CURRICULUM VITAE
Maëlle CM Gueguen, PhD

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RESEARCH EXPERIENCE

2023
(ongoing)
Associate Investigator in Addiction Neuroscience
Laureate Institute for Brain Research, Tulsa, OK, USA

2020-2023
(3.5 years)
Postdoctoral fellow in Addiction Neuroscience
Addiction & Decision Neuroscience Lab, PI: Dr. Anna B. Konova
Brain Health Institute, Department of Psychiatry, UBHC, Rutgers University, NJ, USA

2019
(8 months)
Research Fellow in Systems Neuroscience and **Clinical Research Associate**
F-TRACT European project (ERC 2014) PI: Dr. Olivier David
Inserm, Grenoble Institute of Neuroscience, Grenoble Alpes University, FRANCE

2014-2017
(3 years)
Junior Researcher in Cognitive Neuroscience
PhD under the supervision of Dr. Julien Bastin and Dr. Jean-Philippe Lachaux
"Intracerebral dynamics of human reinforcement learning"
Grenoble Institute of Neuroscience, Grenoble Alpes University, FRANCE

2013-2014
(13 months)
Graduate student
Master internship with Dr. Julien Bastin and Dr. Olivier David
"Cerebral dynamics of subjective value and reinforcement signal encoding: insights from invasive electrophysiological recordings in human"
Grenoble Institute of Neuroscience, Joseph Fourier University, FRANCE

2012
(2 months)
Research Assistant
Bachelor internship with Dr. Antoine Depaulis
"Role of glial cells in epileptogenesis in the GAERS rat, a neuroimaging and behavioral study"
Grenoble Institute of Neuroscience, Joseph Fourier University, FRANCE

2012
(2 months)
Research Assistant
Bachelor Internship with Dr. Thierry Buchou and Dr. Saadi Khochbin
"Reprogramming of the male genome insights from mouse models knocked-out for partners of the spermatogenesis"
Institute for Advanced Biology, Joseph Fourier University, FRANCE

2011
(3 months)
Zootechnician
High-tech research animal facility PHTA, Grenoble, FRANCE

EDUCATION

2020
Level 1 MRI personnel training
RUBIC, Rutgers University, NJ, USA
2020
Computational Psychiatry Course
Translational Neuromodeling Unit, University of Zurich & ETH Zurich, Switzerland

2017	***PhD in Neuroscience, and PsychoCognition***
	Grenoble Institute of Neuroscience, Grenoble Alpes University, Grenoble, FRANCE
	(Formerly known as Joseph Fourier University)
2014	***Research in Neuroscience International Master*** 2nd year
	Joseph Fourier University, Grenoble, FRANCE
2013	***Molecular and Cellular Biology Master*** 1st year
	Joseph Fourier University, Grenoble, FRANCE
	Biochemistry degree - Exchange program ERASMUS+ University of Glasgow, UK
2012	***Organisms Biology B.S.***
	Joseph Fourier University, Grenoble, FRANCE

GRANTS, HONOURS, AWARDS AND BURSARIES

2021-2023	***CCNP Pilot grant (Grant# 205303)***
	Computational study of dynamic maladaptive decision-making in alcohol use disorder
	Rutgers-Princeton Center for Computational Cognitive Neuro-Psychiatry ($20,000 for 18 months)
2022	***Early Career Research Presentation Competition***
	College on Problems of Drug Dependence (Honorable mention)
2022	***Travel Award for Early Career Investigators***
	Fifth Multidisciplinary Conference on Reinforcement Learning and Decision Making ($300 award)
2016	***Early Career exchange program ECOS-Sud travel scholarship***
	Two-month research exchange with Universidad del Desarrollo, Santiago, Chile ($5,000 grant)
2016	***Best poster award***
	EDISCE Doctoral School, Grenoble Alpes University (300€ award)
2014-2017	***Doctoral scholarship***
	ARC2, Academic Research Community, Auvergne Rhône-Alpes Region (30,000€ per year over 3 years of PhD training
2012-2013	***Exchange scholarship***
	ERASMUS+ program to study abroad (15,000€ scholarship for one year)

SCHOLARLY CONTRIBUTIONS

* indicates equal contributions, # denotes a graduate student mentee, presenter (if other) underlined

PEER-REVIEWED PUBLICATIONS

3. **Gueguen MCM,** Schweitzer EM#, Konova AB (2021). Computational theory-driven studies of reinforcement learning and decision-making in addiction: what have we learned? *Current Opinion in Behavioral Sciences, 38*, 40-48. DOI: 10.1016/j.cobeha.2020.08.007

2. **Gueguen MCM,** Lopez-Persem A, Billeke P *et al.* (2021). Anatomical dissociation of intracerebral signals for reward and punishment prediction errors in humans. *Nature Communications, 12(1)*, 3344. DOI: 10.1038/s41467-021-23704-w

1. Bastin J, Deman P, David O, **Gueguen M**, Benis D, Minotti L, Hoffman D, Combrisson E, Kujala J, Perrone-Bertolotti M, Kahane P, Lachaux JP, Jerbi K (2017). Direct recordings from human anterior insula reveal its leading role within the error-monitoring network. *Cerebral Cortex,* 27(2), 1545–1557. DOI: 10.1093/cercor/bhv352

PAPERS IN REVIEW AND IN PREPARATION

7. Pouchon A, Vinckier F, Dondé C, **Gueguen MCM**, Bastin J, Polosan M (2022). Reward and punishment learning deficits among bipolar disorder subtypes. *PsyArXiv* DOI: 10.31234/osf.io/zt4nd Under review in *Journal of Affective Disorders (JAFD-D-23-00280)*

6. Collomb-Clerc A*, **Gueguen MCM***, Minotti L, Kahane P, Navarro V, Bartolomei F, Carron R, Regis JM, Chabardès S, Palminteri S, Bastin J (2022). The role of the thalamus in human reinforcement learning. *BioRXiv* DOI: 10.1101/2022.11.23.517731 Under review in *Nature Communications*

5. **Gueguen MCM**, Anlló H, Bonagura D, Kong J, Hafezi S, Palminteri S, Konova AB (2022). Recent opioid use impedes range adaptation in reinforcement learning in human addiction. Under review in *Biological Psychiatry (BPS-D-22-01777)*

4. Anlló H, …, **Gueguen MCM**, Bonagura D, Konova AB, …, Palminteri S (*2023*). Outcome context-dependence is not WEIRD: Comparing reinforcement- and description-based economic preferences worldwide. *ResearchSquare* DOI: 10.21203/rs.3.rs-2621222/v1 Under review in *Nature Human Behavior (NATHUMBEHAV-23020608)*

3. Combrisson E, Basanisi R, **Gueguen MCM**, Rheims S, Kahane P, Bastin J, Brovelli A (*2023*). Neural interactions in the human frontal cortex dissociate reward and punishment learning. *BioRXiv* DOI: 10.1101/2023.05.02.539138

2. **Gueguen MCM***, LoFaro FM*, Kapoor A, Alvarez E, Bonagura D, Konova AB (*in prep*). Neural computations of risk, ambiguity, and subjective value in human opioid addiction.

1. Alvarez EE#, **Gueguen MCM**, Sawar S, Kong J, Hafezi S, Bonagura D, Konova AB (*in prep*). Domain-specific optimism: How biased beliefs about personal risk and drug use are maintained.

CONFERENCES AND INVITED TALKS

8. LoFaro FM*#, **Gueguen MCM***, Kapoor A*#, Alvarez EE#, Bonagura D, Konova AB. (2023) Preserved Neural Encoding of Subjective Valuation Under Uncertainty in Human Opioid Addiction. *85th Annual Scientific Meeting of the College on Problems of Drug Dependence, Denver, CO, USA*

7. **Gueguen MCM** (2022) Studying value-based decision making to better understand clinical trajectories in neuropsychiatric disorders. *Laureate Institute for Brain Research (LIBR), Tulsa, OK, USA*

6. **Gueguen MCM**, Anlló H, Bonagura D, Kong J, Hafezi S, Palminteri S, Konova AB. (2021) Sensitivity to contextual effects during reinforcement learning in human addiction. *Annual meeting of the Society for NeuroEconomics (virtual)*

5. **Gueguen MCM,** Lopez-Persem A, Billeke P *et al.* (2020) Cortical dynamics of outcome processing during reinforcement learning: Insights from invasive electrophysiology in humans. *PDP Meeting, Princeton University, NJ, USA*

4. **Gueguen MCM**, Bastin J. (2019) Intracerebral dynamics of human reinforcement learning. *Young Researchers Meeting, Psychology and NeuroCognition Lab (LPNC), Grenoble, FRANCE*

3. **Gueguen MCM** (2017) Intracerebral dynamics of human reinforcement learning: insights from direct cortical recordings. *Grenoble Institute of Neuroscience, FRANCE*

2. **Gueguen MCM**, Bastin J. (2016) Learning with the carrot or the stick: two opposite systems in the human brain. *ARC2 Life Quality and aging agency, Conference "Aging well", Lyon, FRANCE*

1. **Gueguen MCM** (2015) Decision making: toward a better understanding of our choices. *Annual meeting of the Grenoble Cognition Pole, Grenoble, FRANCE*

CONFERENCE POSTER PRESENTATIONS

16. Alvarez EE#, **Gueguen MCM**, Sawar S, Kong J, Hafezi S, Bonagura D, Konova AB (2023). Neural and Longitudinal Mechanisms Mediating Drug-Related Optimism Bias in Opioid Addiction. *85th Annual Scientific Meeting of the College on Problems of Drug Dependence, Denver, CO, USA*

15. Grunevski S#, Alvarez EE#, Schweitzer EM#, Kong J, Hafezi S, **Gueguen MCM**, Konova AB (2023). The Dynamics of Craving and Willingness-To-Pay for Drugs and Food in Daily Life. *85th Annual Scientific Meeting of the College on Problems of Drug Dependence, Denver, CO, USA*

14. Shivarand A, **Gueguen MCM**, Bavard S, Bastin J, Palminteri S. (2023) Inverse Reflection Effect During Context-Dependent Learning of Risky Choices. *Cognitive Computational Neuroscience, Oxford University, Oxford, UK*

13. **Gueguen MCM**, Anlló H, Bonagura D, Kong J, Hafezi S, Palminteri S & Konova AB. (2022) Recent Opioid Use Impedes Range Adaptation in Reinforcement Learning in Human Addiction. *Rutgers Cognitive and Sensory Neuroscience Retreat, Rutgers University-New Brunswick, NJ, USA*

12. Anlló A & **the Intercultural Cognitive Network**. (2022) Relative value learning is not WEIRD: Losing money around the world with context-dependent reinforcement learning. *Federation of European Neuroscience Societies Forum, Paris, FRANCE*

11. <u>Shivarand A</u>, **Gueguen MCM**, Bavard S, Bastin J, Palminteri S. (2022) Context-Dependence and Asymmetric Update in Risky Decision-Making. *Federation of European Neuroscience Societies Forum, Paris, FRANCE*

10. **Gueguen MCM**, Anlló H, Bonagura D, Kong J, Hafezi S, Palminteri S & Konova AB. (2022) Recent Opioid Use Impedes Range Adaptation in Reinforcement Learning in Human Addiction. *84th Annual Scientific Meeting of the College on Problems of Drug Dependence, Minneapolis, MN, USA*

9. **Gueguen MCM**, Anlló H, Bonagura D, Kong J, Hafezi S, Palminteri S & Konova AB. (2022) Recent Opioid Use Impedes Range Adaptation in Reinforcement Learning in Human Addiction. *Fifth Multidisciplinary Conference on Reinforcement Learning and Decision Making, Brown University, Providence, RI, USA*

8. **Gueguen MCM,** Bonagura D, Ruiz M, Silguero G, Konova AB. (2021) Neural computations of risk, ambiguity, and subjective value in human opioid addiction. *Annual meeting of the Society of Biological Psychiatry (virtual)*

7. <u>Alvarez EE</u>, Bonagura D, **Gueguen MCM**, Zhao J, Konova AB. (2020) A pilot feasibility study evaluating the day-to-day temporal dynamics of decision-making in opioid use disorder through treatment. *Center for Alcohol and Substance Use Studies, Rutgers University, Annual poster session*

6. **Gueguen MCM,** Bonagura D, Ruiz M, Silguero G, Konova AB. (2020) Neural dissimilarity in subjective value coding of risk vs. ambiguity in vmPFC underlies more extreme ambiguity preferences. *Annual meeting of the Society for Neuroeconomics (virtual)*

5. **Gueguen MCM,** Bonagura D, Ruiz M, Silguero G, Konova AB. (2020) Neural dissimilarity in subjective value coding of risk vs. ambiguity in vmPFC underlies more extreme ambiguity preferences. *Rutgers Center for Alcohol and Substance Use Studies Annual scholar poster session (virtual)*

4. **Gueguen MCM**, <u>Cecchi R</u>, Chabardès S, Navarro V, Regis J, Pessiglione M, Bastin J. (2018) How anterior and dorsomedial thalamic nuclei support reinforcement learning: evidence from LFP in epileptic patients. *Eighth International Symposium on Biology of Decision Making, Paris, FRANCE*

3. **Gueguen M**, Lachaux JP, Kahane P, Billeke P, Pessiglione M, Bastin J. (2018) How the brain learns from rewards and punishments: a human intracerebral EEG study. *Eighth International Symposium on Biology of Decision Making, Paris, FRANCE*

2. **Gueguen MCM**, Bastin J, Minotti L, Hoffman D, Kahane P, Pessiglione M, Lachaux JP. (2016) Divide and decide: Cortical dissociation during punishment versus reward learning. *Annual conference of the EDISCE doctoral school, Grenoble, FRANCE – 1st prize for best poster*

1. **Gueguen M**, Bastin J, Minotti L, Hoffman D, Kahane P, Lachaux JP. (2016) Divide and decide: A cortical dissociation during past experiences processing. *European Meeting of Neuroscience by PhD students, Grenoble, FRANCE*

SERVICE AND TEACHING
AD HOC REVIEWER FOR PEER-REVIEWED JOURNALS
Addiction Biology
Biological Psychiatry
Biological Psychiatry: Cognitive Neuroscience and Neuroimaging
Biological Psychiatry: Global Open Science
Communications Biology
NeuroImage
Psychopharmacology
PLOS ONE

PROFESSIONAL MEMBERSHIPS
2020-2023   Postdoctoral member, New York Academy of Science (NYAS)
2022   Member, College for Problems of Drug Dependence (CPDD)
2021-2022   Member, Society for Biological Psychiatry (SOBP)
2020-2021   Member, Society for NeuroEconomics (SNE)

CONFERENCE COMMITTEE AND ORGANIZATION EXPERIENCE

2016   ***Committee member, program organizer and head of marketing***
European Meeting of Neuroscience by PhD students, Grenoble, FRANCE

2013-2017   ***Member then co-president***
NeuroDocs, Grenoble Institute of Neuroscience

TEACHING EXPERIENCE

2017-2019   ***Lecturer***, Bases of Cognition and Decision Making, Université InterCommunale du Grésivaudan
2015-2017   ***Lab Instructor and content creator***, Animal Biology I & II, Grenoble Alpes University, FRANCE
2015-2017   ***Lab Instructor***, Cellular Biology I & II, Grenoble Alpes University, FRANCE
2015-2016   ***Lecturer and Lab Instructor***, General Biology I, Grenoble Alpes University, FRANCE
2015   ***Lecturer and Lab Instructor***, Biochemistry, Grenoble Alpes University, FRANCE
2009-2013   ***Tutor***, English, Private classes to three middle and high school students, FRANCE
2007-2012   ***Instructor***, Classic horse riding (beginners to experienced), Richard Stables, FRANCE

MENTORING AND SUPERVISION EXPERIENCE

2022-2023   ***Supervisor***, Honor's student, Rutgers University, NJ, USA (Daniel Oliver)
2022-2023   ***Supervisor***, PhD candidate, Rutgers University, NJ, USA (Sergej Grunevski)
2022-2023   ***Supervisor and mentor***, PhD candidate, Rutgers University, NJ, USA (Francesca M LoFaro)
2021-2023   ***Supervisor and mentor***, PhD candidate, Rutgers University, NJ, USA (Emmanuel E Alvarez)
2020-2023   ***Supervisor and mentor***, PhD candidate, Rutgers University, NJ, USA (Emma M Schweitzer)
2021-2022   ***Supervisor***, Master student, Rutgers University, NJ, USA (Ananya Kapoor)
2021-2022   ***Supervisor***, Project SUPER for Women in Science, Rutgers University, NJ, USA (Akshita Kumar)
2015-2017   ***Mentor***, Graduate research intern, Grenoble Alpes University, FRANCE (Elie Poncet)
2015   ***Mentor***, Undergraduate interns, Grenoble Alpes University (Lola Colombier, Fanny Bellin)
2007-2011   ***Supervisor***, Summer camp, 3yo to 12yo, Les Grappaloups, Le Touvet, FRANCE

VOLUNTEERING EXPERIENCE

2007-2013   ***Volunteer staff***, secretary/waitress/host, in the theatre "Le Contoir du Montalieu", FRANCE
2005-2009   ***Volunteer zootechnician/vet assistant***, Veterinarian clinic, Le Touvet, FRANCE

EXPERTISE

TECHNICAL EXPERTISE

✓ Data collection:
- o Structural and functional neuroimaging (fMRI)
- o Electrophysiology (sEEG and DBS)
- o Ecological momentary assessment (EMA)

✓ Clinical studies:
- o Healthy subjects and neurosurgical and neuropsychiatric patients testing
- o Work with clinical/administrative staff
- o Project submission to ethics committee
- o Clinical trial monitoring in multiple hospital centers: data collection, transfer and anonymization

✓ Cognitive studies:
- o Behavioral task (Matlab and Presentation)
- o Signal processing (Matlab, SPM, fMRIprep)
- o Computational modeling (Matlab, SPM)

✓ Animal experimentation:
- o Mouse dissections
- o Management and handling of rat and mice
- o Intraperitoneal injections
- o Rat anatomic MRI analysis

✓ Techniques in molecular biology and biochemistry:
- o Primary cultures (fibroblasts, bacteria)
- o RNA analysis (RT-PCR, qRT-PCR)
- o Protein analysis (Western Blot, immunoprecipitation)
- o Immunofluorescence, immunohistochemistry

COMPLEMENTARY SKILLS

IntrAnat - *Deman & Bhattacharjee* 2018 *Front NeuroInfo* (BrainVISA 4.5, SPM12)
Image analysis and processing - Inkscape, Adobe Illustrator (ImageJ)
Biostatistics (Matlab, GraphPad Instat, Statistica)
Microsoft Office and Open Office equivalents

LANGUAGES

English: fluent
French: native speaker
Spanish: basic communication skils

REFERENCES

Dr. Martin Paulus, PhD (current Scientific Director) - LIBR, Tulsa, OK (USA) - mpaulus@laureateinstitute.org
Dr. Anna Konova, PhD (Postdoc advisor) - Rutgers University, NJ (USA) - anna.konova@rutgers.edu
Dr. Stefano Palminteri, PhD (current collaborator) - ENS Paris (France) - stefano.palminteri@gmail.com
Dr. Olivier DAVID, PhD (Former employer) - Aix-Marseille University (France) - olivier.david@univ-amu.fr
Dr. Julien Bastin, PhD (PhD supervisor) - Grenoble Alpes University (France) - julien.bastin@univ-grenoble-alpes.fr
Pr. Philippe Kahane, MD (PhD clinical supervisor) - Grenoble Hospital - philippe.kahane@univ-grenoble-alpes.fr