Raphael Vallat

Research scientist (PhD)

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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

2019	Plailly J., Villalba M., <u>Vallat R.</u>, ..., Nicolas A. & Ruby P. Incorporation of fragmented visuo-olfactory episodic memory into dreams and its association with memory performance. *Scientific Reports.*
2019	Combrisson E., <u>Vallat R.</u>, ..., & Jerbi K. Visbrain: A multi-purpose GPU-accelerated open-source suite for multimodal brain data visualization. *Frontiers in Neuroinformatics.*
	<u>Vallat R.</u>, 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	<u>Vallat R.</u> Pingouin: statistics in Python. *Journal of Open Source Software.*
	<u>Vallat R.</u>, Eichenlaub J-N., Nicolas A. & Ruby P. Dream recall frequency is associated with medial prefrontal cortex white-matter density. *Frontiers in Psychology.*
	<u>Vallat R.</u>, Eskinazi M., Nicolas A. & Ruby P. Sleep and dream habits in a sample of French students. *Journal of Sleep Research.*
2017	<u>Vallat R.</u>, ..., & Ruby P. (2017). Increased Evoked Potentials to Arousing Auditory Stimuli during Sleep: Implication for the Understanding of Dream Recall. *Frontiers in Human Neuroscience.*
	<u>Vallat R.</u>, 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.*, <u>Vallat R.</u>*, ..., & 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)