

Octavio Ruiz

Curriculum Vitae

Research Associate
Visual Cognition Laboratory
Salk Institute for Biological Studies
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Education

- 1999 **Ph. D. in Neurosciences**
Departamento de Fisiología, Biofísica y Neurociencias.
Centro de Investigación y de Estudios Avanzados (CINVESTAV)
del Instituto Politécnico Nacional (IPN). México, D.F.
- 1986 **Electronics engineer**
Escuela Superior de Ingeniería Mecánica y Eléctrica.
Instituto Politécnico Nacional. México, D.F.

Professional Experience (other than teaching)

- 2010 to date **Research Associate**
Optogenetics in the primary visual cortex of non-human primates.
Vision Center Laboratory, Salk Institute for Biological Studies.
La Jolla, California. USA.
Advisors: Tom Albright, Gene Stoner, Ed Callaway.
Work in collaboration with Anna Roe, from Vanderbilt University,
Nashville, Tennessee. USA.
- 2006 - 2010 **Postdoctoral Research Associate**
Macaque and human vision in naturalistic conditions.
Department of Neuroscience.
Brown University.
Providence, Rhode Island. USA.
Advisors: Michael Paradiso, Stuart Geman.
- 2004 - 2006 **Research Fellow**
Cognitive factors of macaque lateral geniculate nucleus activity.
Department of Developmental and Cell Biology.
Vanderbilt University.
Nashville, Tennessee, USA.
Advisor: Vivien Casagrande.

- 1998 - 2003 **Investigador Cinvestav 2-A**
Synaptic transmission in motor circuits of the spinal cord.
Context and top-down influences on human visual perception.
Departamento de Fisiología, Biofísica y Neurociencias.
CINVESTAV del Instituto Politécnico Nacional, México.
- 1987 - 1989 **Electronics and computer engineer**
Instrumentation and computer programming for electrophysiology in a laboratory that studied hippocampal function and plasticity.
Laboratoire de Neurobiologie et Physiopathologie du Développement.
Institut National de la Santé et de la Recherche Médicale. Unité 29.
Paris, France.
- 1980 - 1987 **Electronics engineering consultant**
Machine-machine and human-machine interfaces, programming, and customer services.
Private clients; México.
- 1980 - 1987 **Electronics engineer**
Instrumentation and computer programming for electrophysiology, behavior and other biomedical applications.
Departamento de Fisiología, Biofísica y Neurociencias.
CINVESTAV del Instituto Politécnico Nacional, México.
- 1979 - 1980 **Director**
Systems analysis, telecommunications, computer programming, and supervision of personnel.
Computer center for on-line ticketing.
Omnibus de México, SA de CV, México.

Publications

- Ruiz O, Lustig BR, Nassi JJ, Cetin AH, Reynolds JH, Albright TD, Callaway EM, Stoner GR, Roe AW. *Optogenetics through windows on the brain in the nonhuman primate.*
J Neurophysiol. 2013 Sep; 110(6): 1455-67.
- Ruiz O, Paradiso MA. *Macaque V1 representations in natural and reduced visual contexts: spatial and temporal properties and influence of saccadic eye movements.*
J Neurophysiol. 2012 Jul; 108(1): 324-33.
- Khaytin I, Chen X, Royal DW, Ruiz O, Jermakowicz WJ, Siegel RM, Casagrande VA. *Functional organization of temporal frequency selectivity in primate visual cortex.*
Cereb Cortex. 2008 Aug;18(8):1828-42.

- Ruiz O, Royal D, Sáry G, Chen X, Schall JD, Casagrande VA. *Low-Threshold Ca^{2+} -Associated Bursts are Rare Events in the LGN of the Awake Behaving Monkey.*
J Neurophysiol. 2006 Jun;95(6):3401-13.
- Casagrande VA, Sáry G, Royal D, Ruiz O. *On the impact of attention and motor planning on the lateral geniculate nucleus.*
Prog Brain Res. 2005;149:11-29.
- De Lafuente V, Ruiz O. *The orientation dependence of the Hermann grid illusion.*
Exp Brain Res. 2004 Jan;154(2):255-60.
- Ruiz O, Rudomin P. *Identifying the components of a postsynaptic potential and their amplitude, latency and shape fluctuations: analysis by means of autocovariance functions and a stochastic infinite cable model.*
J Neurosci Methods. 2003 Mar 30; 124(1): 1-26.

In preparation

- O. Ruiz, Theresa Lii and Michael Paradiso. *Post-saccadic suppression of human visual contrast sensitivity under naturalistic conditions.*
- O. Ruiz, Michael Chua, Yuliang Guo, Thomas Serre, and Michael Paradiso. *Your eyes didn't see what you saw.*
- Michael Paradiso, O. Ruiz, Stuart Geman, Hoy Loper, and Jessica Resvick. *LFP and spike trains in primary visual cortex predict the time of eye fixations.*

Chapters in books

- Cereijido M, Ruiz O, González-Mariscal L, Contreras RG, Balda MS, García-Villegas MR. *The Paracellular Pathway: A Small Version of the Kidney Nephron.*
In K.L. Audus and T.J. Raub (eds.).
Biological Barriers to Protein Delivery. Plenum Press, New York, 1993.

Awards, grants and honors

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| 2013 | NEI grant R21-EY-022853. PIs: G. R. Stoner and A. W. Roe. |
| 2012 | Salk Institute Society of Research Fellows Travel Grant. |
| 2010 | U.S.A. Permanent Resident Status; Outstanding Researcher category. |
| 2008 | Brown University Center for Vision Research Postdoctoral Fellowship. |
| Before 1999 | Multiple travel grants to national and international meetings in Mexico and the USA. |

Invited presentations

- 2013 Vanderbilt University, Department of Psychology.
Nashville, Tennessee, USA.
- 2013 Instituto de Neurobiología, Universidad Nacional Autónoma de México
(UNAM) campus Juriquilla, Queretaro, México.
- 2012 Caltech Division of Biology and Biological Engineering.
Pasadena, California, USA.
- 2012 Salk Institute Center for Neurobiology of Vision Dinner. USA.
- 2012 Salk Institute Center for Neurobiology of Vision Dinner. USA.

Teaching experience

- 1997, 1999 Mathematics and Biophysics.
Dpto. Fisiología, Biofísica y Neurociencias. CINVESTAV. México.
- 1998 Mathematics.
Instituto de Fisiología de la UNAM, México.
- 1995 - 1998 Biophysics
Facultad de Ciencias, UNAM, México.
- 1990 Acoustics and Electroacoustics
Centro de Investigación y Estudios de la Música, A.C. México.
- 1986 - 1987 Bio-electronic Instrumentation and Computer Programming.
UIICSE, FES Iztacala, UNAM, México.

Other teaching activities

- 2010 Talks on the eye and the visual system to elementary-school students.
Vartan Gregorian School. Providence, RI. USA.
- 2006 “Brain Blast”; hands-on activities for the community, led by Vanderbilt
neuroscientists. Adventure Science Center. Nashville, TN. USA.
- 1989 Particular instructor of electronics. Paris, France.

Abstracts and meeting presentations

- Ruiz O, Callaway EM, Albright TD, Roe AW, Lustig BR and Stoner GR. *Optogenetics, electrophysiology and optical-imaging through windows on the brain in nonhuman primates*. Neuroinformatics 2013. Stockholm, Sweden.
http://www.frontiersin.org/10.3389/conf.fninf.2013.09.00031/event_abstract
- B. R. Lustig, O. Ruiz, G. R. Stoner, E. M. Callaway, T. D. Albright, J. J. Nassi, J. H. Reynolds, A. W. Roe. *Optogenetics through windows on the brain in nonhuman primates*. Society for Neuroscience, 2012; New Orleans, LA.
- O. Ruiz, S. Geman, J. Loper, E. Stephen, J. Resvick, and M. Paradiso. Neural activity in macaque V1 accurately predicts the timing of fixations and saccades. Society for Neuroscience, 2010; San Diego, CA.
- O. Ruiz and M. Paradiso. *Natural viewing alters the timing and magnitude of orientation selectivity in primate visual cortex*. Society for Neuroscience, 2009; Chicago, IL.
- D. Royal, P. Pouget, O. Ruiz, J. Schall, and V. Casagrande. *Receptive field mapping with local field potentials (LFPs) and single unit activity (SUA) in macaque lateral geniculate nucleus (LGN)*. Society for Neuroscience, 2006; Atlanta, GA.
- O. Ruiz, D.W. Royal, X. Chen, J. Schall, V.A. Casagrande. *Another look at the impact of bursting in the lateral geniculate nucleus (LGN) of awake behaving monkey*. Society for Neuroscience, 2005; Washington, DC.
- I. Khaytin, D.W. Royal, O. Ruiz, X. Chen, J.A. Mavity-Hudson, M.H. Couppis, and V.A. Casagrande. *Does feedback from the middle temporal (MT) visual area influence maps of orientation and temporal frequency in V1*. Society for Neuroscience, 2005; Washington, DC.
- S. Blue, D. Royal, G. Sáry, O. Ruiz, and V. A. Casagrande. *Evidence for modulation of lateral geniculate nucleus cells during saccadic eye movements*. Summer Neuroscience Apprentice Program for Undergraduates poster presentation, 2004, Vanderbilt Univ.; Nashville, TN 2004
- O. Ruiz, V. De Lafuente. *The magnitude of the Hermann grid illusion elicited by an oblique grid*. Program No. 819.21. Society for Neuroscience, 2003; New Orleans, LA.
- O. Ruiz, P. Rudomin. *A numerical procedure to identify the components of a postsynaptic potential and their amplitude, latency and shape fluctuations*. Program No. 610.5. Society for Neuroscience, 2002; Orlando, FL.
- De la Fuente V.H., and Ruiz O. *A computer program to study Hermann illusion and some new variants*. Ninth Annual Computational Neuroscience Meeting. Abstract number 447. July 2000; Bruges, Belgium.
- E. Cherubini, A. Nistri, O. Ruiz de León. *Kainate depresses a persistent Ca^{2+} current of rat hippocampal neurones in vitro*. J. Physiol. 415: 38P. 1989.

M.Solodkin, O.Ruiz de León, L.Zamora, I.Jiménez, W.F.Collins III, L.M.Mendell and P.Rudomin. *Non-linear interaction between background synaptic noise and Ia single fiber EPSPs evoked in spinal motoneurons*. Society for Neuroscience, 1987; New Orleans, LA.

And more than ten communications to Mexican meetings, mainly on biomedical instrumentation and software development.

Society Membership

Society for Neuroscience (current)

Vision Sciences Society (past)

Reviewer

I have reviewed papers submitted to Journal of Neuroscience, and a grant application submitted to CONACyT, Mexico.

Languages

Spanish (native), English, French.

Nationality and Status

Mexican, USA Permanent Resident.