep inertia. *WSC conference (Canada)*

2016 Brain functional connectivity upon awakening from sleep predicts between-subject differences in dream recall frequency. *IASD conference (USA)*

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)

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