



# Loïc Labache, Ph.D.

*Postdoctoral Fellow in Psychiatry*

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## Employment

- 2023–Current **Postdoctoral Fellow**, *Department of Psychiatry*, Rutgers University – Piscataway, NJ, US.  
PI: Dr. Avram J. Holmes
- 2023–Current **Research Collaborators**, *Department of Psychology*, Yale University – New Haven, CT, US. PI: Dr. Gregory McCarthy
- 2021–2023 **Postdoctoral Associate**, *Department of Psychology*, Yale University – New Haven, CT, US. PI: Dr. Avram J. Holmes
- 2020–2021 **Postdoctoral Researcher**, *Department of Epidemiology, French National Institute of Health and Medical Research (Inserm)*, Université de Bordeaux – Bordeaux, FR.  
PI: Dr. Cécilia Samieri

## Education


- 2017–2020 **Ph.D.** (Neuroimaging), *Doctoral School of Mathematics and Computer Science – Université de Bordeaux*, Bordeaux, FR  
Dissertation: Elaboration of Brain Network Atlases Underpinning Lateralized Cognitive Functions  
PI: Dr. Nathalie Tzourio-Mazoyer, Dr. Marc Joliot, & Pr. Jérôme Saracco
- 2014–2017 **M.S.** (Engineering Degree), *Institut Polytechnique de Bordeaux*, Talence, FR  
Computer Science, Cognitive Neurosciences, Applied Mathematics. *Summa cum laude*
- 2011–2014 **B.S.**, *Université de Bordeaux*, Bordeaux, FR  
Cognitive Neurosciences, Computer Science, Applied Mathematics. *Summa cum laude*

## Honors & Awards

- 2023 **Runner-Up Trainee Prize**, *The Neuro - Irv and Helga Cooper Foundation Open Science Prizes – Montréal, CA.*
- 2023 **Merit Award Abstract Winner**, *Organization for Human Brain Mapping – Montréal, CA.*
- 2022 **Merit Award Abstract Winner**, *Organization for Human Brain Mapping – Glasgow, Scotland, GB.*
- 2017–2020 **CEA Graduate Research Fellowship**, *French Alternative Energies and Atomic Energy Commission – Paris, FR.*

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## Publications

Source codes and atlases are available on GitHub: [github.com/loiclabache](https://github.com/loiclabache) 

### Peer-reviewed

8. **Labache, L.**, Ge, T., Yeo, B.T. T., & Holmes, A. J. (2023). Language network lateralization is reflected throughout the macroscale functional organization of cortex. **Nature Communications**, 14, 3405. DOI: [10.1038/s41467-023-39131-y](https://doi.org/10.1038/s41467-023-39131-y) [[link to code repository](#)]
7. Chopra, S., **Labache, L.**, Dhamala, E., Orchard, E. R., & Holmes, A. J. (2023). A Practical Guide for Generating Reproducible and Programmatic Neuroimaging Visualizations. **Aperture Neuro**. DOI: [10.52294/001c.85104](https://doi.org/10.52294/001c.85104) [[link to the web-app](#)] [[link to code repository](#)]
6. Forkel, S., **Labache, L.**, Parashkev, N., Thiebaut de Schotten, M., & Hesling, I. (2022). Stroke disconnectome decodes reading networks. **Brain structure & function**, 227(9), 2897-2908. DOI: [10.1007/s00429-022-02575-x](https://doi.org/10.1007/s00429-022-02575-x)
5. Doucet, G. E., **Labache, L.**, Thompson, P. M., Joliot, M., Frangou, S., & Alzheimer's Disease Neuroimaging Initiative. (2021). Atlas55+: Brain Functional Atlas of Resting-State Networks for Late Adulthood. **Cerebral cortex**, 31(3), 1719-1731. DOI: [10.1093/cercor/bhaa321](https://doi.org/10.1093/cercor/bhaa321)
4. Tzourio-Mazoyer, N., **Labache, L.**, Zago, L., Hesling, I., & Mazoyer, B. (2021). Neural support of manual preference revealed by BOLD variations during right and left finger-tapping in a sample of 287 healthy adults balanced for handedness. **Laterality**, 26(4), 398-420. DOI: [10.1080/1357650X.2020.1862142](https://doi.org/10.1080/1357650X.2020.1862142) [[link to atlas repository](#)]
3. **Labache, L.**, Mazoyer, B., Joliot, M., Crivello F., Hesling, H., & Tzourio-Mazoyer, N. (2020). Typical and atypical language brain organization based on intrinsic connectivity and multitask functional asymmetries. **eLife**, 9, e58722. DOI: [10.7554/eLife.58722](https://doi.org/10.7554/eLife.58722)
2. Hesling, I., **Labache, L.**, Joliot, M., & Tzourio-Mazoyer, N. (2019). Large-Scale plurimodal networks common to listening, production and reading word-lists: an fMRI study combining tasks-induced activation and intrinsic connectivity in 144 right-handers. **Brain structure & function** 224(9), 3075-3094. DOI: [10.1007/s00429-019-01951-4](https://doi.org/10.1007/s00429-019-01951-4) [[link to atlas repository](#)]
1. **Labache, L.**, Joliot, M., Saracco J., Jobard G., Hesling I., Zago L., Mellet E., Petit L., Crivello F., Mazoyer B., & Tzourio-Mazoyer N. (2019). A SENTence Supramodal Areas Atlas (SENSAAS) based on multiple task-induced activation mapping and graph analysis of intrinsic connectivity in 144 healthy right-handers. **Brain structure & function**, 224(2), 859-882. DOI: [10.1007/s00429-018-1810-2](https://doi.org/10.1007/s00429-018-1810-2) [[link to atlas repository](#)]

### Under Review

5. **Labache, L.**, Petit, L., Joliot, M., & Zago, L. (2024). Atlas for the lateralized visuospatial attention networks (ALANs): insights from fMRI and network analyses. DOI: [10.1101/2024.02.13.580164](https://doi.org/10.1101/2024.02.13.580164) (preprint) [[link to atlas repository](#)]
4. **Labache, L.\***, Roger, E.\*, Hamlin, N., Kruse, J., Baci, M., & Doucet, G. E. (2023). When age tips the balance: a dual mechanism affecting hemispheric specialization for language. DOI: [10.1101/2023.12.04.569978](https://doi.org/10.1101/2023.12.04.569978) (preprint) [[link to code repository](#)] \*authors contributed equally to this work
3. Ricard, J.A., **Labache, L.**, Segal, A., Dhamala, E., Cocuzza, C. v., Jones, G., Yip, S., Chopra, S., & Holmes, A. J. (2023). A shared spatial topography links the functional connectome correlates of cocaine use disorder and dopamine D2/3 receptor densities. DOI: [10.1101/2023.11.17.567591](https://doi.org/10.1101/2023.11.17.567591) (preprint)

2. Dong, H.M., Zhang, X.H., **Labache, L.**, Zhang, S., Ooi, L. Q. R., Yeo, B.T. T., Holmes, A. J., & Zuo, X.N. (2023). Ventral attention network connectivity is reliably linked to the accelerated maturation of adult-like cortical organization and cognitive functioning in childhood. DOI: [10.1101/2022.04.12.488101](https://doi.org/10.1101/2022.04.12.488101) (preprint)
1. **Labache, L.**, Joliot, M., Doucet, G. E., & Saracco, J. (2022). Study of inter-individual variability of three-dimensional data table: detection of unstable variables and sample. DOI: [10.48550/arXiv.2004.05033](https://doi.org/10.48550/arXiv.2004.05033) (preprint)

### Thesis

**Labache, L. (2020).** Elaboration Of Brain Network Atlases Underpinning Lateralized Cognitive Functions, Application To The Study Of Inter-individual Variability Of Language. *PhD thesis*, French Alternative Energies and Atomic Energy Commission, **Université de Bordeaux**. NNT: [2020BORD0155](https://nnt.boreas.fr/2020BORD0155) (in french).

### Open-source Code

4. **Labache, L. (2024).** loiclabache/ALANs\_brainAtlas: Atlas for the Lateralized Visuospatial Attention Networks (ALANs) (Labache\_2024\_ALANs\_240214.) **Zenodo**. DOI: [10.5281/zenodo.10658842](https://doi.org/10.5281/zenodo.10658842)
3. **Labache, L.**, Roger, E., Hamlin, N., Kruse, J., Baciú, M., & Doucet, G. E. (2023). When age tips the balance: a dual mechanisms affecting hemispheric specialization for language. **Zenodo**. DOI: [10.5281/zenodo.10253278](https://doi.org/10.5281/zenodo.10253278)
2. Chopra, S., **Labache, L.**, Dhamala, E., Orchard, E. R., & Holmes, A. J. (2023). A Practical Guide for Generating Reproducible and Programmatic Neuroimaging Visualizations. **Figshare**. DOI: *Table selector*; [10.6084/m9.figshare.23537316.v1](https://doi.org/10.6084/m9.figshare.23537316.v1), *R version*; [10.6084/m9.figshare.23537313.v1](https://doi.org/10.6084/m9.figshare.23537313.v1), *Python version*; [10.6084/m9.figshare.23537319.v1](https://doi.org/10.6084/m9.figshare.23537319.v1)
1. **Labache, L.**, Ge, T., Yeo, B.T. T., & Holmes, A. J. (2023). Language network lateralization is reflected throughout the macroscale functional organization of cortex. **Zenodo**. DOI: [10.5281/zenodo.7869039](https://doi.org/10.5281/zenodo.7869039)

### Open Data

2. Mazoyer, B., Tzourio-Mazoyer, N., **Labache, L.**, Zago, L., Hesling I. (2021). BIL&GIN FTT fMRI and handedness. **Dryad**, Dataset. DOI: [10.5061/dryad.cz8w9gj1z](https://doi.org/10.5061/dryad.cz8w9gj1z)
1. Mazoyer, B., Tzourio-Mazoyer, N., **Labache, L.**, Joliot, M., Crivello F. (2020). BIL & GIN sentence and rest asymmetries. **Dryad**, Dataset. DOI: [10.5061/dryad.ht76hdcf](https://doi.org/10.5061/dryad.ht76hdcf)

## Presentations

### Posters

16. **Labache, L.**, Ge, T., Yeo, B.T. T., & Holmes, A. J. (2023) *Language network lateralization is reflected throughout the macroscale functional organization of cortex*. **Society for the Neurobiology of Language**, Palais du Pharo - Marseille, FR.
15. **Labache, L.\***, Roger, E.\*, Baciú, M., & Doucet, G. E. (2023) *When Age Tips The Balance: a Dual Mechanism Affecting Hemispheric Specialization for Language*. **Society for the Neurobiology of Language**, Palais du Pharo - Marseille, FR. *\*authors contributed equally to this work*
14. **Labache, L.\***, Roger, E.\*, Baciú, M., & Doucet, G. E. (2023) *When Age Tips The Balance: a Dual Mechanism Affecting Hemispheric Specialization for Language*. **Organization for Human Brain Mapping**, Palais des congrès de Montréal - Montréal, CA. DOI: [10.13140/RG.2.2.32508.72324](https://doi.org/10.13140/RG.2.2.32508.72324) *\*authors contributed equally to this work*

13. Chopra, S., **Labache, L.**, Dhamala, E., Orchard, E., & Holmes, A. J. (2023) *Brain-code: A web-app to generate brain visualisation code templates for R and Python*. **Organization for Human Brain Mapping**, Palais des congrès de Montréal - Montréal, CA.
12. **Labache, L.**, Petit, L., Joliot, M., & Zago, L. (2023) *Visuospatial Attention Networks Evidenced in a Population with Typical Language Brain Organization*. **Organization for Human Brain Mapping**, Palais des congrès de Montréal - Montréal, CA. DOI: [10.13140/RG.2.2.12271.20641](https://doi.org/10.13140/RG.2.2.12271.20641)
11. **Labache, L.**, Ge, T., Yeo, B.T. T., & Holmes, A. J. (2023) *Language network lateralization is reflected throughout the macroscale functional organization of cortex*. **Society of Biological Psychiatry**, Hilton Bayfront San Diego - San Diego, California, US. DOI: [10.1016/j.biopsych.2023.02.544](https://doi.org/10.1016/j.biopsych.2023.02.544)
10. Ricard, J.A., **Labache, L.**, Chopra, S., Dhamala, E., Jones, G., Harnett, N., Yip, S., & Holmes, A. J. (2023) *The Neural Underpinnings of Cocaine Use Disorder*. **Society of Biological Psychiatry**, Hilton Bayfront San Diego - San Diego, California, US. DOI: [10.1016/j.biopsych.2023.02.639](https://doi.org/10.1016/j.biopsych.2023.02.639)
9. Ricard, J.A., **Labache, L.**, Chopra, S., Dhamala, E., Harnett, N., Jones, G., Yip, S., & Holmes, A. J. (2022) *The network-level correlates of cocaine use disorder*. **Society for Neuroscience**, San Diego, CA, US.
8. Lawhead, C., Ricard, J.A., Chopra, S., **Labache, L.**, Chen, L., Moses, J., Blankenpaker, C., Tao, J., Fairback-Haynes, K., Kumar, P., Rubenstein, A., Harpaz-Rotem, I., Yeo, B.T.T., Baker, J.T., & Holmes, A. J. (2022) *Toward an understanding of the functional connectomics of affective and psychotic illness*. **Society of Biological Psychiatry**, New Orleans, LA, US.
7. Thomas, A., **Labache, L.**, Tsuchida, A., Arsandaux, J., Zago, L., Tzourio, C., Crivello, F., & Samieri, C. (2022) *Dietary pattern and brain structure among young adults*. **Alzheimer's Association International Conference**, San Diego, CA, US. DOI: [10.1002/alz.064049](https://doi.org/10.1002/alz.064049)
6. **Labache, L.**, Ge, T., Yeo, B.T. T., & Holmes, A. J. (2022) *Topological Perspective of atypical brain organization*. **Organization for Human Brain Mapping**, Scottish Event Campus - Glasgow, Scotland, GB.
5. **Labache, L.**, Ge, T., Yeo, B.T. T., & Holmes, A. J. (2022) *Atypical language network organization is reflected in the macroscale organization of the cortical sheet*. **Neurobiology of Language: Key Issues and Ways Forward II**, Max Planck Institute for Psycholinguistics - Nijmegen, NL.
4. **Labache, L.**, Joliot, M., Saracco, J., Mazoyer, B., Tzourio-Mazoyer, N. (2018). *"FALCON: a functional atlas of language comprehension networks based on multiple task-induced activation mapping and graph analysis of intrinsic connectivity in 137 healthy right-handers"*. **2<sup>nd</sup> Doctoral Day of the Frédéric Joliot Institute**, Neursopin, CEA - Paris, FR.
3. Tzourio-Mazoyer, N., Joliot, M., **Labache, L.**, Crivello, F., Zago, L., Hesling, I., Mazoyer, B. (2018). *"Brain language dominance and hand lateralization relationships: insights from the Brain Imaging Lateralization database (BIL&GIN)"*. **North Sea Laterality International Meeting** - Dundee, GB.
2. Hesling, I., **Labache, L.**, Jobard, G., Leroux, G., Tzourio-Mazoyer, N. (2018). *"Heteromodal brain areas commonly activated and asymmetrical in production, listening and reading tasks at the word level: an fMRI study of 144 right-handers from the BIL&GIN."* **North Sea Laterality International Meeting** - Dundee, GB.
1. **Labache, L.**, Tzourio-Mazoyer, N., Jobard, G., Crivello, F., Mazoyer, B., Joliot, M. (2017). *"Tentative atlas of core language areas from fMRI mapping of 6 language tasks in 144 healthy right-handers"*. **Organization for Human Brain Mapping** - Vancouver, CA

## Invited Talks

- 2023 **IamBrain**, UCL Institute of Education - London, UK. (April 19<sup>th</sup>). *When Age Tips The Balance: a Dual Mechanism Affecting Hemispheric Specialization for Language*.
- 2022 **Psychology's Current Work Series in Neuroscience**, Department of Psychology, Yale University – New Haven, CT, US. (November 11<sup>th</sup>). *From the Elaboration of Cognitive Atlases to the Study of Hemispheric Variability*.
- 2022 **Organization for Human Brain Mapping**, Scottish Event Campus – Glasgow, GB. (June 23<sup>th</sup>). *Relationship between Language Lateralization and Global Brain Architecture*.
- 2021 **Cognitive Neuroscience Meetings**, Department of Psychology, Yale University – New Haven, CT, US. (May 21<sup>st</sup>). *From the Identification of Language Network to Typical and Atypical Brain Organization*.
- 2021 **Oslo Virtual Laterality Colloquium**, Department of Psychology, University of Oslo – Oslo, NO. (February 26<sup>th</sup>). *Typical and Atypical Brain Organization for Language*.
- 2019 **3<sup>rd</sup> Doctoral Day of the Frédéric Joliot Institute**, Neursopin, CEA – Paris-Saclay, FR. (June 14<sup>th</sup>). *"Elaboration of Brain Atlases of Functional Areas."*
- 2019 **51<sup>ème</sup> Journées de Statistique**, Université de Lorraine - Nancy, FR. (June 3<sup>rd</sup>). *Study of Inter-Individual Variability of Three-Dimensional Data Table: Detection of Unstable Variables and Samples*.
- 2019 **10<sup>e</sup> Colloque des Jeunes Chercheurs en Sciences Cognitives**, Ecole Normale Supérieure – Paris, FR. (March 29<sup>th</sup>). *SENSAAS, a New Atlas of Language Brain Areas*.

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## Teaching

- 2019 – 2023 Instructor – **University Degree in Neuropsychology**, Université de Bordeaux, Bordeaux – FR, Course title: *Anatomo-functional organization of language*.
- 2018 – 2020 Co-Instructor – **Engineer Degree (M.S.)**, Institut Polytechnique de Bordeaux, Talence – FR, Course title: Statistical modeling and dynamical systems.

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## Mentoring and Advising

- 2023 – Current Supervision and mentoring of a full-time Research Assistants, Kaley Joss
- 2021 – 2023 Supervision and mentoring of two full-time Research Assistants, Jocelyn Ricard and Connor Lawhead
- 2018 – 2020 Supervision of a Master-level student: Martin Constant (co-supervisor)

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## Services

- Ad Hoc Reviewer:** Brain Structure and Function, Communications Biology, Human Brain Mapping, Imaging Neuroscience, Journal of Neurophysiology, NeuroImage, Scientific Reports
- 2022 **Abstract Reviewer**, *Organization for Human Brain Mapping*
- 2019–2021 **Elected member of the Laboratory Council**, *Institut de Mathématiques de Bordeaux*

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## Membership

- 2023–Current **Society for the Neurobiology of Language**
- 2021–Current **Society for Neuroscience**
- 2021–Current **Society of Biological Psychiatry**
- 2017–Current **Organization for Human Brain Mapping**