

Ortiz Rios, Michael

(Curriculum Vitae)

*Institute of Neuroscience, Henry Wellcome Building,
Newcastle University, Newcastle Upon Tyne,
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Personal Information

Date of Birth January 4th, 1982
Nationality U.S.A.

Education

- 2016 **PhD Neuroscience**,
Graduate School of Neural & Behavioral Sciences, International Max Planck Research School at the Eberhard Karls Universität Tübingen, Tübingen, Germany.
- 2009 **MSc. Neuroscience**,
Interdisciplinary Program in Neuroscience, Georgetown Medical Center, Georgetown University, Washington D.C., U.S.A.
- 2004 **BSc. Psychology and Behavioral Sciences**,
Interamerican University of Puerto Rico, San Juan, P.R., U.S.A.

Current Position

2016- **Research Associate**,
Current Institute of Neuroscience, Newcastle University, Newcastle Upon Tyne, U.K.

Thesis Defense

- 2016 **Functional neuroimaging of ventral and dorsal stream pathways in the macaque auditory system**, Faculty of Natural Sciences and Mathematics
Advisors: Prof. Dr. Josef P. Rauschecker & Prof. Dr. Nikos K. Logothetis

Fellowships & Awards

- 2017 **Young Scientist Award**,
6th International Conference on Auditory Cortex (ICAC).
- 2013 **Max Planck Institute for Biological Cybernetics Doctoral Fellowship**,
International Max Planck Research School (IMPRS).
- 2009 **National Science Foundation Doctoral Fellowship**,
International Research in Cognitive and Computational Neuroscience (NSF-PIRE).
- 2007 **American Psychological Association Pre-Doctoral Fellowship**,
Diversity Program in Neuroscience (DPA).
- 2004 **National Institute of Health Fellowship**,
NIH Intramural Research Training Award (IRTA).

Research Interest

Optogenetics, fMRI, large-scale neuronal networks, visual and auditory perception, spatial cognition, vocal perception and production, brain-machine interfaces

Teaching Experience

- Spring 2019-2020 **Biomedical Sciences BSc Honours**, *Introduction to neuroimaging methods in neuroscience. The course module included CT, MRI, PET and fMRI*, Newcastle University, Medical School, Newcastle Upon Tyne, UK.
- Spring 2020 **Biomedical Sciences BSc Honours**, *From cell to cognition. Visual Object Recognition and Visual Awareness*, Newcastle University, Medical School, Newcastle Upon Tyne, UK.

Research Experience

- 2016 - Current **Post-doctoral Research**, *Mapping cortical circuits with fMRI and optogenetics*, Schmid Lab, Institute of Neuroscience, Newcastle Upon Tyne, U.K.
Supervisor: Dr. Michael C. Schmid
- 2011 - 2015 **Doctoral Research**, *fMRI mapping of acoustic space in macaque auditory cortex*, Department Physiology of Cognitive Processes, Max Planck Institute for Biological Cybernetics, Tübingen, Germany.
Supervisor: Prof. Dr. Nikos K. Logothetis
- 2009 - 2012 **Doctoral Research**, *fMRI mapping of vocalization networks*, Laboratory of Integrative Neuroscience and Cognition, Georgetown Medical Center, Georgetown University, Washington, D.C., U.S.A.
Supervisor: Prof. Dr. Josef P. Rauschecker
- 2007 - 2009 **Master Research**, *Analyses of neural populations using representational dissimilarity*, Laboratory of Integrative Neuroscience and Cognition, Georgetown Medical Center, Georgetown University, Washington, D.C., U.S.A.
Supervisor: Dr. Pawel Kuśmierk
- 2005 - 2006 **Research Assistant**, *Mapping networks in-vivo with manganese-enhanced MRI*, Laboratory of Neuropsychology, Section in Neural Coding and Computation, National Institute of Mental Health, NIH, Bethesda, MD, U.S.A.
Supervisor: Barry Richmond, M.D.
- 2004 - 2005 **Research Assistant**, *Tonotopic mapping with fMRI in the awake monkey*, Laboratory of Neuropsychology, Section on Cognitive Neuroscience, National Institute of Mental Health, NIH, Bethesda, MD, U.S.A.
Supervisor: Dr. Mortimer Mishkin

Peer-Reviewed Articles

- 2020 **M. Ortiz-Rios***, F. Balezeau, M. Haag, M. Kaiser, M.C. Schmid. Dynamic reconfiguration of macaque brain networks during free-viewing of natural scenes. *Under Revision* 2020
- 2020 D. Archakov, I. DeWitt, P. Kuśmierk, M. Ortiz-Rios, D. Cameron, D. Cui, E. L. Morin, J. W. VanMeter, M. Sams, I. P. Jääskeläinen and J.P. Rauschecker. Auditory representation of learned sound sequences in motor regions of the macaque brain. *PNAS* 2020; Jun 15
- 2020 The PRIMatE Data Exchange (PRIME-DE) Global Collaboration Workshop and Consortium. Accelerating the Evolution of Nonhuman Primate Neuroimaging. *Neuron* 2020; 105, 600-603.

- 2018 Michael P. Milham, Lei Ai, Bonhwang Koo, ..., **Ortiz-Rios M**,..., Yong-di Zhou, Daniel S. Margulies, Charles E. Schroeder. An Open Resource for Non-human Primate Imaging. *Neuron* 2018; 100, 1-14.
- 2018 **Ortiz-Rios M**, Haag M, Balezeau F, Frey S, Thiele A, Murphy K, Schmid MC. Improved methods for MRI-compatible implants in nonhuman primates. *J Neurosci Methods* 2018; 308, 377-389.
- 2018 Schneider F, Dheerendra P, Balezeau F, **Ortiz-Rios M**, Kikuchi Y, Petkov C, Thiele A, Griffiths TD. Auditory figure-ground analysis in rostral parabelt of the macaque monkey. *Sci Rep.* 2018,8:17948.
- 2017 **Ortiz-Rios M**, Azevedo FA, Kuśmierek P, Balla DZ, Munk MH, Keliris GA, Logothetis NK, Rauschecker JP. Widespread and Opponent fMRI Signals Represent Sound Location in Macaque Auditory Cortex. *Neuron.* 2017; 93, 971-983.
- 2015 **Ortiz-Rios M**, Kuśmierek P, DeWitt I, Archakov D, Azevedo FA, Sams M, Jääskeläinen IP, Keliris GA, Rauschecker JP. Functional MRI of the vocalization-processing network in the macaque brain. *Front Neurosci.* 2015, 9, 113.
- 2015 Azevedo FA, **Ortiz-Rios M**, Li Q, Logothetis NK, Keliris GA. A Potential Role of Auditory Induced Modulations in Primary Visual Cortex. *Multisens Res.* 2015; 28, 331-49.
- 2012 Kuśmierek P, **Ortiz M**, Rauschecker JP. Sound-identity processing in early areas of the auditory ventral stream in the macaque. *J Neurophysiol.* 2012, 107, 1123-41.
- 2008 Simmons JM, Saad ZS, Lizak MJ, **Ortiz M**, Koretsky AP, Richmond BJ. Mapping prefrontal circuits in vivo with manganese-enhanced magnetic resonance imaging in monkeys. *J Neurosci.* 2008; 28, 7637-47.

Invited talks

- 2019 **Ortiz-Rios M**. Session: Naturalistic Paradigms in Awake Monkeys: Bridging fMRI and Extra-Cellular Activities. Talk: Comparing functional networks elicited by natural scene viewing with networks artificially induced by optogenetic stimulation of visual cortex. *Society for Neuroscience* 2019, Chicago, U.S.A.
- 2019 **Ortiz-Rios M**. Towards an *in-vivo* macaque connectome for the optogenetic manipulation of network states. *Oxford Neuroscience* 2019, Oxford, U.K.
- 2018 **Ortiz-Rios M**. Visual network states during natural vision and optogenetic stimulation in the macaque monkey. *Tübingen Neuroscience Alumni Meeting* 2018, Tübingen, Germany

Conference Publications

- 2018 **Ortiz-Rios M**, Haag M, Agayby B, Balezeau F, Schmid MC. Mapping cortico-cortical network activity with fMRI elicited by optogenetic stimulation of primate V1. *Soc. Neurosci.* 2018, San Diego, CA, U.S.A
- 2017 **Ortiz-Rios M**, Haag M, Balezeau F, Schmid MC. Stable functional networks during natural vision in the macaque brain. *Soc. Neurosci.* 2017, Washington, D.C., U.S.A
- Ortiz-Rios M**, Logothetis N.K., Schmid MC. New fMRI evidence supporting an opponent hemifield code representation for space in the auditory cortex of primates. *6th International Auditory Cortex Conference* 2017, Banff, Alberta, Canada

- 2016 Azevedo FA, **Ortiz-Rios M**, Azevedo LC, Balla DZ, Lohman G, Logothetis NK and Keliris GK. Simultaneous resting-state and visually-driven functional networks in the macaque brain. *Soc. Neurosci.* 2016, San Diego, CA, U.S.A
- 2015 **Ortiz-Rios M**, Azevedo FAC, Azevedo LC, Balla DZ, Lohmann G, Logothetis NK and Keliris GA. Dynamic Functional Connectivity Reflects Complex Audiovisual Scenes Changes during Cognitive Processing. *9th IBRO World Congress on Neuroscience*, 2015, Rio de Janeiro, Brazil
- Azevedo FA, **Ortiz-Rios M**, Azevedo LC, Balla D, Lohmann G, Logothetis NK and Keliris GA. Eigenvector Centrality Mapping during Natural Viewing in the Macaque Brain. *9th IBRO World Congress on Neuroscience* 2015, Rio de Janeiro, Brazil
- 2013 **Ortiz-Rios M**, Steudel T, Logothetis NK and Rauschecker JP. High-resolution fMRI phase-mapping of azimuth space in rhesus monkey auditory cortex. *Soc. Neurosci.* 2013, San Diego, CA, U.S.A
- 2012 **Ortiz-Rios M**, Steudel T, Augath M, Logothetis NK and Rauschecker JP. Functional neuroimaging of sound motion in the macaque dorsal stream. *4th International Conference on Auditory Cortex* 2012, Lausanne, Switzerland.
- Artchakov D, **Ortiz-Rios M**, Kuśmierek P, Ding C, VanMeter J, DeWitt I, Sams M, Jääskeläinen IP, Rauschecker JP. Representation of sound sequences in the auditory dorsal stream after sensorimotor learning in the macaque monkey. *Soc. Neurosci.* 2012, New Orleans, LA, U.S.A
- 2011 **Ortiz-Rios M**, Artchakov D, DeWitt I, Kuśmierek P, Ding C, VanMeter J, Rauschecker JP. Cochleotopic Mapping of Macaque Auditory Cortex with Functional Magnetic Resonance Imaging at 3 Tesla. *Soc. Neurosci.* 2011, Washington, D.C., U.S.A
- Kuśmierek P, **Ortiz-Rios M** and Rauschecker JP. Population analysis reveals specialization for "what" processing in early rostral areas of macaque auditory cortex. *APAN* 2011, Washington, D.C., U.S.A
- 2010 **Ortiz-Rios M**, Artchakov D, DeWitt I, VanMeter J, Kuśmierek P, Rauschecker JP. Mapping the macaque auditory system using magnetic resonance imaging and complex sounds. *Soc. Neurosci.* 2010, San Diego, CA, U.S.A
- 2008 **Ortiz-Rios M**, Kuśmierek P, Rauschecker JP. Responses of the monkey auditory cortex neuronal population to synthetic and natural sounds. *Soc. Neurosci.* 2008, Washington, D.C., U.S.A
- 2004 **Ortiz-Rios M**, Poremba A, Malloy MM, Saunders RC, Herscovitch P and Mishkin M. FDG-PET Brain Imaging in Rhesus Monkeys: Working Memory in the Superior Temporal Gyrus. *Summer Intramural Research Program* 2004, Bethesda, MD, U.S.A

Additional Education

- 2014 **Spring School in Multisensory Perception and Action**
International Research Training Group (IRTG), Wildbad Kreuth, Germany
- 2011 **Summer School in Cognitive, Computational & System Neuroscience**
National Science Foundation (NSF), Chiemsee, Germany
- 2008 **Summer Course in Neural Systems and Behavior**
Marine Biological Laboratory (MBL), Woods Hole, MA, U.S.A.
- 2005 **Analyses of Functional Neuroimages Summer Camp**
National Institute of Health (NIH), Bethesda, MD, U.S.A.

— Languages

Spanish (native), English (professional), German (limited)

— Computer Skills

Matlab, R, Python, C++, MWorks, AFNI/SUMA, FreeSurfer, Adobe Premier & Adobe Audition, Adobe Illustrator, LaTeX

— Technical Skills

Neurosurgery, primate behavior, functional magnetic resonance imaging, optogenetics, single-unit electrophysiology, diffusion tensor imaging, manganese-enhanced-MRI
