andrea.alamia@cnrs.fr
artipago@gmail.com

https://artipago.github.io/

Andrea Alamia

Statistics – ISI [GoogleScholar] – updated 12/2020
Publications: 25;
Citations: 272;
H-index: 12

ACADEMIC POSITIONS

Post-doctoral associate (August. 2019 - present)

Joint collaboration between : Serre Lab, Brown University, Rhode Island, USA & Centre de Recherche Cerveau et Cognition (CerCo - CNRS), Toulouse, France
Supervisors: *Dr. Thomas Serre* and *Dr. Rufin VanRullen*– *NSF CRCNS USA-France Research grant*

Summer Program Intern (June 2019 – August. 2019) :

RIKEN Center for Brain Science (CBS), Wako, Saitama, Japan
Supervisor: *Dr. Andrea Benucci*– *Laboratory for Neural circuits and behavior*

Post-doctoral associate (Sept. 2017 –June 2019) :

Centre de Recherche Cerveau et Cognition (CerCo - CNRS), Toulouse, France
Supervisor: *Dr. Rufin VanRullen*– *ERC Consolidator Grant P-CYCLES*

EDUCATION

PhD in Cognitive Neuroscience, F.R.S-FNRS (September. 2013 –August 2017)

Institute of Neuroscience, Université Catholique de Louvain (IoNS, UCL), Belgium
Thesis: *"Unconscious processing in the human brain"*
Supervisors: *Dr. Alexandre Zénon, Prof. Etienne Olivier, Prof. André Mouraux - Aspirant* F.R.S.-*FNRS*

PhD Fellowship - INNOVIRIS (November. 2012 –August 2013)

Institute of Neuroscience, Université Catholique de Louvain (IoNS, UCL), Belgium
Supervisors: *Dr. Alexandre Zénon*, *Prof. Etienne Olivier*

Master Degree in Biomedical Engineering (2009–2012)

Politecnico di Milano (Italy)
Thesis: *"Improving Quantification of Labeled Peptides in Mass Spectrometry - based Proteomics"*
Supervisors: *Dr. Linda Pattini*, *Dr. Salvatore Cappadona (Utrecht University)*

Bachelor Degree in Biomedical Engineering (2006–2009)

Politecnico di Milano (Italy)
Thesis: *"Adaptative Keyboards applied to Brain-Computer Interface (BCI) System: Implementation and evaluation of a self-organized keyboard controlled through SSVEP protocol"*
Supervisor: *Prof. Giuseppe Andreoni*

GRANTS

- ASP - *Aspirant* F.R.S.-*FNRS – Research Fellow 4 years, 2013-2017*
- March 2014 – '2014 **FENS Forum travel Grant**' awarded by the Belgian Society of Neuroscience
- '**CCN18 Travel Grant**' awarded at the Computational Cognitive Neuroscience Conference 2018

INVOLVEMENT IN THE SCIENTIFIC COMMUNITY

Head of the TIdDLe Organization Committee. TIdDLe is a group of Toulouse based researcher interested in Deep Learning. I'm in charge of coordinating and organizing most of the scientific meetings.

Invited Reviewers for the journals: Journal of Neuroscience, Plos Computational Biology, NeuroImage, Frontiers in Computational Neuroscience, Frontiers in Neuroscience, Journal of Motor Behavior, PlosOne, Journal of Cognition.

Founder and organizer of the **DeepLearning Club** at Centre de Recherche Cerveau&Cognition (CerCo), Toulouse, 2017-2019

Organizer of the **Journal Club** at Centre de Recherche Cerveau&Cognition (CerCo), Toulouse, 2019-2020

- "New study shows how DMT refreshes perceptions" in 'Lucid News' 22nd-may-2020 (https://www.lucid.news/how-dmt-refreshes-perceptions/?fbclid=IwAR20QnjSiDUJOr4s26ucVPaCrh1ZSYazkQ5JRH0gxQAtF5nmu32QQQoxSMQ)

- "L'inconscient doit encore faire ses preuves" in 'Pour La Science' 27th-may-2019 (https://www.pourlascience.fr/sd/neurosciences/linconscient-doit-encore-faire-ses-preuves-17067.php)

Graduate Students co-supervision (main supervisor : Dr. Rufin VanRullen):
- Zhaoyang Pang (2018 - 2021)
- Canhuang Luo (2017 – 2020)

Master Students:
- Loukas Benazt *"Fooling the eye: when Predictive Coding generates visual illusions"* – 2020
- Malo Renaud D'Ambra *"Alpha oscillation and its inhibitory role in visual selection : an EEG study"* – 2020
- Lucie Terral *"Travelling waves and their cognitive functions: a predictive coding interpretation"* – 2020
- *Victor Gauducheau "Artificial Grammar and Neural Network"* – 2018
- *Dimitri Paisios "Recurrent Networks and Artificial Grammar learning"* – 2018
- *Marie Victoire de Lassus "Can pupillometry contribute to the assessment of empathy"* – 2016/2017
- *Laureen Slongo "Luminance on saccadic suppression induced by covert shifts of attention"* - 2014/2015

Teaching 2 theoretical and practical seminars about TMS technique in the course **"Bio-Instrumentation"** (2015-2016, 2016-2017 - UCL), hold by Prof. André Mouraux. Total hours: 10.

Luo C., VanRullen R., Alamia A. (under revision) "Conscious perception modulates perceptual echoes" Neuroscience of Consciousness

Alamia A., Gauducheau V., Paisios D., VanRullen R. (in press) "Comparing feedforward and recurrent neural network architecture with human behavior in Artificial Grammar Learning" Scientific Reports

Alamia A., Timmermann C., Nutt D.J., VanRullen R., Carhart-Harris R. (2020) " DMT alters cortical travelling waves" eLife 9:e59784

Alamia A., Luo C., Ricci M., Kim J., Serre T., VanRullen R. (2020) " Differential involvement of EEG oscillatory components in sameness vs. spatial-relation visual reasoning tasks" eNeuro 10.1523/ENEURO .0267-20.2020

Alamia A., VanRullen R. (2019) "Alpha oscillations and travelling waves: signatures of predictive coding?" PLOSBiology, 17(10), e3000487

Alamia A., VanRullen R., Pasqualotto E., Mouraux A., Zenon A. (2019) "Pupil responds to unconscious surprisal". Journal of Neuroscience, 3010-18

Alamia A., Zenon A., VanRullen R., Duque J.,Derosiere G..(2019) "Unconscious perceptual cues drive oscillatory activity in the motor cortex during action selection ". Neuroimage, 186, 424-436

Alamia A., Solopchuk O., Zenon A. (2018) "Strong conscious cues suppress preferential gaze allocation to unconscious cues". Frontiers in Human Neuroscience, 12:427.

Alamia A., de Xivry J.J., Anton E., Olivier E., Cleeremans A., Zenon A. (2016) "Unconscious associative learning with conscious cues". Neuroscience of Consciousness 1-10.

Alamia A., Solopchuk O., D'Ausilio A., Van Bever V., Olivier E., Zenon A. (2016) "Disruption of Broca's Area Alters Higher-order Chunking Processing during Perceptual Sequence Learning". Journal of cognitive neuroscience. Vol 28, N°3, p.402-417.

Alamia A., Solopchuk O., Olivier E., Zenon A. (2016) "Non-parametric algorithm to isolate chunks in response sequences ". Frontiers in Behavioral Neuroscience, 10:177.

Alamia A., Zenon A. (2016) "Statistical Regularities Attract Attention when Task-Relevant". Frontiers in Human Neuroscience, 10:42.

Choksi M., Mozafari M., O'May C., Ador B., Alamia A., VanRullen R. (2020) "Brain-inspired predictive coding dynamic improve the robustness of deep neural networks" 2nd SVRHM Workshop, NeurIPS 2020

Pang Z., **Alamia A.**, VanRullen R. (**2020**) "Turning the stimulus on and off changes the direction of alpha travelling waves" eNeuro, 7(6), ENEURO.0218-20.2020

Filibrich L., Halicka M., **Alamia A.**, Legrain V. (**2018**) "Investigating the spatial characteristic of the cross-modal interaction between nociception and vision using gaze direction". Consciousness and Cognition 57, 106-115

Filibrich L., **Alamia A.**, Burns S., Legrain V., (**2017**) "Orienting attention in visual space by nociceptive stimuli: investigation with a temporal order judgment task based on the adaptive PSI method". Experimental Brain Research,235(7), 2017

Derosiere G., Zenon A., **Alamia A.**, Duque J., (**2017**) "Primary motor cortex contributes to the implementation of implicit value-based rules during motor decisions". Neuroimage, 2016, Oct 11

Vanderclausen C.,Filibrich L., **Alamia A.**, Legrain V. (**2017**) "Investigating peri-limb interaction between nociception and vision using spatial depth ". Neuroscience letters 654, 111-116

Filibrich L., **Alamia A.**, Blandiaux S., Burns S., Legrain V. (**2017**) "Shaping visual space perception through bodily sensations: testing the impact of nociceptive stimuli on visual perception in peripersonal space with temporal order judgment task". Plos One, 12(8)

Filibrich L., **Alamia A.**, Verfaille C.,Berquin A., Barbier O., Libouton X.,Fraselle V., Mouraux D., Legrain V. (**2017**) "Biased visuospatial perception in complex Regional Pain Syndrome ". Scientific Report 7(1), 9712

Solopchuk O.,**Alamia A.**, Dricot L., Duque J., Zenon A. (**2017**) "cTBS distruption of the Supplementary Motor Area perturbs sequence representation but not performance ". Neuroimage 163, 34-40

Solopchuk O.,**Alamia A.**, Zenon A. (**2016**) "The Role of the Dorsal Premotor Cortex in Skilled Action Sequences ". Journal of Neuroscience 36,(25) 6599-6601

Solopchuk O.,**Alamia A.**, Olivier E., Zenon A. (**2016**) "Chunking improves symbolic sequence processing and relies on working memory gating mechanisms ". Learning and Memory 23, p.108-112

Torta D., Tatu M.K., Cotroneo D., **Alamia A.**, Folegatti A., Trojan J. (**2016**) "Prism adaptation contrasts perceptual habituation for repetitive somatosensory stimuli". Acta Psychologica

Zenon A., Klein PA., **Alamia A.**, Boursoit F., Wihelm E., Duque J. (**2015**) "Increased Reliance on Value-based Decision Processes Following Motor Cortex Disruption". Brain Stimulation 8(5):957-964.

Zenon A., Corneil B.D., **Alamia A.**, Filali-Sadouk N., Olivier E. (**2014**) "Counterproductive Effect of Saccadic Suppression during Attention Shifts". PLoS ONE 9(1):e86633.

SELECTED POSTERS

"Which neural networks match human performance in artificial grammar learning"– **A. Alamia**, V. Gauducheau, D. Paisios, R. VanRullen – "Computational Cognitive Neuroscience", Berlin September, 2019

"Automatic regularization of second-order Wienere kernels interacting corollary discharges"– D. Lyamzin, **A. Alamia**, R. Aoki, M. Abdolrahmani, A. Benucci – "Neuro2019", Niigata July, 2019

"Differential involvement of EEG oscillations in identity vs spatial-relation reasoning tasks"– **A. Alamia**, Canhuang Luo, Matthew Ricci, Thomas Serre, R. VanRullen – "Vision Science Society", St. Pete May, 2019

"Predictive coding produces alpha-band rhythmic travelling waves"– **A. Alamia**, R. VanRullen – "Conference on Cognitive Computational Neuroscience", Philadelphia September, 2018

"Non-Bayesian weighting of implicit and explicit information in a motion discrimination task"– **A. Alamia**, V. Moens, E. Olivier, A. Zenon – "Cognitive Neuroscience Meeting", New York April, 2016

"A novel implicit associative learning framework : validation, role of attention and relation to Bayesian decision making"– **A. Alamia**, A.Cleeremans, E. Olivier, A. Zenon – "Society for Neuroscience", Chicago October, 2015

"New method to identify chunks finds no evidence for concatenation"– **A. Alamia**, O. Solopchuk, E. Olivier, A. Zenon – "Belgian Society for Neuroscience", Moens May, 2015

"Implicit Learning: a new design to unveil the unconscious brain"– **A. Alamia**, J.J. Orban de Xivry, A.Cleeremans, E. Olivier, A. Zenon – "Neuronus", Krakow April, 2015

"Kinematics of motor sequence performance in the presence of implicit and explicit structure"– O. Solopchuk, **A. Alamia**, E. Olivier, JJ.de Xivry, A. Zenon – "Neuronus", Krakow April, 2015

"Implicit Learning: a stimulus-response framework"– **A. Alamia**, J.J. Orban de Xivry, E. Olivier, A. Zenon – "Neuro-cognitive mechanisms of conscious and unconscious visual perception", <u>Delmenhorst</u> July, 2014 and 9th FENS Forum of Neuroscience, <u>Milano</u>, July, 2014

" Implicit statistical learning and pupil size: an untold love story" – **A. Alamia**, E. Olivier, A. Zenon- "Belgian Brain Council 2014"- <u>Ghent</u>, October 24, 2014

"Allocation of visual attention during the learning of first- and second-order statistics of a dynamic environment"– **A. Alamia**, E. Olivier, A. Zenon- "Rovereto Attention Workshop" - <u>Rovereto</u>, October 24, 2013

- "Automatic regularization of second-order Wiener kernels interacting corollary discharges" – presentation of the Summer Program work, <u>Saitama, Japan</u> - August the 6th 2019
- "Networks and Complexity", "Models of Consciousness", Winter school ECHARP,– <u>Aragnouet, France</u> - January, 2018
- "Unconscious learning: behavioral evidence, relationship with attention and physiological markers" – Invited talk at 'Purpan' Hospital, <u>Toulouse, France</u> - April the 5th 2017
- "Unconscious processing: studying the dark side of the brain" COSY Seminar, <u>Louvain La Neuve, Belgium</u> – October the 21st 2016
- "Unconscious learning: when your brain knows more than you do " Mechanisms of conscious and unconscious learning – Fourth annual meeting PAI / IAP 7/33, <u>Louvain La Neuve, Belgium</u> – December the 3rd 2015
- "Unconscious learning: when your brain knows more than you do " UCL - Phd Day, <u>Bruxelles</u> - November the 16th 2015

RIKEN CBS Lecture course 2019 (01/07/2019 – 05/07/2019) – RIKEN CBS – Tokyo, Japan

Computational Psychiatry Course 2017 (28/08/2017 – 01/09/2017) – University of Zurich & ETH Zurich, Switzerland.

International Deep Learning Summer School 2017 (17/07/2017 – 21/07/2017) – University of Deusto – Bilbao, Spain

Athens Course (11/03/2011 – 19/03/2011) Universidad Politecnica de Madrid (UPM), Spain – 7.5/10

> *"Exact String Pattern Recognition"- Prof. Francisco Gomez Martin*

SICC *(Italian Society Chaos and Complexity)* **Course** - 8-10 May 2012
> *"Paradigmatic Models in Social Sciences"- Prof. Sergio Rinaldi*

ISF *(Engineers without borders)* **Course -** April 2011 - May 2011
> *"Development Prospective through Migrations"- Prof. Irene Bengo*

Online Courses (Coursera.org platform, credits free)

Machine Learning - Prof. Andrew NG (U. of Stanford)	92.4%
Networked Life - Prof. M. Kerns (U. of Pennsylvania)	99.3%
Model Thinking - Prof. Scott Page (U. of Michigan)	93.8%
Drugs and the Brain – Prof. Henry Lester (Caltech U.)	98.2%
Exploring Quantum Physics – Prof. Victor Galitski (U. of Maryland)	62.1%
Synapses, Neurons and Brain – Prof. Idan Segev (H. U. Jerusalem)	79.9%
Social Psychology- Prof. Scott Plous (Wesleyan U.)	81.1%
Animal Behavior – Prof. Mark Elgar (U. Melbourne)	95.3%

Matlab– advanced (>10 years)

Python– advanced (Numpy, Tensorflow, Pytorch)

R– basic

Brain Voyager (fMRI analysis)- intermediate

C/C++- basic

HTML- basic

Working experience with:

TMS, EEG, fMRI, Eye Tracker (EyeLink1000)

Data Analyses frameworks:

Machine Learning models, Bayesian Statistics (JASP, R), Frequentist Statistics (R).

WORK EXPERIENCE

Internship in the Biomedical Engineering department (April – June 2009): at "Istituto Nazionale Neurologico 'Carlo Besta' ", in Milano - with focus on management of medical instrumentation, and attending the planning and execution of an open brain computer-assisted surgery.

Private Tutor (2006 - 2012) of mathematics and physics for High School courses

MISCELLANEOUS

Classical Guitar - *Intermediate Accomplishment* (2010) at "Conservatorio di Milano - Giuseppe Verdi"

Music Theory and 'Solfeggio' (2007) at "Istituto Pareggiato Vittadini di Pavia"

Black belt in Judo and former competitor athlete

Breakdance teacher at "SalsaSwing" (BovisioMasciago) and "PalazzoloSport" (Palazzolo Milanese) - (2006 - 2011)

Experienced traveler and amateur mountain excursionist (summit peaks: Hoverla - 2061mt, Ukraine 2015; Kota Kinabalu - 4095mt, Malaysia 2016; PoonHill- 3193, Nepal 2017)

LANGUAGES

English: Spoken, written: Fluent

French: Spoken, written: Intermediate

Spanish: Spoken, written: Basic

Italian: Mother tongue

REFERENCES

Dr. Rufin VanRullen *(postdoc supervisor)*
rufin.vanrullen@cerco.ups-tlse.fr
Centre de Recherche Cerveau et Cognition ; Faculte de MedecinePurpan ; 31052 Toulouse Cedex (France)

Dr. Alexandre Zénon *(phd supervisor)*
alexandre.zenon@u-bordeaux.fr
Motor Control and Cognition ; Université de Bordeaux ; 33076 Bordeaux cedex (France)

Dr. Thomas Serre *(postdoc supervisor)*
thomas.serre@brown.edu
Serre Lab ; Brown University ; 190 Thayer St, Providence, RI 02912 (USA)

Prof. André Mouraux *(phd supervisor)*
andre.mouraux@uclouvain.be
Institute of Neuroscience ; Université catholique Louvain ; Ave Mounier 53 - 1200 Bruxelles, Belgium

Dr. Andrea Benucci *(summer internship supervisor)*
andrea.benucci@riken.jp
Riken Center for Brain Science, 2-1 Hirosawa Wako City, Saitama 351-0198 JAPAN