

visual neuroscience

vns

V I S U A L
N E U R O S C I E N C E

VOLUME 25

SEPTEMBER–DECEMBER 2008

NUMBERS 5 & 6



An international journal for
experimental and theoretical research

CAMBRIDGE
UNIVERSITY PRESS

ISSN 0952-5238

Volume: 31

Issue: 6

ISSN: 0952-5238

CAMBRIDGE
UNIVERSITY PRESS

EDITOR

BENJAMIN E. REESE

University of California, Santa Barbara

ASSOCIATE EDITORS

Lynne Kiorpes, *Center for Neural Science,
New York University, New York, NY 10003.*

Peter D. Lukasiewicz, *Department of Ophthalmology,
Washington University School of Medicine, Saint Louis, MO 63110.*

Paul R. Martin, *Sydney Eye Hospital & Department of Ophthalmology
University of Sydney, Sydney, NSW 2001 Australia.*

David S. Williams, *Jules Stein Eye Institute, UCLA School of Medicine,
Los Angeles, CA 90095.*

EDITORIAL BOARD

Alessandra Angelucci, *University of Utah*

Jeannie Chen, *University of Southern California*

Shaun P. Collin, *University of Western Australia*

Jeffrey S. Diamond, *National Institute for Neurological Disorders and Stroke*

Ronald Douglas, *City University, London*

Robert M. Duvoisin, *Oregon Health and Science University*

John G. Flannery, *University of California, Berkeley*

Ulrike Grünert, *University of Sydney, Australia*

Silke Haverkamp, *Max Planck Institute for Brain Research*

Dr. Shigang He, *Shanghai Jiao Tong University, China*

Jonathan C. Horton, *University of California, San Francisco*

Gerald H. Jacobs, *University of California, Santa Barbara*

Maarten Kamermans, *Netherlands Institute for Neuroscience*

Janis Lem, *Tufts University*

David W. Marshak, *University of Texas at Houston*

Maureen A. McCall, *University of Louisville*

Janine D. Mendola, *McGill University*

Maureen Neitz, *University of Washington*

Dario Ringach, *University of California, Los Angeles*

Marcello G. P. Rosa, *Monash University*

Evelyne Sernagor, *Newcastle University*

Robert G. Smith, *University of Pennsylvania*

Deborah Stenkamp, *University of Idaho*

Rowland Taylor, *Oregon Health and Science University*

Wallace B. Thoreson, *University of Nebraska*

Xian-Jie Yang, *University of California, Los Angeles*

FORMER EDITOR (2002–2007)

LAURA J. FRISHMAN, *University of Houston*

FORMER EDITOR (1992–1996)

JAMES T. MCLWAIN, *Brown University*

FORMER EDITOR (1996–2001)

PETER D. SPEAR, *University of Colorado at Boulder*

FOUNDING EDITOR (1988–1991)

KATHERINE V. FITE, *University of Massachusetts, Amherst*

Visual Neuroscience (ISSN 0952-5238) publishes experimental and theoretical studies concerning the neural mechanisms of vision. Contributions may deal with molecular, cellular, and systems-level processes in both vertebrate and invertebrate species. Studies based exclusively on clinical, psychophysical, or behavioral data will be considered if they are related to neural mechanisms. Appropriate research areas include: photoreception and transduction, subcortical visual pathways, developmental processes, visually guided behavior, retinal structure and function, cortical mechanisms, oculomotor control, and substrates of perception.

Visual Neuroscience features full-length research papers, short communications, and review articles that critically examine topics related to the journal's principal focus.

Visual Neuroscience is indexed in Current Contents/Life Sciences; Science Citation Index; MEDLINE; Ocular Resources Review; Neuroscience Citation Index; and in the SCISEARCH and ISI/BIOMED databases.

Editorial Office: Benjamin E. Reese, Editor, *Visual Neuroscience*, University of California at Santa Barbara, Neuroscience Research Institute and Department of Psychology, Santa Barbara, CA 93106-5060, USA. Telephone/Fax: (805) 893-2091. E-mail: vns@lifesci.ucsb.edu

Publishing, Subscription and Advertising Offices: Cambridge University Press, 32 Avenue of the Americas, New York, NY 10013-2473, USA; and (outside the US and Canada) Cambridge University Press, The Edinburgh Building, Shaftesbury Road, Cambridge CB2 8RU, England.

Published online only in six parts in 2014: January, March, May, July, September, and November. Annual rates for institutions electronic only: US \$1489.00 in the US, Canada, and Mexico; UK £884.00 + VAT elsewhere. Individuals electronic only: US \$386.00 in the US, Canada, and Mexico; UK £227.00 + VAT elsewhere. Students electronic only: US \$143.00 in the US, Canada, and Mexico; UK £85.00 + VAT elsewhere.

Visual Neuroscience is part of the **Cambridge Journals Online (CJO)** service. Access to online tables of contents and article abstracts is available to all researchers at no additional cost. Access to full text articles online is currently included with the cost of electronic subscription. Subscription must be activated: for detail see <http://www.journals.cambridge.org>.

© Cambridge University Press 2014. All rights reserved. No part of this publication may be reproduced, in any form or by any means, electronic, photocopy, or otherwise, without permission in writing from Cambridge University Press. For further information see <http://us.cambridge.org/information/rights/> or <http://www.cambridge.org/uk/information/rights/>. Photocopying information for users in the U.S.A.: The Item-Fee Code for this publication (0952-5238/14 \$25.00) indicates that copying for internal or personal use beyond that permitted by Sec. 107 or 108 of the U.S. Copyright Law is authorized for users duly registered with the Copyright Clearance Center (CCC) provided that the appropriate remittance of \$25.00 per article is paid directly to: CCC, 222 Rosewood Drive, Danvers, MA 01923. Specific written permission must be obtained for all other copying.

About the Cover. Seven years of *Visual Neuroscience*. What a long, strange trip it's been. The baboon image is reproduced by permission (© Henry Horenstein/Corbis).