Ana Luísa Pinho

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Twitter: @ALuisaPinho
LinkedIn: linkedin.com/in/analuisapinho

Current position

2021 – Present *BrainsCAN Postdoctoral Fellow*, University of Western Ontario, London ON, Canada
Faculty Advisors: Jörn Diedrichsen and Jessica Grahn

Appointments held

2015 – 2020 *Postdoctoral Researcher*, Parietal Team, Inria Saclay–Île-de-France, France
Advisor: Bertrand Thirion

Education

2009 – 2015 PhD in Health Sciences (branch: Biomedical Sciences)
Institutions: University of Coimbra (Coimbra, Portugal) and
Karolinska Institutet (Stockholm, Sweden)
Thesis title: *Inside of the Creative Mind: Unravelling the Neurocognitive Mechanisms of Musical Creativity* (http://hdl.handle.net/10316/27005)
Faculty advisors: Fredrik Ullén, Örjan de Manzano, Peter Fransson, Miguel Castelo-Branco

1999 – 2008 MSc + Licentiate Degrees (Integrated Master) in Engineering Physics
Institution: Instituto Superior Técnico, University of Lisbon (Lisbon, Portugal)
Thesis title: *Probabilistic non-linear earthquake location in a 3–D velocity model* (https://fenix.tecnico.ulisboa.pt/cursos/meft/dissertacao/2353642196027)
Faculty advisor: João Fonseca

Fellowships, Grants & Awards

2021 – Present BrainsCAN Postdoctoral Fellowship, Canada First Research Excellence Fund (CFREF), Canada
Amount (2y): **150.000 CAD**

2013 – 2014 Research Fellowship, Sven and Dagmar Saléns Foundation (Stockholm, Sweden)
Amount: ∼**144.000 SEK**

2013 Prize of *The Best Poster Communication* in the Symposium "Music, Poetry & The Brain - Celebrating Wagner's Bicentennial", Rectory of NOVA University Lisbon (Lisbon, Portugal)

2009 – 2013 PhD Studentship from Foundation for Science and Technology (FCT) (SFRH/BD/33895/2009) under the PHD Programme in Experimental Biology and Biomedicine of Center for Neuroscience and Cell Biology, University of Coimbra (Coimbra, Portugal)
Amount: ∼**80.153 €**

2006 – 2007 Scientific Initiation Grant in Seismology from FCT, Instituto Superior Técnico (Lisbon, Portugal)
Amount: ∼**3.600 €**

Research

Research Experience

2021 – Present *Postdoctoral Fellow*: application of brain atlasing techniques and musical tasks to chart the cortico-striatal-cerebellar circuitry involved in the cognitive ability of forming temporal predictions during rhythmic and non-rhythmic sequences of events; development of encoding models to improve functional specificity in neuroimaging relative to elementary cognitive components that modulate behavior.

2015 – 2020 *Postdoctoral Researcher*: development of a multimodal neuroimaging dataset for large-scale functional atlasing and cognitive mapping of the human brain; application of mega-analytic encoding models to fMRI data for brain atlasing.

2010 – 2014 *Graduate Researcher*: investigation of the neural correlates of musical creativity, using fMRI as neuroimaging technique and musical improvisation as model behavior.

2005 – 2006 *Undergraduate Research Assistant*: process and analysis of seismic data and maintenance of the IST seismic stations.

Scientific Projects

2021 – Present BrainsCAN Project: *Novel brain atlasing techniques to reveal the cerebellar role in music cognition* / Investigator: Ana Luísa Pinho (with supervision from Faculty Advisors)

2015 – 2020 *Individual Brain Charting* (IBC): SP2 Human Brain Organization – Work Package 2.1 "Multimodal whole mapping" of the *Human Brain Project* (HBP) / Principal Investigator (PI): Bertrand Thirion

2011 – 2014 *Kartläggning av hjärnområden involverade i hierarkisk kontroll av långa motoriska sekvenser hos musiker och icke-musicker* ("Mapping of brain areas involved in the hierarchical control of long motor sequences of musicians and non-musicians") – *Swedish Research Council* (Grant: 521-2010-3195) / PI: Fredrik Ullén

Publications

Journal articles

2022 Pinho, A. L., Richard, H., Eickenberg, M., Amadon, A., Dohmatob, E., Shankar, S., Aggarwala, H., Denghien, I., Torre, J. J., Ginisty, C., Becuwe-Desmidt, S., Roger, S., Lecomte, Y., Berland, V., Laurier, L., Joly-Testault, V., Médiouni-Cloarec, G., Doublé, C., Martins, B., Varoquaux, G., Dehaene, S., Hertz-Pannier, L., & Thirion, B. - Individual Brain Charting dataset: probing the visual, auditory and language systems with naturalistic stimuli - (*in preparation*: Preprint will be available soon. Please consult my website for the latest updates.)

2022 Uddin, L. Q., Betzel, R. F., Cohen, J. R., Damoiseaux, J. S., De Brigard, F., Eickoff, S. B., Fornito, A., Gratton, C., Gordon, E. V., Laird, A., Larson-Prior, L. J., McIntosh, A. R., Nickerson, L. D., Pinho, A. L., Poldrack, R., Razi, A., Sadaghiani, S., Shine, J. M., Yendiki, A., Yeo, B. T. T., Spreng, R. N. Controversies and current progress on large-scale brain network nomenclature from OHBM WHATNET: Workgroup for HArmonized Taxonomy of NETworks. (*under review*)
preprint: 10.31219/osf.io/25za6

2021 Levitis, E., Gould van Praag, C. D., Gau, R., Heunis, S., DuPre, E., (...), Pinho, A. L., (...), Maumet, C. Centering inclusivity in the design of online conferences—An OHBM–Open Science perspective. *GigaScience*; 10(8):giab051. doi: 10.1093/gigascience/giab051

2021 Thirion, B., Thual, A., & Pinho, A. L. From deep brain phenotyping to functional atlasing. *Current Opinion in Behavioral Sciences*; 40:201-202 doi: 10.1016/j.cobeha.2021.05.004

2021 Dohmatob, E., Richard, H., Pinho, A. L., & Thirion, B. Brain topography beyond parcellations: local gradients of functional maps. *NeuroImage*; 229:117706. doi: 10.1016/j.neuroimage.2020.117706

2021 Pinho, A. L., Amadon, A., Fabre, M., Dohmatob, E., Denghien, I., Torre, J. J., Ginisty, C., Becuwe-Desmidt, S., Roger, S., Laurier, L., Joly-Testault, V., Médiouni-Cloarec, G., Doublé C., Martins, B., Pinel, P., Eger, E., Varoquaux, G., Pallier, C., Dehaene, S., Hertz-Pannier, L., & Thirion, B. Subject-specific segregation of functional territories based on deep phenotyping. *Human Brain Mapping*; 42(4): 841– 870. doi: 10.1002/hbm.25189

2020 Pinho, A. L., Amadon, A., Ruest, T., Fabre, M., Gauthier, B., Clairis, N., Knops, A., Genon, S., Dohmatob, E., Denghien, I., Torre, J. J., Ginisty, C., Becuwe-Desmidt, S., Roger, S., Lecomte, Y., Berland, V., Laurier, L., Joly-Testault, V., Médiouni-Cloarec, G., Doublé, C., Martins, B., Salmon, E., Piazza, M., Melcher, D., Pessiglione, M., van Wassenhove, V., Pinel, P., Eger, E., Varoquaux, G., Pallier, C., Dehaene, S., Hertz-Pannier, L., & Thirion, B. Individual Brain Charting dataset extension, second release of high-resolution fMRI data for cognitive mapping. *Scientific Data*; 7(1): 353. 10.1038/s41597-020-00670-4

2019 (preprint) Richard, H., Martin, L., Pinho, A. L., Pillow, J., & Thirion, B. Fast shared response model for fMRI data. September 2019. arXiv: 1909.12537

2019 Schrouff, J., Pischedda, D., Genon, S., Fryns, G., Pinho, A. L., Vassena, E., Liuzzi, A. G., & Ferreira, F. S. - Gender bias in (neuro)science: Facts, consequences, and solutions - *European Journal of Neuroscience*; 50(7):3094-3100. doi: 10.1111/ejn.14397

2018 Richard, H., Pinho, A. L., Thirion, B., & Charpiat, G. - Optimizing deep video representation to match brain activity. CCN2018 - Conference on Cognitive Computational Neuroscience, September 2018, Philadelphia, United States. hal id: hal-01868735

2018 Pinho, A. L., Amadon, A., Ruest, T., Fabre, M., Dohmatob, E., Denghien, I., Ginisty, C., Becuwe-Desmidt, S., Roger, S., Laurier, L., Joly-Testault, V., Médiouni-Cloarec, G., Doublé, C., Martins, B., Pinel, P., Eger, E., Varoquaux, G., Pallier, C., Dehaene, S., Hertz-Pannier, L., & Thirion, B. - Individual Brain Charting, a high-resolution fMRI dataset for cognitive mapping - *Scientific Data*; 5:180105, June 2018. doi: 10.1038/sdata.2018.105.

2016 Pinho, A. L., Ullén, F., Castelo-Branco, M., Fransson, P., & de Manzano, Ö. - Addressing a Paradox: Dual Strategies for Creative Performance in Introspective and Extrospective Networks - *Cerebral Cortex*; 26(7):3052-63, July 2016. doi: 10.1093/cercor/bhv130. Epub 2015 Jun17.

2014 Pinho, A. L., de Manzano, Ö, Fransson, P., Eriksson, H, & Ullén, F. - Connecting to Create: Expertise in Musical Improvisation Is Associated with Increased Functional Connectivity between Premotor and Prefrontal Areas - *The Journal of Neuroscience*; 34(18):6156-63, April 2014. doi: 10.1523/JNEUROSCI.4769-13.2014

Books

2018 Pinho, A. L., The Neuropsychological Aspects of Musical Creativity. (2018) In Kapoula, Z., Volle, E., Renoult, J., Andreatta, M. (Eds.), *Exploring Transdisciplinarity in Art and Sciences* (pp 77-103) Springer. doi: 10.1007/978-3-319-76054-4_4

Non-Refereed contributions

2020 Pinho, A. L., Torre, J. J., Shankar, S., & Thirion, B. Individual Brain Charting: Dataset Documentation. Available on: https://project.inria.fr/IBC/

Datasets

2020c Pinho, A. L., Hertz-Pannier, L., Thirion, B. IBC. *OpenNeuro*, ds002685. DOI: 10.18112/openneuro.ds002685.v1.0.0

2020b Pinho, A. L. et al. Individual Brain Charting (IBC, release 2). *EBRAINS*. DOI: 10.25493/XX28-VJ1

2020a Pinho, A. L. et al. Individual Brain Charting dataset extension, second release of high-resolution fMRI data for cognitive mapping. *NeuroVault*, id collection=6618. Persistent Identifier: https://identifiers.org/neurovault.collection:6618

Software

2022 – Present Contributer to *NeuroCausal*: "An open data sharing and metadata synthesis platform for clinical data", URL: https://neurocausal.github.io

2021 – Present Contributer to *WiNRepo*: "Women in Neuroscience Repository"
URL: https://github.com/WomenInNeuroscience/winrepo

2017 – Present Contributer to *Nilearn*: Statistics and Machine Learning for NeuroImaging in Python
URL: https://github.com/nilearn/nilearn

2015 – Present Contributer to the *Repository of Public Analysis Code for the IBC Project.*
URL: https://github.com/hbp-brain-charting/public_analysis_code

2015 – 2020 Contributer to the *Repository of Public Protocols for the IBC Project.*
URL: https://github.com/hbp-brain-charting/public_protocols

Blog Posts

2020 "The Individual Brain Charting project, a high-resolution, task-fMRI dataset for a comprehensive cognitive mapping of the human brain.", Behind the Paper, Springer Nature - Research Data Community. URL: https://researchdata.springernature.com/posts/the-individual-brain-charting-project

Review Assignments

Ad hoc reviewer for: *Cerebral Cortex*, *NeuroImage*, *Scientific Data*, *Scientific Reports*, *Brain Structure and Function*, *Brain Imaging and Behavior* and *Frontiers in Psychology*

Media

2014 Interview *Inside Neuroscience - Tuning the Brain to Music: Creativity and Connetivity*, Neuroscience Quarterly (newsletter produced by Society for Neuroscience), Spring 2014

2014 Interview to American Association for the Advancement of Science (AAAS) - *Musical Creativity* - Science Update

2013 Participation in the Press Conference of Neuroscience 2013, SfN Conference - *Musical training shapes brain anatomy and affects function*, November 2013

2013 Interventions in the portuguese media with interviews to the radio TSF and the tv-channel ETV, November 2013

Conferences and Seminars

Talks

2023 "Deep behavioral phenotyping in functional MRI for cognitive mapping of the human brain", Online Seminar for the Cognitive Science lab, IIIT-H, Hyderabad-Telangana, India (scheduled for January 2023)

2022 "Deep behavioral phenotyping in functional MRI for cognitive mapping of the human brain", Seminar at SIMEXP Lab, Institut universitaire de gériatrie de Montréal (IUGM), University of Montreal

2021c "The Women in Neuroscience Repository (WiNRepo)", BrainHack Fall 2021

2021b "Individual functional atlasing of the human brain with multitask fMRI data: leveraging the IBC dataset", Online Seminar for the Stockholm University Brain Imaging Centre

2021a "Individual functional atlasing of the human brain with multitask fMRI data: leveraging the IBC dataset", Online Seminar for the Diedrichsen Lab – Western University

2020e "Individual functional atlasing of the human brain with multitask fMRI data: leveraging the IBC dataset", Online Seminar for the Poldrack Lab – Stanford University

2020d "Individual functional atlasing of the human brain with multitask fMRI data: leveraging the IBC dataset", Online Seminar for the Institute of Neuroscience and Medicine, Brain and Behaviour (INM-7) – Jülich Research Center

2020c "The Women in Neuroscience Repository (WiNRepo): improving the visibility of women neuroscientists", Open Theatre Sessions, Federation of European Neuroscience Societies (FENS) 2020 Virtual Forum

2020b "Segregation of functional territories in individual brains", Oral presentation in Session *Modeling and Analysis: Variability in Brain Activation*, Organization for Human Brain Mapping (OHBM) Annual (Virtual) Meeting 2020

2020a "Individual Brain Charting dataset extension: second and third releases", Open Science Room (session: *Open Data 2.0*), OHBM Annual (Virtual) Meeting 2020

2019d "Individual Brain Charting, a high-resolution fMRI dataset for cognitive mapping of the human brain", Open Science Room (session: *From statistical to biological validity*), OHBM Annual Meeting 2019, Rome, Italy

2019c "Individual Brain Charting, a high-resolution fMRI dataset for cognitive mapping of the human brain.", Science Pizza event, Institute for Brain and Spinal Cord (ICM), Paris, France

2019b "Individual Brain Charting, a high-resolution fMRI dataset for cognitive mapping of the human brain.", The 5th CiNet Conference, Center for Information and Neural Networks (CiNet), Osaka, Japan

2019a "Individual Brain Charting, a high-resolution fMRI dataset for cognitive mapping of the human brain", 3rd HBP Student Conference, Ghent, Belgium

2014 "Mecanismos Neurocognitivos associados à Criatividade Musical" ("Neurocognitive Mechanisms of Musical Creativity"), Scientific Congress organized by Núcleo de Estudantes de Farmácia da Associação Académica de Coimbra (NEF/AAC), Coimbra, Portugal

2013b "Neural Basis of Expertise in Musical Creativity", 3rd European Professional Women's Network (EPWN) Lisbon Annual Meeting - Creativity&Innovation - new economic models to overcome the crisis, Lisbon, Portugal

2013a "Neural Basis of Expertise in Musical Creativity", Neuroscience 2013 (Annual Meeting of SfN), San Diego, USA

2012 "Anatomical and Functional Brain Reorganizations Associated with Expertise in Musical Creativity" (PhD Half-Time Seminar), Annual Meeting of Centre for Neuroscience and Cell Biology (CNC), BIOCANT Park, Cantanhede, Portugal

Panel Discussions

2021b "Multilingual kids review – Portuguese session", OHBM Annual (Virtual) Meeting 2021

2021a "Deep neuroimaging data - a community perspective", OHBM 2021 Brainhack

Poster Presentations

2020c "Individual functional atlasing for cognitive mapping of the human brain", FENS 2020 Virtual Forum

2020b "Segregation of functional territories in individual brains", OHBM Annual (Virtual) Meeting 2020

2020a "WP2.1 Multimodal whole-brain mapping", annual HBP Summit, Athens, Greece

2019b "Functional specialization in human cognition: a large-scale neuroimaging initiative", OHBM Annual Meeting 2019, Rome, Italy

2019a "Individual Brain Charting, a high-resolution fMRI dataset for cognitive mapping of the human brain" (Electronic Poster), Neuroscience 2018 (Annual Meeting of SfN), San Diego, USA

2018b "Individual Brain Charting, a high-resolution fMRI dataset for cognitive mapping" (Electronic Poster), Open Day of the 6th annual HBP Summit, Maastricht, Netherlands

2018a "Mapping human cognition at high spatial resolution with a task-rich fMRI dataset", OHBM Annual Meeting 2018, Singapore

2017c "Individual Brain Charting: a task-fMRI dataset for cognitive mapping", 5th annual HBP Summit, Glasgow, Scotland

2017b "Mapping cognitive concepts to brain activity with a high-resolution individual data and a cognitive ontology", OHBM Annual Meeting 2017, Vancouver, Canada

2017a "Individual Brain Charting: Mapping cognitive concepts to brain activity with a high-resolution individual data and a cognitive ontology", New Concepts in Neural Pattern Encoding, Neuroscience Workshop Saclay (NeWS), Gif-sur-Yvette, France

2016e "Individual Brain Charting: a neuroimaging database featuring the first functional atlas of the human brain" (Electronic Poster), Neuroscience 2016 (Annual Meeting of SfN), San Diego, USA

2016d "Individual Brain Charting: a comprehensive neuroimaging database towards a macroscopic representation of the human brain", 4th annual HBP Summit, Florence, Italy

2016c "Individual Brain Charting: a comprehensive neuroimaging database towards a macroscopic representation of the human brain", FENS, Copenhagen, Denmark

2016b "Individual Brain Charting: high-resolution normative fMRI database", OHBM Annual Meeting 2016, Geneva, Switzerland

2016a "High resolution encoding of cognitive information within the IBC project", New Concepts in Neural Pattern Encoding, NeWS, Gif-sur-Yvette, France

2014 "Feeling and structure - neural correlates of musical improvisation under different constraints", The Neurosciences and Music - V: Cognitive Stimulation and Rehabilitation, Dijon, France

2013 "Functional Brain Reorganizations Associated with Expertise in Musical Creativity", Music, Poetry & The Brain - Celebrating Wagner's Bicentennial, Lisboa, Portugal

2012 "Sex Differences in Training Effects - an fMRI study on Musical Improvisation", Workshop on Music in Neuroscience, Monte Verità, Ascona, Switzerland

2011 "Selection and Generation in Musical Creativity - an fMRI study", The Neurosciences and Music - IV: Learning and Memory, Edinburgh, UK

Collaborative-project Presentations

2017 Nilearn development - OHBM hackathon 2017, Vancouver, Canada

2016 Nistats development - Brainhack, Paris, France

Competences

Computer skills

- Good command in *Linux* and *Windows* environment
- **Programming**: Python (venv, pytest), Bash, C, SQL, Lisp, Assembly (for Harvard Arquitecture)
- **Scientific Computing**: IPython, NumPy, SciPy, pingouin, MATLAB, GNU Octave, Jupyter Notebook, R, Wolfram Mathematica
- **Machine-Learning Frameworks**: scikit-learn, Google AI&MachineLearning Transformers

- **Data Maniputation&Visualization**: pandas, Matplotlib, Seaborn
- **Typesetting**: LaTeX(Document Classes: article and beamer)
- **Software for Neuroimaging**: Nilearn, NiBabel, SPM - Statistical Parametric Mapping, FMRIB Software Library (FSL), FreeSurfer, Papaya, Connectome Workbench, MRIcron, MRIcroGL, BrainVoyager
- **Tools for designing and conducting multimodal-stimuli experiments in cognitive neuroscience**: Expyriment, pliers, Psychtoolbox, E-Prime&E-Basic, PsychoPy, Presentation
- **Software Engineering**: Git protocol (Platforms: GitHub and GitLab), Conda
- **Web/Databases**: HTML&CSS, Django
- **Miscellaneous**: GNU Emacs, Visual Studio Code, Office productivity softwares, GIMP - GNU Image Manipulation Program, Inkscape, Unison File Synchronizer, VeraCrypt, FFmpeg, Kdenlive, Statistica (by StatSoft and TIBCO Software

Language Skills

- Portuguese – native speaker
- English – bilingual proficiency
- French – professional-working proficiency

Other Information

Memberships

2017 – Present Member of the *Portuguese Society for Neuroscience*

Volunteering

2020 – Present Member of the *WHATNET: Workgroup for HArmonized Taxonomy of NETworks*

2018 – Present Affirmative action in gender equity:
board member of the *Women in Neuroscience Repository* (WiNRepo). https://www.winrepo.org/.

Outreach and Communication Activitties

2022 Promoting OurBrainsCAN to the London ON community at the TD Sunfest

Last update: December 12, 2022