

Fernando M. Ramírez

Curriculum Vitae

e-mail
fernando.ramirez@nih.gov
toporam@gmail.com

Personal Information

Place of Birth Chuquicamata, Chile
Citizenship: Chilean
Languages: Spanish, English, German

Education

09/2016 ***Doctor in Natural Sciences, Psychology***
(*Doctor rer. nat.*). Humboldt Universität zu Berlin, Germany
Overall Grade: Magna cum laude. Defense Grade: Summa cum laude
Thesis title: Orientation encoding and viewpoint invariance in face recognition: a combined fMRI, multivariate pattern analysis, and computational modelling approach.
Thesis supervisors: John-Dylan Haynes and Carsten Allefeld

01/2009 ***Master in Biological Sciences, Neuroscience***
University of Chile
Overall grade: A+ [US], A [ECTS]
Thesis title: A multiscale electrophysiological investigation of primary somatosensory cortex dynamics in anesthetized rats
Thesis supervisors: Pedro E. Maldonado and Eugenio F. Rodríguez
Thesis Grade: Maximal Distinction

05/2004 ***Licentiate in Philosophy (*)***. Pontifical Catholic University of Chile
Ranked best student of class. Grade: A [ECTS]
(*) A "Licentiate" degree is a Chilean academic degree more advanced than a Bachelor of Arts and arguably equivalent to a Master's degree. An original thesis and its defense before an academic committee are among its requirements
Thesis title: Quine on meaning: Logical, ontological, and epistemological aspects
Thesis supervisor: Prof. Dr. Giannina Burlando

— Academic honors and awards

- 2021 Awarded an **Elsevier/Vision Research Virtual Travel Award** to present at the meeting of the Vision Sciences Society.
- 2020 Awarded a **NIMH OFT Trainee Travel Award** for abstract presented during the annual Training Day event
- 2019 Awarded Postdoctoral Visiting Fellowship at the National Institute of Mental Health (NIMH)
- 2016 Doctoral Thesis Defense (Natural Sciences, Psychology): *Summa cum laude*
- 2008 Master Thesis (Biology, Neuroscience): *Maximal distinction*
- 2007 Awarded a *Doctoral Scholarship jointly by DAAD (German Government) and CONICYT (Chilean Government)*
- 2007 Selected as Doctoral Student by the Berlin School of Mind and Brain (*Excellence Initiative of the German Government*)
- 2007 Awarded a *Doctoral Scholarship* by the Berlin School of Mind and Brain. (*Excellence Initiative of the German Government*)
- 2006 *Guillermo Puelma Foundation Travel Award*. Economic support for young neuroscientists residing in Chile presenting their work at major international conferences. Award was used to present a poster at the Annual Meeting of the Society for Neuroscience
- 2005 Awarded the *Guillermo Puelma Foundation Scholarship for the advancement of outstanding postgraduate theses on Sensory Systems*
- 2004 *Ranked First Student of Class*, Philosophy Major, Pontificia Universidad Católica de Chile

— List of publications

Ramírez FM and Merriam EP (2020b). What do across-subject analyses really tell us about neural coding? *Neuropsychologia*, 143, 107489. <https://doi.org/10.1016/j.neuropsychologia.2020.107489>

Ramírez FM and Merriam EP (2020a). Forward models of repetition suppression depend critically on assumptions of noise and granularity. *Nature Communications*, 11(1), 4732. <https://doi.org/10.1038/s41467-020-18315-w>

Ramírez FM (2018) Orientation encoding and viewpoint invariance in face recognition: inferring neural properties from large-scale signals. *The Neuroscientist* 24(6):582–608.

Ramírez FM (2017) Representational confusion: the plausible consequence of demeaning your data. *BioRxiv*. [Internet]. Available from: <http://biorxiv.org/content/early/2017/09/28/195271>. (*) not peer-reviewed publication

Ramírez FM (2016) Orientation encoding and viewpoint invariance in face recognition: a combined fMRI, multivariate pattern analysis, and computational modelling approach. *Doctoral Thesis, Psychology*. Humboldt Universität zu Berlin. [pp. 243]

Cichy RM, **Ramírez FM**, Pantazis D (2015) Can visual information encoded in cortical columns be decoded from magnetoencephalography data in humans? *NeuroImage* 12:193–204

Ramírez FM, Cichy RM, Allefeld C, Haynes J-D (2014) The Neural Code for Face Orientation in the Human Fusiform Face Area. *The Journal of Neuroscience* 34:12155–12167

Cichy RM, Sterzer P, Heinzle J, Elliott LT, **Ramírez F**, Haynes J-D (2013) Probing principles of large-scale object representation: Category preference and location encoding. *Human Brain Mapping* 34:1636–1651

Delano, PH, Elgueda, D, **Ramírez, F**, Robles, L, & Maldonado, PE (2010). A visual cue modulates the firing rate and latency of auditory-cortex neurons in the chinchilla. *Journal of Physiology, Paris*, 104(3-4):190-196

— Published abstracts and selected posters

Ramírez, FM., Cambria, R., & Merriam, E. P. (2021). Distinguishing signal strength and spatial structure in fMRI pattern analyses of human primary visual cortex. *Journal of Vision*, 21(9), 2683. <https://doi.org/10.1167/jov.21.9.2683>

Ramírez FM, Revsine C, & Merriam EP (2020). What do leave-one-person-out pattern analyses really tell us about the neural representation of visual object symmetries? *Journal of Vision*, 20(11), 1445–1445. <https://doi.org/10.1167/jov.20.11.1445>

Revsine C, Merriam EP, & **Ramírez FM** (2020). Low-level features, view tuning, and mirror symmetry: A parsimonious model accounts for commonalities and inconsistencies across neuroimaging studies. *Journal of Vision*, 20(11), 1387–1387. <https://doi.org/10.1167/jov.20.11.1387>

Ramírez FM (2017) Understanding viewpoint generalization in the human face-processing network: From neurons to voxels and back again. Talk presented at the European Conference on Visual Perception 2017 Berlin, Germany Retrieved from URL: <http://journals.sagepub.com/page/pec/collections/ecvp-abstracts/index/ecvp-2017>

Ramírez FM, Allefeld C, Haynes J-D (2017) Representational confusion: the possible consequence of demeaning your data. *Journal of Vision*. 2017; 17(10):270-270. doi: 10.1167/17.10.270

Ramírez F, Allefeld C, Haynes J-D (2013) Probing the representation of face orientation in human ventral visual cortex. *Bernstein Conference 2013* Available at: <http://dx.doi.org/10.12751/nncn.bc2013.0097>

Ramírez F, Cichy RM, Allefeld C, Haynes J-D (2012) Translation-tolerant and category-selective encoding of orientation in the fusiform face area. *Journal of Vision* 12:1180–1180

Ramírez F, Cichy, RM, & Haynes, J-D (2010). Orientation-encoding in the FFA is selective to faces: Evidence from multivoxel pattern analysis. *Journal of Vision* 10(7), 669. doi:10.1167/10.7.669

Ramírez F, Maldonado PE, Rodríguez E (2009). Phase synchronization and de-synchronization in rat barrel cortex at multiple spatial scales after single and multiple whisker stimulation. *Annual meeting of the Society for Neuroscience*. Chicago, October 17-21, 2009

Ramírez F, Rodríguez E, Flores FJ, Maldonado PE (2006). A multi-electrode array capable of simultaneously recording activity at multiple scales: a look at rat barrel cortex dynamics. *Annual meeting of the Society for Neuroscience*. Atlanta, GA, US, October 14–18, 2006

—— Talks at major conferences

Ramírez FM, Revsine, and Merriam EP (2021) Distinguishing signal strength and spatial structure in fMRI pattern analyses of human primary visual cortex, Virtual-Vision Science Society (V-VSS) Annual Meeting, May 21-26, 2021 (accepted)

Ramírez FM, and Rodríguez EF (2017). The consequence of data demeaning on inferences regarding mirror-symmetric coding in the macaque face-processing system. *Annual meeting of the Society for Neuroscience*. Washington, DC, US, November, 2017

Ramírez FM, (2017) Understanding viewpoint generalization in the human face-processing network: from neurons to voxels and back again. Talk presented at the European Conference on Visual Perception 2017 Berlin, Germany

Ramírez FM, Allefeld C, Haynes J-D (2015) Population tuning, sampling, and granularity: A computational investigation of the influence of pattern contrast and noise structure on MVPA. *Annual meeting of the Society for Neuroscience*. Chicago, IL, US, November, 2015

—— Invited talks

Ramírez FM (2019) Angles or lengths? From neurons to voxels and back again. NIMH, LBC. Invited by *Leslie Ungerleider*.

Ramírez FM (2014) Representational confusion: the mean side of the noise. Invited by *Nikolaus Kriegeskorte*, MRC-CBU, Cambridge, UK

Ramírez FM (2013) Invariant object recognition and category selectivity in the human ventral stream: Spelling out the representational structure underlying fMRI distributed activation patterns. Invited by *Nikolaus Kriegeskorte*, MRC-CBU Cambridge, UK

Ramírez FM, Cichy RM, Allefeld C, and Haynes J-D (2012) Probing the representational structure of head-angle encoding in human ventral visual cortex. Invited by *Winrich Freiwald*, Rockefeller, USA

Ramírez FM, Cichy RM, Allefeld C, and Haynes J-D (2012) Probing the representation of face orientation in human ventral visual cortex. Osnabrück University. Invited by *Prof. Dr. Peter König*

Ramírez FM (2012) Probing the representational structure of head-angle encoding in human ventral visual cortex. Biological Psychology Colloquium at the Faculty of Psychology of the Humboldt Universität zu Berlin, Germany. Invited by *Prof. Dr. Werner Sommer*

Ramírez FM. Reconocimiento de objetos en el sistema visual humano. Institute of Biomedical Sciences (ICBM) of the University of Chile. Invited by *Prof. Dr. Pedro Maldonado*

Ramírez FM. (2012) Decodificación y modelamiento de patrones de actividad cerebral medidos con resonancia magnética funcional. School of Psychology of the University of Chile (EPUC). Invited by *Prof. Dr. Eugenio Rodríguez*

— Research experience

09/2018 – to date *Postdoctoral Fellow at the National Institute of Mental Health (NIMH), Language, Brain and Cognition Unit, Elisha Merriam's Lab*

09/2018 – 09/2019 *Postdoctoral Associate at New York University, Psychology, David Heeger's Lab.*

2016 *Research Associate at the BCCN-Berlin, Charité Universitätsmedizin Berlin. Theory and Analysis of Large-Scale Brain Signals*

2014 - 2015 *Self-employed data scientist: Design and analysis of functional magnetic resonance imaging experiments. (Clients: Universidade de Coimbra, Portugal, Faculdade de Psicologia; Charité Universitätsmedizin Berlin, Germany)*

2011 - 2012 *Research Associate at the BCCN-Berlin, Charité Universitätsmedizin Berlin. Theory and Analysis of Large-Scale Brain Signals*

- 2003 - 2006 *Research Assistant* at the Institute of Physiology and Biophysics, Medical Faculty, University of Chile
- 2003 - 2007 *Research Fellowship* at the 'Centro de Neurociencias Integradas (CENI). Project Name: 'Perceptual Mechanisms and Sensory Integration'. Director: Dr. Pedro Maldonado, PhD. Núcleo Científico Milenio. Grant: ICM. P007-F

—— Teaching experience

- 2017 Invited contributor to the Multivariate Pattern Analysis Workshop organized by Dr. Martin N Hebart at the National Institutes of Health (NIH), Bethesda, Maryland USA. (17th of November 2017)
- 2017-2018 *Teacher* in course *Advanced Topics and Problems in Neuroscience* for the International Graduate Program Medical Neurosciences of Charité Universitätsmedizin, Berlin, Germany. Contributed as one among a team of teachers for this course
- 2001 *Assistant Teacher* for the course *Humans, Machines and Mathematics*, dictated by Prof. Dr. Eric Goles (*Chilean National Science Prize Awardee*, 1993) in the University of Chile.
- 2000 *Student Assistant* for the *Cognitive Psychology* course at the Faculty of Psychology of the Pontifical Catholic University of Chile
 Profs. Carlos Cornejo and Franco Simonetti

—— Public outreach

- 2020-to date: Co-organizer of the NIMH Fellows Afternoon Neuroscience Seminars (FANS) and the NIMH Fellows Committee
- 2019: Contributed to the *Bring your Child to Work initiative at NIH* with live-presentations and explanations of visual illusions to the public, as well as the computer-generated production of Thatcherized versions of the faces of the visitors
- 2017: *A misty voyage into the human mind*. Short talk addressing a wide audience as part of the *Lange Nacht der Wissenschaft* ("Long night of science") public outreach initiative. BCCN-Berlin, Germany
- 2017: Interviewed for the on-line radial program RIZOMAS, transmitted by radio Súbela. www.subela.cl 13-12-2012.