

# Rémi Gau

Languages: French, English, German (basics)

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 [All my links](#)

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## CURRENT POSITION

Post-doctoral fellow in the [Crossmodal perception and plasticity laboratory](#) at the université catholique de Louvain la Neuve (Belgium)

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## ACADEMIC QUALIFICATIONS

- **2012-2019:** **Post-doctoral fellow**  
Laboratories:  
*Computational Cognitive Neuroimaging Laboratory*, School of psychology, University of Birmingham, UK  
and *Max Planck Institute for biological cybernetics*, Tübingen, Germany  
Supervisor: Pr. Dr. MD. Uta Noppeney
- **2006-2010:** **PhD in neuroscience** Defended in September 2010  
*University Pierre et Marie Curie*, Paris, France  
Doctoral School « Cerveau, Cognition, Comportement »  
first class honours  
Thesis title: Serotonergic neurons of the lateral paragigantocellular nucleus: roles in pain modulation and baroreflex inhibition  
Laboratory: Psychiatry and Neurosciences Center  
Supervisor: Dr. MD. Jean-François Bernard

### Graduate qualifications

- **2005-2006:** **Master of Integrative Biology and Physiology: Neurosciences**  
*University Pierre et Marie Curie*, Paris, France
- **2004-2005:** **Master of Neuropsychology**  
*University Paul Sabatier*, Toulouse, France
- **2003-2004:** **Master of Cellular Biology and Animal Physiology**  
*McGill university*, Montréal, Canada, through the CREPUQ exchange program with the University of Montpellier II, France

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## SCIENTIFIC CONTRIBUTIONS

### peer reviewed papers

- Niso, G., Botvinik-Nezer, R., Appelhoff, S., et al.; Open and reproducible neuroimaging: from

study inception to publication., *Neuroimage*, 2022

doi:[10.1016/j.neuroimage.2022.119623](https://doi.org/10.1016/j.neuroimage.2022.119623)

- Clement P., Castellaro M, Okell T. W., Thomas D. L. , et al.; ASL-BIDS, the Brain Imaging Data Structure Extension for Arterial Spin Labeling., *Scientific data*, 2022

doi:[10.1038/s41597-022-01615-9](https://doi.org/10.1038/s41597-022-01615-9)

- Norgaard M., Matheson G. J., Hansen H. D., Thomas A., et al.; PET-BIDS, an extension to the brain imaging data structure for positron emission tomography, *Scientific data*, 2022

doi:[10.1038/s41597-022-01164-1](https://doi.org/10.1038/s41597-022-01164-1)

- Levitis E, Gould van Praag C D, **Gau R**, Heunis S, et al.; Centering inclusivity in the design of online conferences - An OHBM-Open Science perspective, *GigaScience*, 2021

doi:[10.1093/gigascience/giab051](https://doi.org/10.1093/gigascience/giab051)

- **Gau R**, Noble S, Heuer K, Bottenhorn K L, Bilgin I P, Yang Y, et al; [Brainhack: developing a culture of open, inclusive, community-driven neuroscience](#), *Neuron*, 2021

doi:[10.31234/osf.io/rytjq](https://doi.org/10.31234/osf.io/rytjq) ;  

- Botvinik-Nezer R, et al; [Variability in the analysis of a single neuroimaging dataset by many teams](#), *Nature*, 2020

doi:[10.1038/s41586-020-2314-9](https://doi.org/10.1038/s41586-020-2314-9) ; Code and results contributed to the study:  

- **Gau R**, Bazin PL, Trampel R, Turner R, Noppeney U; [Resolving multisensory and attentional influences across cortical depth in sensory cortices](#), *eLife*, 2018

doi:[10.7554/eLife.46856](https://doi.org/10.7554/eLife.46856) ;  

- **Gau R**, Noppeney, U; [How prior expectations shape multisensory perception](#), *Neuroimage*, 2016

doi:[10.1016/j.neuroimage.2015.09.045](https://doi.org/10.1016/j.neuroimage.2015.09.045) ;  

- **Gau R**, Sevoz-Couche C, Hamon M, Bernard JF; [Noxious stimulation excites serotonergic neurons: a comparison between the lateral paragigantocellular reticular and the raphe magnus nuclei](#), *Pain*, 2013

doi:[10.1016/j.pain.2012.09.012](https://doi.org/10.1016/j.pain.2012.09.012)

- **Gau R**, Sevoz-Couche C, Laguzzi R, Hamon M, Bernard JF; [Inhibition of Baroreflex by Nociception: A Key Role for Lateral Paragigantocellular Serotonergic Cells](#), *Pain*, 2009

doi:[10.1016/j.pain.2009.09.018](https://doi.org/10.1016/j.pain.2009.09.018)

- Bernard JF, Netzer F, **Gau R**, Hamon M, Laguzzi R, Sevoz-Couche C; [Critical role of B3 serotonergic cells in baroreflex inhibition during the defense reaction triggered by dorsal periaqueductal gray stimulation](#), *Journal of comparative anatomy*, 2008

doi:[10.1002/cne.21532](https://doi.org/10.1002/cne.21532)

## preprint

- Kovacs M, Jaquiere M, Algermissen J, Arriaga P, **Gau R** et al.; Lab manuals for efficient and high quality science in a happy and safe work environment, *metaarxiv*, 2022;

doi:[10.31222/osf.io/bzcxg](https://doi.org/10.31222/osf.io/bzcxg)

- Govaart G. H. et al.; EEG ERP Preregistration Template, *metaarxiv*, 2022;

doi:[10.31222/osf.io/4nvpt](https://doi.org/10.31222/osf.io/4nvpt)

- Appelhoff S, Bates JF, Ghosh S et al.; BIDS and the NeuroImaging Data Model (NIDM), *F1000Research*, 2019;







doi:[10.7490/f1000research.1117650.1](https://doi.org/10.7490/f1000research.1117650.1)

## talks

### Conference presentations

- [CPP BIDS: a lightweight toolbox for behavioral experiments to help you with good data management practices](#); Young researchers' day of the institute of Neuroscience of the université catholique de Louvain, Virtual, 18 November 2020
- [Symposium on the Neuroimaging Analysis Replication and Prediction Study: From the eyes of an analysis team](#); Annual Meeting of the Organization for Human Brain Mapping, Virtual, June 2020
- [Laminar profiles dissociate attentional and crossmodal influences in sensory cortices](#); Brain in Depth, Magdeburg (Germany), 31<sup>st</sup> May 2018
- [Implication du groupe sérotoninergique B3 dans le contrôle des circuits de la douleur et des réactions neurovégétatives associées](#); 10<sup>th</sup> congress of the French society for the study and treatment of pain, Marseille (France), 18<sup>th</sup> November 2010

### Invited talks

- [BIDS: a cookbook](#); ACCS and OHBM Webinar and Workshop Series, Virtual, 12 October 2021, 
- [Open science: what is it? why do it?](#); Dutch Neuroscience meeting 2021, Virtual, 10 June 2021, 
- [New Trends in Open Science: Code and Data Sharing](#); BAPS 2021 - Junior day, Virtual, 27 May 2021, 
- [eCobidas: because methods writing is too important \(and boring\) to let humans do it!](#); Repronim webinars, Virtual, 8 January 2021, 
- [Things I wish I knew when I started coding](#); Brainhack Ankara, Virtual, 12 December 2020 
- [The Brain Imaging Data Structure \(BIDS\) as an example of data organization](#); Louvain bionics, Université catholique de Louvain, Belgium Virtual, 09 October 2020 

### Internal talks

- [More brain droppings on the replication crisis in psychology](#); talk given at a brown bag meeting at the department of psychology of the université catholique de Louvain la Neuve; 11<sup>th</sup> April 2019
- [Brain droppings on the replication crisis in psychology](#); talk given at the post-graduate seminar of the School of Psychology at the University of Birmingham (UK); 24<sup>th</sup> November 2016

## open-science

### Contributions to Open Source Scientific Projects

- **Brain Imaging Data Structure**: organizing neuroimaging data and metadata to facilitate analysis and sharing.

**Role** Member of the team of maintainers of the specification, starter-kit, validator.

- Code: 

- **bidspm**: high-level functions to create MRI analysis pipeline of BIDS datasets using SPM

**Role:** Lead developer and maintainer

- Code: 

- **bids-matlab**: a Matlab and Octave toolbox to work with BIDS datasets.

**Role:** Lead developer and maintainer

- Code: 

- **eCobidas**: a webapp to facilitate transparent accurate methods reporting in neuroimaging

**Role:** Lead developer and maintainer

- Code:  • doi:[0.17605/osf.io/anvqy](https://doi.org/10.17605/osf.io/anvqy) • Prototype: 

## Hackathon projects

- **eCobidas**:

- Brainhack Global Marseille 2021 (virtual) 
- Brainhack Global Donostia 2021 (virtual) 
- OpenMR Benelux 2020 (Rome, Nijmegen) 
- OHBM 2019 hackathon (Rome, Italy) 

- **pre-registration template for MRI and M/EEG research**:

- SIPS 2019 (Rotterdam, Netherlands)

## posters

• **Gau R**, Abraham SA, Gould van Praag C, Sjoerds Z, Wiebels K, Moreau D, Ghosh S, Nichols TE; [eCOBIDAS: a webapp checklist to improve neuroimaging methods and results reporting](#), Annual Meeting of the Organization for Human Brain Mapping, Virtual, 2020;

• **Gau R**, Trampel R, Bazin PL, Turner R, Noppeney U; Layer-specific attentional modulation and multisensory interactions in sensory cortices, Annual Meeting of the Organization for Human Brain Mapping, Geneva (Switzerland), 2016  
doi:[10.13140/RG.2.2.32219.57124](https://doi.org/10.13140/RG.2.2.32219.57124)

• **Gau R**, Trampel R, Bazin PL, Turner R, Noppeney U; Effect of sensory modality and attention on layer-specific activations in sensory cortices, Annual Meeting of the Organization for Human Brain Mapping, Hamburg (Germany), 2014  
doi:[10.13140/RG.2.2.18797.79846](https://doi.org/10.13140/RG.2.2.18797.79846)

• **Gau R**, Noppeney U; The left prefrontal cortex controls information integration by combining bottom-up inputs and top-down predictions, Annual meeting of the Society for neurosciences, San Diego, (California, USA), 2013  
doi:[10.13140/RG.2.2.12086.91207](https://doi.org/10.13140/RG.2.2.12086.91207)

- Bernard JF, Sevoz-Couche C, Hamon M, **Gau R**; Responses of lateral paragigantocellular and

raphe magnus serotonergic neurons to noxious stimuli: a comparative reappraisal using juxtacellular recording, 13<sup>th</sup> world congress on pain; International association for the study of pain; Montréal (Québec, Canada), 2010

- Bernard JF, Sevoz-Couche C, Hamon M, **Gau R**; [Involvement of lateral paragigantocellular reticular serotonergic and non-serotonergic neurons in nociceptive processes](#), Annual meeting of the Society for neurosciences, Chicago, (Illinois, USA), 2009
- **Gau R**, Sevoz-Couche C, Hamon M, Laguzzi R, Bernard JF; [Inhibition of cardiac baroreflex by intense noxious stimuli: a serotonergic mechanism involving the lateral paragigantocellular reticular nuclei](#); Annual meeting of the Society for neurosciences, Washington (D.C., USA), 2008
- Bernard JF, Sevoz-Couche C, Hamon M, Laguzzi R, **Gau R**; [Critical role of the B3 group in the baroreflex inhibition evoked by thermal noxious stimulation in the rat](#), Annual meeting of the Society for neurosciences, San Diego (California, USA), 2007
- Bernard JF, Netzer F, **Gau R**, Hamon M, Laguzzi R, Sevoz-Couche C; Serotonergic neurons of B3 group: critical role in baroreflex inhibition during the defense reaction in the rat; Annual meeting of the Society for neurosciences, Atlanta (Georgia, USA), 2006

## PROFESSIONAL ACTIVITIES

### Organizing

- **Brainhack global 2021:** - *Virtual-Hybrid* - Nov–Dec 2021

Member of the coordination team team



- **openMR benelux 2021:** - *Virtual* - 8–14 Jul 2020

Member of the organising team



- **OHBM 2020 hackathon:** - *Virtual* - 16-18 June 2020

Hackathon co-chair with Liza Levitis



- **openMR benelux 2020:** - *Donders Insitute, Nijmegen, Netherlands* - 21-23 January 2020

Member of the organising team



### Peer review

#### Journals

Journal of Experimental Neuroscience, Plos One, European Journal of Neuroscience, Frontiers in Neuroinformatics, Journal of Neuroscience Research

#### Conferences

Proceedings of the Annual Conference of the Cognitive Science Society

## Internal

- 2021-2022 Data ambassador of the institute of psychology of the Université catholique de Louvain
- 2017 Co-organizer of the EiF Journal Club on methodology and replicability in psychology at the University of Birmingham (UK)

## Scientific Societies


- **Organization for Human Brain Mapping:**

2020 [Best Practices Committee](#)





2019-2020 [Open Science Special Interest Group](#) 

- **International Neuroinformatics Coordination Facility:**
- **Society for the improvement of psychological science:**
- **Society for Neuroscience:**

## Outreach

- [Parapsychologie et crise de la réplication](#); Presentation given for the Skeptics in the Pub of Brussels (Belgium); 15<sup>th</sup> February 2020 
- 2019-present: active member of the Comité belge pour l'analyse critique des parasciences
- [Our brain, our senses, and us](#); Interactive presentation given at the children section of the Skeptics in the Pub of Gravesend (UK); 20<sup>th</sup> October 2015

## TEACHING

- **November 2019:** Co-organizer and instructor at the first neuroimaging workshop at the University Catholique de Louvain of (Belgium)  
- **June 2019:** Mini-lab leader for the workshop *Empirical Methods in Cognitive Linguistics 8* at the University of Tartu (Estonia); 
- **2013 to 2016:** Teaching assistant for the *Advanced Brain Imaging* masters course at the University of Birmingham (UK) 

Supervisor: Noppeney, U; Email: [u.noppeney@bham.ac.uk](mailto:u.noppeney@bham.ac.uk)

- **2009:** Teaching assistant for the *Human Evolution* class of the preparatory program to paramedical training at the University Pierre et Marie Curie (Paris, France)

Supervisors: Aurengo, A & Darribere, T; Tel: (+33) 1 40 77 95 77

- **2005:** Teaching assistant for the *Psychophysiology* undergraduate class of the psychology program of the University Mirail-Toulouse II (France)

Supervisor: Bret Dibat JL; Email: [bret@diba@univ-tlse2.fr](mailto:bret@diba@univ-tlse2.fr)

## RESEARCH AND TECHNICAL SKILLS

- **Human neuroimaging:** design, implementation and analysis of structural and functional

MRI studies, fMRI design efficiency optimization, preprocessing, mass univariate and multivariate pattern analysis, high-field structural and functional MRI analyses

- **Cognitive neuroscience:** design, implementation and analysis of psychophysics and eyetracking studies of multi-sensory integration
- **Information technology:**

Program	Area	Knowledge
Matlab	Programming	Excellent
SPM	Neuroimaging analysis	Excellent
Freesurfer	Neuroimaging analysis	Excellent
CBS tools	High-field neuroimaging analysis	Excellent
LIBSVM	Multivariate pattern analysis	Excellent
PsychToolBox	Stimulus presentation	Excellent
Presentation	Stimulus presentation	Excellent
Git/GitHub	Version control	Excellent
Bash scripting	Programming	Good
cvMANOVA	Multivariate pattern analysis	Good
Palamedes	Psychophysics data analysis	Good
Spike 2	Physiological data recordings	Good
SPSS	Statistical analysis	Good
L <sup>A</sup> T <sub>E</sub> X	Document production	Good
R	Programming	Basic
C/C++	Programming	Basic
FSL	Neuroimaging analysis	Basic
Pronto	Multivariate pattern analysis	Basic
TDT	Multivariate pattern analysis	Basic

- **Functional neuroanatomy:** direct online physiological parameters recording and analysis, use of neuroanatomical tracers (Phaseolus, TMR, fluorogold), functional c-fos expression experiments, stereotaxic local pharmacological neuroinactivation.
- **Electrophysiology:** *In vivo* extracellular recording combined to juxtacellular labeling in halothane anesthetized rats, LTP protocols and associated pharmacological modulation on rat brain slices using intracellular recording in current clamp or extracellular recording with a multi-electrodes array.
- **Microscopy & histology:** Total animal fixation with formalin & brain extraction, general histological techniques (Cresyl violet, thionin), double immunohistochemical and immunofluorescent labeling, epifluorescent transmission and confocal microscope images acquisition and processing.

## GRANTS

- **2009-2010:** Award from the French society for the study and treatment of pain
- **2006-2009:** Scholarship from the French ministry of research and technology