

## CURRICULUM VITAE

August 7, 2022

### JOHN H.R. MAUNSELL

Albert D. Lasker Distinguished Service Professor  
Department of Neurobiology  
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#### RESEARCHER PROFILES:

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[Google Scholar](https://scholar.google.com/citations?user=maunsell)

## Biographical Information

### Education

Duke University, Durham, NC; B.S. Zoology with Honors 1977  
California Institute of Technology, Pasadena, CA; Ph.D. Biology 1982

### Appointments

1977-1982 Graduate training in Neurobiology under Dr. David Van Essen, Department of Biology, California Institute of Technology, Pasadena, CA.  
1982-1985 Postdoctoral Fellow in Psychology under Dr. Peter H. Schiller, Massachusetts Institute of Technology, Cambridge, MA.  
1985-1991 Assistant Professor, Department of Physiology and Center for Visual Science, University of Rochester, Rochester, NY.  
1991-1992 Associate Professor, Department of Physiology and Center for Visual Science, University of Rochester, Rochester, NY.  
1992-2006 Professor, Department of Neuroscience, Baylor College Medicine, Houston, TX.  
1995-2006 Professor, Department of Ophthalmology, Baylor College Medicine, Houston, TX.  
1997-2011 Investigator, Howard Hughes Medical Institute.  
2006-2014 Professor, Department of Neurobiology, Harvard Medical School, Boston, MA  
2014- Professor, Department of Neurobiology, University of Chicago, Chicago, IL  
2014- Director, Neuroscience Institute, University of Chicago, Chicago, IL.

### Honors and Awards

Intra-Science Research Foundation Award, 1982  
N.I.H. Postdoctoral National Research Service Award, 1982-1984  
Office of Naval Research Young Investigator Award, 1986-1989  
Alfred P. Sloan Fellowship, 1986-1990  
McKnight Foundation Development Award, 1991-1993  
Elected Fellow, American Association for the Advancement of Science, 2002  
Alice and Rodham W Moorhead III Professorship of Neurobiology 2007-2014  
Astor Visiting Lecturer, Oxford University, 2008  
Associate, Neuroscience Research Program, The Neuroscience Institute, 2010-2013  
Elected Fellow, American Academy of Arts and Sciences, 2014  
Member, Dana Alliance for Brain Initiatives, 2018-2022

Minerva Foundation Golden Brain Award, 2020  
Member, National Academy of Sciences, 2021

## Special Lectures

Presidential Symposium Lecture, Society for Neuroscience, 1996  
Distinguished Lecturer, Syracuse Neuroscience Organization, 2004  
Keynote Speaker, Gordon Research Conference on Oculomotor System Biology, 2005  
Distinguished Lecturer, San Antonio Neuroscience Alliance, 2005  
Keynote Speaker, International Workshop on Attention, Buenos Aires, Argentina, 2007  
Keynote Speaker, Asia-Pacific Conference on Vision, Incheon, Korea, 2012  
Elizabeth Doty Lecture, University of Rochester, Rochester, NY, 2014  
Keynote Speaker, Gordon Research Conference on Neurobiology of Cognition, 2014  
Eli Lilly Conference on Neuroscience, Université de Montréal, Montréal, Canada, 2014  
Clinton Woolsey Lecture, University of Wisconsin, Madison, WI, 2016  
Keynote Speaker, Brain Awareness Week, Lake Forest College, Lake Forest, IL, 2016

## Grants

Information processing in visual cortex, National Institutes of Health Biomedical Research Support Grant, PI: John Maunsell, (1986)  
Segregation of Visual Channels in Monkey Cerebral Cortex, National Institutes of Health R01EY005911-01, PI: John Maunsell, (1986-1989)  
Task-specific Information in Cerebral Cortex, Office of Naval Research 86-K-0646, (1986-1989)  
Alfred P. Sloan Fellowship, PI: John Maunsell, (1986-1990)  
Segregation of Visual Channels in Monkey Cerebral Cortex, National Institutes of Health R01EY005911-04, PI: John Maunsell, (1989-1994)  
Task-specific Information in Cerebral Cortex, Office of Naval Research N00014-90-J-1070, PI: John Maunsell, (1989-1992)  
Neural Representations of Remembered Visual Patterns, McKnight Foundation Development Award, PI: John Maunsell (1991-1993)  
Visual Channels in Monkey Cerebral Cortex, National Institutes of Health R01EY005911-09, PI: John Maunsell, (1994-1998)  
Visual Processing in Cerebral Cortex, National Institutes of Health R01EY005911-13, PI: John Maunsell (1998–2003)  
Visual Processing in Cerebral Cortex, National Institutes of Health R01EY005911-18, PI: John Maunsell (2003–2008)  
Eye Movement Control – Role of Brain Stem Neurons, National Institutes of Health R01-EY001189-32, PI: John Maunsell (2005-2006)  
Visual Processing in Cerebral Cortex, ARRA supplement, National Eye Institute, National Institutes of Health R01-EY005911-24S1, PI: John Maunsell (2008–2009)  
Core Grant for Vision Research, National Eye Institute, National Institutes of Health P30EY012196-11, PI: John Maunsell (2008-2013)  
Visual Processing in Cerebral Cortex, National Eye Institute, National Institutes of Health R01-EY005911-24, PI: John Maunsell (2009–2014)  
Neuronal Measures of the State of Visual Attention, National Eye Institute, National Institutes of Health, R01EY021550-01, PI: John Maunsell (2011-2014)  
Research Training in Visual Neuroscience, National Eye Institute, National Institutes of Health, T32EY007110, PI: John Maunsell (2012-2017)  
Core Grant for Vision Research, National Eye Institute, National Institutes of Health P30EY012196-16, PI: John Maunsell (2013-2018)  
Visual Processing in Cerebral Cortex, National Eye Institute, National Institutes of Health R01-EY005911-29, PI: John Maunsell (2015-2016)

The role of patterned activity in neuronal codes for behavior, National Institute of Neurological Disorders and Stroke, National Institutes of Health, U01NS090576, (2014-2017)  
Visual Processing in Cerebral Cortex, National Eye Institute, National Institutes of Health R01-EY005911-31, PI: John Maunsell (2016-2020)  
Readout and Control of Spatiotemporal Neuronal Codes for Behavior, National Institute of Neurological Disorders and Stroke, National Institutes of Health, U19NS107464, PI: John Maunsell (2018-2023)  
The origins of neuronal correlations in cerebral cortex, National Institute of Neurological Disorder and Stroke, National Institutes of Health, R01NS121772, PI: John Maunsell, (2021-2024)

## **Collaborations**

Neural Mechanisms of Motion Perception, National Institutes of Health R01 EY06175, awarded to Dr. T. Pasternak, 5% effort JM, (1986-1989)  
Function of P and M pathways in primates, Air Force Office of Scientific Research 88-NL-011, awarded to Dr. W. Merigan, 5% effort JM, (1988-1991)  
Processing Pathways and Functional Plasticities in Primate Extrastriate Visual Cortex, United States - Israel Binational Science Foundation 89-00432, awarded to Dr. S. Hochstein, 5% effort JM, (1990-1993)  
Resource for the Study of Neural Models of Behavior, National Institutes of Health R24 RR 06853, awarded to Dr. D. Ballard, 5% effort JM (1991-1994)  
Attentional Modulation of Visual Recognition, International Human Frontier Science Program RG0096/1997-B, awarded to Dr. N. Kanwisher, 5% effort JM, (1997-2000)  
How neuronal activity patterns drive behavior: novel all-optical monitoring of brain neuronal networks with high spatiotemporal resolution. European Research Council 647725, awarded to Dr. Tommaso Fellin, 5% effort JM (2016-2021)

## **Graduate Students and Postdoctoral Fellows**

### **GRADUATE STUDENTS**

Paul Scatena, Ph.D. Cognitive Science 1990.  
Tara A. Nealey, Ph.D. Physiology 1992.  
Jay R. Gibson, Ph.D. Neuroscience 1996. Currently Associate Professor of Neuroscience, University of Texas Southwestern Medical School  
Carrie J. McAdams, Ph.D. Neuroscience, 1998. MD 2000. Currently Assistant Professor of Psychiatry, University of Texas Southwestern Medical Center.  
Christen E. Boudreau, Ph.D. Neuroscience, 2001. Currently Assistant Professor, Texas A&M University.  
Tianming Yang, Ph.D. Neuroscience 2003. Assistant Professor, Institute of Neuroscience, Shanghai, China.  
Joonyeol Lee, Ph.D. Neuroscience, 2008. Currently Assistant Professor, Sungkyunkwan University, Daejeon, Korea.  
Amy Ni, Ph.D. Neuroscience, 2011. Currently Postdoctoral Fellow, Pittsburgh University.  
Thomas Z. Luo, Ph.D. Neuroscience, 2016. Currently Postdoctoral Fellow, Princeton University  
Julian Day-Cooney, Ph.D. Neurobiology, 2020. Currently Postdoctoral Fellow, OSU  
Zaina Zayyad, Ph.D. Neurobiology, 2021. Currently Medical Student, University of Chicago  
Chery Cherian, 2021-present.  
Lai Wei, 2022-present.

### **POSTDOCTORAL FELLOWS**

Gary Sclar, 1986-1988, Ph.D. University of California at Berkeley. M.D. State University of New York Health Science Center Syracuse School of Medicine. (deceased)

Vincent P. Ferrera, 1989-1992, Ph.D. University of Chicago. Currently Professor of Neuroscience (in Psychiatry), Columbia University.

Sidney R. Lehky, 1991-1994, Ph.D. University of Chicago. (deceased)

John A. Assad, 1991-1996, Ph.D. Harvard University. Currently Professor of Neurobiology, Harvard University Medical School.

Anne B. Sereno, 1992-1995, Ph.D. Harvard University. Currently Professor of Psychology, Purdue University.

Stefan Treue, 1993-1995 Ph.D. Massachusetts Institute of Technology. Currently Professor of Cognitive Neuroscience & Biological Psychology, University of Göttingen, and Director of the German Primate Center, Göttingen Germany.

Geoff Ghose, 1996-2003, Ph.D. University of California at Berkeley. Currently Associate Professor of Neuroscience, University of Minnesota.

Erik Cook, 1997-2002, Ph.D. Baylor College of Medicine. Currently Associate Professor of Physiology, McGill University.

James DiCarlo, 1998-2002, M.D./Ph.D. Johns Hopkins University. Currently Department Head and Professor of Brain and Cognitive Sciences & The McGovern Center, MIT.

William Bosking, 2001-2006, Ph.D. Duke University. Currently Research Assistant Professor of Neurosurgery, University of Pennsylvania.

Xinmiao Peng, 2004-2006, Ph.D. Washington University.

Incheol Kang, 2006-2013, Ph.D. Seoul National University. Currently Staff Scientist, National Eye Institute, NIH

Marlene Cohen, 2007-2011, Ph.D. Stanford University. Currently Professor of Neuroscience, University of Pittsburgh.

Supratim Ray, 2008-2011, PhD. Johns Hopkins University. Currently Associate Professor, India Institute of Science, Bangalore, India.

Kaushik Ghose, 2008-2011, Ph.D. University of Maryland. Currently Senior Research and Development Engineer, Seven Bridges Genomics.

Mark Histed, 2009-2015, Ph.D., Massachusetts Institute of Technology, Currently Unit Chief (Assistant Professor) NIMH, NIH.

Patrick Mayo, 2011-2015, Ph.D., University of Pittsburgh, Currently Assistant Professor of Ophthalmology, University of Pittsburgh

Lindsey Glickfeld, 2012-2013, PhD UCSD. Currently Associate Professor of Neurobiology, Duke University

Bram-Ernst Verhoef, 2012-2017, Ph.D., University of Leuven, Belgium, Currently Research & Development Engineer, imec

Jackson Cone, 2015-2022, Ph.D., University of Illinois, Chicago, Currently Assistant Professor, University of Calgary

Supriya Ghosh, 2014 to present, Ph.D., National Centre for Biological Sciences, TIFR Bangalore, India

## External Courses

Lecturer, Department of Philosophy: “What is Attention?”, Carnegie Mellon University, 2022

Panelist, Neurosci. Scholars Responsible Conduct Webinar, Society for Neuroscience, 2015.

Lecturer, Summer Program, RIKEN Institute, Wako-Shi, Japan 2003.

Lecturer, College on Neurophysics: “Neural Correlates of Behaviour, Development, Plasticity and Memory”, International Centre for Theoretical Physics, Trieste, Italy 1990.

Lecturer, “Methods in Computational Neuroscience”, Woods Hole, MA, 1993, 1994 & 1995.

### COLD SPRING HARBOR COURSES

Lecturer, “Computational Neuroscience: Vision”, 1985, 1987, 1996, 1998 & 2012.

Lecturer, “Structure, Function and Development of the Visual System”, 1993, 1995, 1997, 1999, 2003 & 2005.

Lecturer, “Vision: A Platform for Linking Circuits, Perception & Behavior”, 2013, 2015 & 2019.

## University and Department Service

### UNIVERSITY OF ROCHESTER

Cognitive Science Graduate Program Committee (1986-1992)

Neuroscience Graduate Program Committee (1987-1992)

Medical Faculty Council (1987-1990)

Co-organizer, Center for Visual Science Symp, *New Insights into Visual Cortex* (1988)

Society for Neuroscience Chapter Seminar Committee, (1989-1990)

### BAYLOR COLLEGE OF MEDICINE

Division of Neuroscience Admissions Committee (1993-2005; Chair 1995-2005)

Division of Neuroscience Graduate Program Committee (1994-2006)

Division of Neuroscience Seminar Committee (1996-1997)

Division of Neuroscience Student Advisory Committee (2001-2003)

Department of Neuroscience Appointments Promotions & Tenure Committee (2005-2006)

Department of Neuroscience Graduate Training Oversight Committee (2005-2006)

### HARVARD UNIVERSITY

Neuroscience Coordinating Committee (2007-2010)

Neuroscience Graduate Program Student Advisory Committee (2007-2009)

Advanced Multimodal Neuroimaging Training Program Selection Comm. (2008-2013)

Harvard Medical School Animal Users Regulatory Subcommittee (2011-2014)

Harvard Medical School Animal Users Finance Subcommittee (2011-2014)

Harvard Medical School Animal Program Revisions Advisory Committee (2012)

HMS Promotions, Reappointments and Appointments Committee (2012-2013)

### UNIVERSITY OF CHICAGO

Internal Advisory Committee, Cyclotron Facility (2015-2018)

Internal Advisory Committee, MRI Research Center (2015-2018)

Committee on External Awards (2015-2017)

Advisory Committee, Safadi Program of Excellence in Clinical and Translational Neuroscience (2017-present)

## Society Memberships

American Association for the Advancement of Science

Society for Neuroscience

## Professional Service

### EDITORIAL LEADERSHIP

Section Editor, **Vision Research** (1991-1993)

Associate Editor, **Visual Neuroscience** (1997-2001)

Reviewing Editor, **Journal of Neuroscience** (1999-2004)

Section Head, Sensory Systems, **Faculty of 1000** (2001-2013)

Senior Editor, **Journal of Neuroscience** (2005-2007)

Editor-in-Chief, **Journal of Neuroscience** (2008-2014)

Editorial Committee, **Annual Review of Vision Science** (2019 to present)

Co-editor, Editorial Committee, **Annual Review of Vision Science** (2021 to present)

### EDITORIAL BOARDS

**Vision Research** (1988-1993)  
**Journal of Neuroscience** (1990-1996)  
**Journal of Neurophysiology** (1993-2003)  
**Neuron** (1998-2020)  
**Cerebral Cortex** (2005 to present)  
**Neuroscience Bulletin** (2012 to present)

Editor, *Current Opinion in Neurobiology*, Volume 12(2) *Cognitive Neuroscience* (2002)  
Co-chair, Neuroscience Peer Review Consortium (2008-2013)  
F1000 Research Advisory Panel (2012-2013)

#### **NATIONAL INSTITUTES OF HEALTH**

Workshop on Prep. & Maintenance of Higher Mammals During Neuroscience Exp. (1989)  
NEI Five-Year Plan, Panel on Visual Neuroscience and Disorders (1990)  
NHLBI Site Visitor (1991)  
NIMH Workshop on Behavioral Methods and Animal Care (1993)  
NIMH Redbook, Panel on Cognitive Neuroscience and Neural Plasticity (1993)  
NIMH Special Study Sections, *Ad Hoc* Member (1993, 1995, 1998, 2001, 2002, 2004)  
Visual Sciences B Study Section, *Ad Hoc* Member (1988, 1993, 2000)  
Visual Sciences B Study Section, Member (1993-1997)  
Visual Sciences B Study Section, Chair (1995-1997)  
Extramural Committee on the Rating of Grant Applications (1996)  
NINDS Strategic Planning, Panel on Cognition and Behavior, Chair (1998-2000)  
CSR Advisory Committee Working Group, IFCN (2000)  
NEI Board of Scientific Councilors, *Ad Hoc* Member (2002, 2010)  
NEI Special Study Section (2011, 2014)  
NIF Meeting on Resource Identification & Tracking in Neuroscience Literature (2013)  
BRAIN Initiative Working Group, Advisory Comm. to the Director, Co-chair (2018-2019)  
National Advisory Neurological Disorders and Stroke Council (2021-2025)  
BRAIN Multi-Council Working Group (2021-2025)

#### **SOCIETY FOR NEUROSCIENCE**

Lindsley Prize Selection Committee (1995-1997; Chair 1996)  
Program Committee (2006-2007)  
Manuscript Submission System Task Force (2007)  
Responsible Conduct Working Group (2008-2010)  
Scientific Publications Committee (2008-2014, 2018-2019)  
Working Group on Publications (2012-2013)  
Ethics Committee (2013-2014)  
Scientific Rigor Working Group (2013-2015)  
Finance Committee (2014-2020)  
Treasurer, Treasurer-Elect, Past-Treasurer (2017-2021)  
Plan S Working Group (2019)  
Audit Committee (2019-2021)  
Future of Publishing Working Group (2020)

#### **NATIONAL ACADEMY OF SCIENCES**

James Prize Selection Committee (2021)  
National Research Council Research Associateship Programs Reviewer (2022)

McKnight Foundation Investigator Awards Review Committee (1997-2000)  
Alfred P. Sloan Research Fellowships in Neuroscience, Selection Committee (2001-2007)  
Washington National Primate Research Center Advisory Committee (2004)  
Allen Institute for Brain Science Neural Coding Advisory Council (2012-2020)

Nature/Science/NIH Workshop on Reproducibility in Science (2014)  
MIT Corporation Visiting Committee, Department Brain & Cognitive Sciences (2014-2022)  
NYU Training Program in Computational Neuroscience Advisory Board (2016-2020)

#### AD HOC REVIEWER

Academic Press, *Behavioral & Brain Sciences*, *Biological Cybernetics*, Biotechnology and Biological Sciences Research Council, Cambridge University Press, *Cerebral Cortex*, *Current Biology*, *eLife*, *European Journal of Neuroscience*, *Experimental Brain Research*, *Experimental Neurology*, International Joint Conference on Neural Networks, *Journal of Comparative Neurology*, *Journal of Neurophysiology*, *Journal of Neuroscience*, *Journal of Neuroscience Methods*, Kluwer Academic Publishers, Medical Research Council of Canada, The MIT Press, National Science Foundation, Natural Sciences and Engineering Research Council of Canada, *Nature*, *Nature Human Behaviour*, *Nature Neuroscience*, Netherlands Council for Scientific Research, *Neuron*, *Neuropsychologia*, *Neuroscience*, Oxford University Press, *Philosophical Transactions of the Royal Society*, *Proceedings of the National Academy USA*, *Proceedings of the Royal Society B*, *Science*, Swiss National Science Foundation, *Trends in Cognitive Science*, *Trends in Neuroscience*, US-Israel Binational Science Foundation, *Vision Research*, *Visual Neuroscience*, The Wellcome Trust

## Publications

### PAPERS

1. Ghosh, S., Maunsell, J.H.R. (2022) Neuronal correlates of selective attention and effort in visual area V4 are invariant of motivational context, **Science Advances**, (*in press*).
2. Day-Cooney, J.R., Cone, J.J., Maunsell J.H.R. (2022) Perceptual weighting of V1 spikes revealed by optogenetic white noise stimulation. **Journal of Neuroscience** 42:3122-3132.
3. Ghosh, S., Maunsell J.H.R. (2021) Single trial neuronal activity dynamics of attentional intensity in monkey visual area V4, **Nature Communications**, 12:1-15. <https://doi.org/10.1038/s41467-021-22281-2>.
4. Tremblay, S., Acker, L., Afraz, A., ... Ghosh, S., ... Maunsell, J.H.R., ... Shenoy, K.V., DiCarlo, J.J., Platt, M.L. (2020) An open resource for non-human primate optogenetics. **Neuron** 108:1-16.
5. Abbott, L.F., Bock, D.D., Callaway, E.M., Denk, W., Dulac, C., Fairhall, A.L., Fiete, I., Harris, K.M., Helmstader, M., Jain, V., Kasthuri, N., LeCun, Y., Lichtman, J.W., Littlewood, P.B., Luo, L., Maunsell, J.H.R., Reid, R.C., Rosen, B.R., Rubin, G.M., Sejnowski, T.J., Seung, H.S., Svoboda, K., Tank, D.W., Tsao, D., Van Essen, D.C. (2020) The mind of a mouse. **Cell** 182:1372-1376.
6. Cone, J.J., Bade, Morgan L., Masse, N.Y., Page, E.A., Freedman, D.J., Maunsell, J.H.R. (2020) Mice preferentially use increases in cerebral spike counts to detect changes in visual stimuli. **Journal of Neuroscience**, 40:7902-7920.
7. Kang, I., Maunsell, J.H.R. (2020) The correlation of neuronal signals with behavior at different levels of visual cortex and their relevance for behavioral decisions. **Journal of Neuroscience** 40:3751-3767.
8. Luo, T.Z., Maunsell, J.H.R. (2019) Attention can be subdivided into neurobiological components corresponding to distinct behavioral effects. **Proceedings of the National Academy of Science USA** 116:26187-26194.
9. Ni, A.M., Maunsell, J.H.R. (2019) Neuronal Effects of spatial and feature attention differ due to normalization. **Journal of Neuroscience** 39:5493-5505.
10. Cone, J.J., Histed, M.H., Scantlen, M.D., Maunsell, J.H.R. (2019) Different inhibitory interneuron cell classes make distinct contributions to visual contrast perception. **eNeuro** 6(1) ENEURO.0337-18.2019.
11. Cone, J.J., Ni, A.M., Ghose, K., Maunsell, J.H.R. (2018) Electrical microstimulation of visual cerebral cortex elevates psychophysical detection thresholds. **eNeuro** 5 (5) ENEURO.0311-18.2018.

12. Luo, T.Z., Maunsell, J.H.R. (2018) Attentional changes in either criterion or sensitivity are associated with robust modulations in lateral prefrontal cortex. **Neuron** 97:1382-1393.
13. Verhoef, B.-E., Maunsell, J.H.R. (2017) Attention-related changes in correlated neuronal activity arise from normalization mechanisms. **Nature Neuroscience** 20:969-977.
14. Ni, A.M., Maunsell, J.H.R. (2017) Spatially-tuned normalization explains attention modulation variance within neurons. **Journal of Neurophysiology** 118:1903-1913.
15. Verhoef, B.-E., Maunsell J.H.R., (2016) Attention operates uniformly throughout the classical receptive field and the surround. **eLife** 5:e17256. (PMC5021523)
16. Mayo, J.P., Maunsell J.H.R., (2016) Graded neuronal modulations related to visual spatial attention. **Journal of Neuroscience** 36:5353-5361. (PMC4863062)
17. Mayo, J.P., Cohen, M.R., Maunsell, J.H.R. (2015) A refined neuronal population measure of visual attention. **PLOS One** 10(0):e0136570. (PMC4546609)
18. Luo, T.Z., Maunsell, J.H.R. (2015) Neuronal modulations in visual cortex are associated with only one of multiple components of attention. **Neuron** 86:1082-1188. (PMC4458699)
19. Histed, M.H., Maunsell, J.H.R. (2014) Cortical neural populations can guide behavior by integrating inputs linearly, independent of synchrony. **Proceedings of the National Academy of Science** 111, E178–87. doi:10.1073/pnas.1318750111. (PMC3890892)
20. Glickfeld, L.L., Histed, M.H., Maunsell J.H.R., (2013) Mouse primary visual cortex is used to detect both orientation and contrast changes. **Journal of Neuroscience** 33:19416-19422. (PMC3858618)
21. Ray, S., Ni, A.M., Maunsell, J.H.R. (2013) Strength of gamma rhythm depends on normalization. *PLoS Biology*, 11, e1001477. (PMC3564761)
22. Kang, I., Maunsell, J.H.R. (2012) Potential confounds in estimating trial-to-trial correlations between neuronal response and behavior using choice probabilities. **Journal of Neurophysiology** 108:3403-3416. (PMC3544877)
23. Ghose, K., Maunsell, J.H.R. (2012) A strong constraint to the joint processing of pairs of cortical signals. **Journal of Neuroscience** 32:15922-15933. (PMC3509501)
24. Ni, A.M., Ray, S., Maunsell, J.H.R. (2012) Tuned normalization explains the size of attention modulations. **Neuron** 73:803-813. (PMC3292773)
25. Histed, M.H., Carvalho, L.A., Maunsell, J.H.R. (2012) Psychophysical measurement of contrast sensitivity in the behaving mouse. **Journal of Neurophysiology** 107:758-765. (PMC3289478)
26. Cohen, M.R., Maunsell, J.H.R. (2011) When attention wanders: how uncontrolled fluctuations in attention affect performance. **Journal of Neuroscience** 31:15802-15806. (PMC3579494)
27. Ray, S., Maunsell, J.H.R. (2011) Network rhythms influence the relationship between spike-triggered local field potential and functional connectivity. **Journal of Neuroscience** 31:12674-12682. (PMC3488382)
28. Cohen, M.R., Maunsell, J.H.R. (2011) Using neuronal populations to study the mechanisms underlying spatial and feature attention. **Neuron** 70:1192-1204. (PMC3579499)
29. Bosking, W.H., Maunsell, J.H.R. (2011) Effects of stimulus direction on the correlation between behavior and single units in MT during a motion detection task. **Journal of Neuroscience** 31:8230-8238. (PMC3121889)
30. Ray, S., Maunsell, J.H.R. (2011) Different origins of gamma rhythm and high-gamma activity in macaque visual cortex. **PLoS Biology** 9:e1000610. (PMC3075230)
31. Lee, J., Maunsell, J.H.R. (2010) Attentional modulation of MT neurons with single or multiple stimuli in their receptive fields. **Journal of Neuroscience** 30:3058-3066 (PMC2850605)
32. Ni, A.M., Maunsell, J.H.R. (2010) Microstimulation reveals limits in detecting different signals from a local cortical region. **Current Biology** 20:48-828. (PMC20381351)
33. Lee, J., Maunsell, J.H.R. (2010) The effect of attention on neuronal responses to high and low contrast stimuli. **Journal of Neurophysiology** 104:960-971. (PMC2934943)
34. Ray, S., Maunsell, J.H.R. (2010) Differences in gamma frequencies across visual cortex restrict their possible use in computation. **Neuron** 67:885-896. (PMC3001273)



35. Cohen, M.R., Maunsell, J.H.R. (2010) A neuronal population measure of attention predicts behavioral performance on individual trials. **Journal of Neuroscience** 30:15241-15232 (PMC3045704)
36. Dulay, M.F., Murphey, D.K., Sun, P., David, Y.B., Beauchamp, M.S., Maunsell, J.H.R., Yoshor, D. (2009) Computer-controlled electrical stimulation for quantitative mapping of human cortical function. **Journal of Neurosurgery** 110:1300-1303.
37. Murphey, D.K., Maunsell, J.H.R., Beauchamp, M.S., Yoshor, D. (2009) Perceiving electrical stimulation of identified human visual areas. **Proceedings of the National Academy of Science USA** 106:5389-5393 (PMC2664020)
38. Lee, J., Maunsell, J.H.R. (2009) A normalization model of attentional modulation of single unit responses. **PLOS One** 4:e4651. (PMC2645695)
39. Cohen, M.R., Maunsell, J.H.R. (2009) Attention improves performance primarily by reducing interneuronal correlations. **Nature Neuroscience** 12:1594-1601. (PMC2820564)
40. Yoshor, D., Bosking, W.H., Lega, B.C., Sun, P., Maunsell, J.H.R. (2008) Local cortical function after uncomplicated subdural electrode implantation. **Journal of Neurosurgery** 108:139-144.
41. Ghose, G.M., Maunsell, J.H.R., (2008) Spatial summation can explain the attentional modulations of neuronal responses to multiple stimuli in area V4. **Journal of Neuroscience** 28:5115-5126 (PMC2720676)
42. Murphey, D.K., Maunsell, J.H.R. (2008) Electrical microstimulation thresholds for behavioral detection and saccades in monkey frontal eye fields. **Proceedings of the National Academy of Science USA** 105:7315-7320 (PMC2438247)
43. Murphey, D.K., Maunsell, J.H.R. (2007) Behavioral detection of electrical microstimulation in different cortical visual areas. **Current Biology** 17:862-867. (PMC2034326).
44. Yoshor, D., Ghose, G.M., Bosking, W.H., Sun, P., Maunsell, J.H.R. (2007) Spatial attention does not strongly modulate neuronal responses in early human visual cortex. **Journal of Neuroscience** 27:13205-13209.
45. Lee, J., Williford, T., Maunsell, J.H.R., (2007) Spatial attention and the latency of neuronal responses in macaque area V4. **Journal of Neuroscience** 27:9632-9637.
46. Williford, T., Maunsell, J.H.R. (2006) Effects of spatial attention on contrast response functions in macaque area V4. **Journal of Neurophysiology** 96:40-54.
47. Boudreau, C.E., Williford, T.H., Maunsell, J.H.R. (2006) Effects of task difficulty and target likelihood in area V4 of macaque monkeys. **Journal of Neurophysiology** 96:2377-2387.
48. Yoshor, D., Bosking, W.H., Ghose, G.M., Maunsell, J.H.R. (2006) Receptive fields in human visual cortex mapped with surface electrodes. **Cerebral Cortex** 17:2293-2302.
49. Ferrera, V.P., Maunsell, J.H.R. (2005) Motion processing in macaque V4. **Nature Neuroscience** 8:1125.
50. DiCarlo, J.J., Maunsell, J.H.R. (2005) Using neuronal latency to determine sensory-motor processing in reaction time tasks. **Journal of Neurophysiology** 93:2974-2986.
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52. Cook, E.P., Maunsell, J.H.R. (2004) Attentional modulation of motion integration of individual neurons in the middle temporal area (MT). **Journal of Neuroscience** 24:7964-7977.
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54. Cook, E.P., Maunsell, J.H.R. (2002) Attentional modulation of behavioral performance and neuronal responses in middle temporal and ventral intraparietal areas of macaque monkey. **Journal of Neuroscience** 22:1994-2004.
55. Ghose, G.M., Yang, T., Maunsell, J.H.R. (2002) Physiological correlates of perceptual learning in monkey V1 and V2. **Journal of Neurophysiology** 87:1867-1888.
56. Cook, E.P., Maunsell, J.H.R. (2002) Dynamics of neuronal responses in macaque MT and VIP during motion detection. **Nature Neuroscience** 5:985-994.

57. Ghose, GM, Maunsell, J.H.R. (2002) Attentional modulation in visual cortex depends on task timing. **Nature** 419:616-620.
58. McAdams, C.J. Maunsell, J.H.R. (2000) Attention to both space and feature modulates neuronal responses in macaque area V4. **Journal of Neurophysiology** 83:1751-1755.
59. DiCarlo, J.J., Maunsell, J.H.R. (2000) Form representation in monkey inferotemporal cortex is virtually unaltered by free viewing. **Nature Neuroscience** 3:814-821.
60. Maunsell, J.H.R., Ghose, G.M., Assad, J.A., McAdams, C.J., Boudreau, C.E., Noerager, B.D. (1999) Visual response latencies of magnocellular and parvocellular LGN neurons in macaque monkeys. **Visual Neuroscience** 16:1-14.
61. Treue, S., Maunsell, J.H.R. (1999) Effects of attention on the processing of motion in macaque middle temporal and medial superior temporal visual cortical areas. **Journal of Neuroscience**. 19:7591-7602.
62. McAdams, C.J., Maunsell, J.H.R. (1999) Effects of attention on the orientation tuning functions of single neurons in macaque area V4. **Journal of Neuroscience**. 19:431-441.
63. McAdams, C.J., Maunsell, J.H.R. (1999) Effects of attention on the reliability of individual neurons in monkey visual cortex. **Neuron** 23:765-773.
64. Sereno, A.B., Maunsell, J.H.R. (1998) Shape selectivity in primate lateral intraparietal cortex. **Nature** 395:500-503.
65. Marsálek, P., Koch, C., Maunsell, J.H.R. (1997) On the relationship between synaptic input and spike output jitter in individual neurons. **Proceedings of the National Academy of Science** 94:735-740 (PMC19583).
66. Gibson, J.R., Maunsell, J.H.R. (1997) The sensory modality specificity of neural activity related to memory in visual cortex. **J. Neurophysiol.** 78:1263-1275.
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72. Ferrera, V.P., Nealey, T.A., Maunsell, J.H.R. (1994) Responses in macaque visual area V4 following inactivation of the parvocellular and magnocellular LGN pathways. **Journal of Neuroscience** 14:2080-2088.
73. Ferrera, V.P., Rudolph, K., Maunsell, J.H.R. (1994) Responses of neurons in the parietal and temporal visual pathways during a motion task. **Journal of Neuroscience** 14:6171-6186.
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75. Ferrera, V.P., Nealey, T.A., Maunsell, J.H.R. (1992) Mixed parvocellular and magnocellular geniculate signals in visual area V4. **Nature** 358:756-758.
76. Maunsell, J.H.R., Gibson, J.R. (1992) Visual response latencies in striate cortex of the macaque monkey. **Journal of Neurophysiology** 68:1332-1344.
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78. Maunsell, J.H.R., Sclar, G., Nealey, T.A., DePriest, D.D. (1991) Extraretinal representations in area V4 in the macaque monkey. **Visual Neuroscience** 7:561-573.
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80. Merigan, W.H., Katz, L. M., Maunsell, J.H.R. (1991) The effects of parvocellular lateral geniculate lesions on the acuity and contrast sensitivity of macaque monkeys. **Journal of Neuroscience** 11:994-1001.

81. Sclar, G., Maunsell, J.H.R., Lennie, P (1990) Coding of image contrast in central visual pathways of the macaque monkey. **Vision Research** 30:1-10.
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83. Maunsell, J.H.R., Nealey, T.A., DePriest, D.D. (1990) Magnocellular and parvocellular contributions to responses in the middle temporal visual area (MT) of the macaque monkey. **Journal of Neuroscience** 10:3323-3334.
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86. Maunsell, J.H.R. (1988) Representation of three-dimensional visual space in the cerebral cortex. **Canadian Journal of Physiology and Pharmacology** 66:478-487.
87. Maunsell, J.H.R., Van Essen, D.C. (1987) The topographic organization of the middle temporal visual area in the macaque monkey: Representational biases and relationship to callosal connections and myeloarchitectonic boundaries. **Journal of Comparative Neurology** 266:535-555.
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89. Van Essen, D.C., Newsome, W.T., Maunsell, J.H.R., Bixby, J.L. (1986) The projections from striate cortex (V1) to areas V2 and V3 in the macaque monkey: Asymmetries, areal boundaries, and patchy connections. **Journal of Comparative Neurology** 244:451-480.
90. Newsome, W.T., Maunsell, J.H.R., Van Essen, D.C. (1986) Ventral posterior visual area of the macaque: Visual topography and areal boundaries. **Journal of Comparative Neurology** 252:139-153.
91. Schiller, P.H., Sandell, J.H., Maunsell, J.H.R. (1986) Functions of the ON and OFF channels of the visual system. **Nature** 322:824-825.
92. Van Essen, D.C., Newsome, W.T., Maunsell, J.H.R. (1984) The visual field representation in striate cortex of the macaque monkey: asymmetries, anisotropies, and individual variability. **Vision Research** 24:429-448.
93. Maunsell, J.H.R., Van Essen, D.C. (1983) Functional properties of neurons in the middle temporal visual area of the macaque monkey. I. Selectivity for stimulus direction, speed and orientations. **Journal of Neurophysiology** 49:1148-1167.
94. Maunsell, J.H.R., Van Essen, D.C. (1983) Functional properties of neurons in the middle temporal visual area of the macaque monkey. II. Binocular interactions and the sensitivity to binocular disparity. **Journal of Neurophysiology** 49:1148-1167.
95. Maunsell, J.H.R., Van Essen, D.C. (1983) Anatomical connections of the middle temporal visual area in the macaque monkey and their relationship to a hierarchy of cortical areas. **Journal of Neuroscience** 3:2563-2586.
96. Van Essen, D.C., Maunsell, J.H.R., Bixby, J.L. (1981) The middle temporal visual area in the macaque: Myeloarchitecture, connections, functional properties and topographic organization. **Journal of Comparative Neurology** 199:293-326.
97. Bixby, J.L., Maunsell, J.H.R., Van Essen, D.C. (1980) Effects of motor unit size on innervation patterns in neonatal mammals. **Experimental Neurology** 70:516-524
98. Van Essen, D.C., Maunsell, J.H.R. (1980) Two-dimensional maps of the cerebral cortex. **Journal of Comparative Neurology** 191:255-281

## REVIEWS, COMMENTARY & CHAPTERS

99. Maunsell, J.H.R. (2015) Neuronal mechanisms of visual attention. *Annual Review of Vision Science* 1:373-391

100. Maunsell, J.H.R., Cohen, M.R. (2015) Neuronal mechanisms of spatial attention in visual cerebral cortex. (In) Nobre, A.C., Kastner, S. (eds.) *The Oxford Handbook of Attention*, Oxford University Press, Oxford, UK, pp. 318-345.
101. Ray, S., Maunsell, J.H.R. (2015) Do gamma oscillations play a role in cerebral cortex? *Trends in Cognitive Science* 19:78-85
102. Histed, M.H., Ni, A.M., Maunsell, J.H.R. (2012) Insights into cortical mechanisms of behavior from microstimulation experiments. **Progress in Neurobiology** doi:10.1016/pneurobio.2012.01.006. (PMC3535686)
103. Kreiman, G., Maunsell, J.H.R. (2011) Nine criteria for a measure of scientific output. **Frontiers in Computational Neuroscience** 5:48 doi:10.3389/fncom.2011.00048. (PMC3214728)
104. Maunsell, J.H.R. (2009) The effect of attention on the responses of individual visual neurons (in) M.S. Gazzaniga (ed.) **The Cognitive Neurosciences**, MIT Press, Cambridge, MA. pp. 281-288
105. Maunsell, J.H.R., Treue, S. (2006) Feature-based attention in visual cortex. **Trends in Neuroscience** 29:317-322
106. Maunsell, J.H.R. (2004) Neuronal representations of cognitive state: reward or attention? **Trends in Cognitive Science** 8:261-265
107. Maunsell, J.H.R. (2004) The role of attention in visual cerebral cortex. (In) L.M. Chalupa and J.S. Werner (Eds.) **The Visual Neurosciences**. MIT Press, Cambridge MA. pp. 1538-1545.
108. Maunsell, J.H.R., Ghose, G.M. (2004) Dynamics of attentional modulation in visual cerebral cortex (in) M.S. Gazzaniga (ed.) **The Cognitive Neurosciences, 3<sup>rd</sup> Edition**, MIT Press, Cambridge, MA. pp. 351-358
109. Maunsell, J.H.R., Cook E.P. (2003) The role of attention in visual processing. (In) A. Parker, A. Derrington and C. Blakemore (eds.) **The Physiology of Cognitive Processes**, Oxford University Press, Oxford, UK, pp.157-172.
110. Maunsell, J.H.R., Romo, R. (2002) Cognitive neuroscience: editorial overview. **Current Opinion in Neurobiology** 12:131-133.
111. Maunsell, J.H.R., Cook E.P. (2002) The role of attention in visual processing. **Philosophical Transactions of the Royal Society: Biological Sciences** 357:1063-1072. (PMC1693016)
112. Maunsell, J.H.R., McAdams, C.J. (2001) Effects of attention on the responsiveness and selectivity of individual neurons in visual cerebral cortex. (In) J. Braun, C. Koch and J.L. Davis (eds.) **Visual Attention and Cortical Circuits**. MIT Press, Cambridge MA. pp. 103-119.
113. Maunsell, J.H.R. (1999) Visual cortex, extrastriate. (in) G. Adelman, B.H. Smith (eds.) **Encyclopedia of Neuroscience**, Elsevier Science, Amsterdam, 2<sup>nd</sup> Edition, pp. 2118-2121.
114. Ghose, G.M., Maunsell, J.H.R. (1999) Specialized representations in visual cortex: A role for binding? **Neuron** 24:79-85.
115. Maunsell, J.H.R., McAdams, C.J. (1999) Effects of Attention on Neuronal Response Properties in Visual Cerebral Cortex (in) M.S. Gazzaniga (ed.) **The New Cognitive Neurosciences**, MIT Press, Cambridge, MA. pp. 315-324.
116. Treue, S., Maunsell, J.H.R. (1997) Attentional modulation of visual signal processing in the parietal cortex. (in) P. Thier and H.-O. Karnath (ed.) **Parietal Lobe Contributions to Orientation in 3D Space**, Springer-Verlag, Heidelberg, pp. 357-370.
117. Maunsell, J.H.R. (1995) The brain's visual world: Representation of visual targets in cerebral cortex. **Science** 270:764-769.
118. Maunsell, J.H.R., Ferrera, V.P. (1994) Attentional mechanisms in visual cortex. (in) M.S. Gazzaniga (ed.) **The Cognitive Neurosciences**, MIT Press, Cambridge, MA. pp. 451-461.
119. Maunsell, J.H.R., Ferrera, V.P. (1994) Parallel processing in monkey extrastriate cortex. (in) T.B. Lawton (ed.) **Computation Vision Based on Neurobiology**, Proceedings of SPIE 2054, pp. 240-242.
120. Maunsell, J.H.R. (1993) Neuronal correlates of object representation. (in) T. Poggio, D. Glaser. (eds.) **Exploring Brain Functions: Models in Neuroscience**. John Wiley and Sons, Ltd., 195-202.

121. Merigan, W.H., Maunsell, J.H.R. (1993) How parallel are the primate visual pathways? **Annual Review of Neuroscience** 16:369-402.
122. Maunsell, J.H.R., Ferrera, V.P. (1993) Extraretinal representations in visual areas of macaque cerebral cortex. (*in*) T. Ono, L.R. Squire, M.E. Raichle, D.I. Perrett, M. Fukuda (*eds.*) **Brain Mechanisms of Perception and Memory: From Neuron to Behavior**. Oxford University Press, Oxford. pp. 104-118.
123. Maunsell, J.H.R. (1992) Functional visual streams. **Current Opinion in Neurobiology** 2:506-510.
124. Maunsell, J.H.R., Hochstein, S. (1991) Effects of behavioral state on the stimulus selectivity of neurons in area V4 of the macaque monkey. (*in*) B. Blum (*ed.*) **Channels in the Visual Nervous System: Neurophysiology, Psychophysics and Models**. Freund Publishing, Tel Aviv. 447-470
125. Maunsell, J.H.R., Nealey, T.A., Sclar, G., DePriest, D.D. (1989) Representation of extraretinal information in monkey visual cortex (*in*) D. Lam (*ed.*) **Proceedings of the Retinal Research Foundation Symposium** 2:223-235.
126. Maunsell, J.H.R., Newsome, W.T. (1987) Visual processing in monkey extrastriate cortex. **Annual Review of Neuroscience** 10:363-401.
127. Maunsell, J.H.R. (1987) Physiological evidence for two visual subsystems (*in*) L. Vaina (*ed.*) **Matters of Intelligence** Reidel Press, Dordrecht, Holland, 59-87.
128. Van Essen, D.C., Maunsell, J.H.R. (1983) Hierarchical organization and functional streams in the visual cortex. **Trends Neurosci.** 6:370-375.
129. Van Essen, D.C., Maunsell, J.H.R., Bixby, J.L. (1980) Organization of extrastriate visual areas in the macaque monkey (*in*) Woolsey, C.N. (*ed.*) **Cortical Sensory Organization** Humana Press, Clifton, NJ. 2:157-170.

## Invited Presentations

1. National Institutes of Health, Laboratory of Sensorimotor Research, June 1983.
2. University of Rochester, Department of Physiology, February 1984.
3. Sloan Foundation Workshop on Computational Neuroscience, Woods Hole, August 1985.
4. California Institute of Technology, Division of Biology, October 1985.
5. Helmholtz Club, University of California at Irvine, October 1985.
6. Harvard Medical School, Department of Neurobiology, December 1985.
7. State University of New York at Stony Brook, Dept. of Neurobiology & Behavior, April 1986.
8. State University of New York at Buffalo, Department of Neurobiology, May 1986.
9. Center for Visual Sci. Symp. on Comp. Models of Human Vis., Univ. Rochester, June 1986.
10. Sloan Foundation Workshop on Computational Neuroscience, Woods Hole, August 1986.
11. New York University, Department of Psychology, March 1987.
12. Univ. of Montréal Symp. on Spatial Representations and Sensorimotor Trans., May 1987.
13. Sloan Foundation Workshop on Computational Neuroscience, Woods Hole, August 1987.
14. Office of Naval Research Workshop on Haptics, Woods Hole, September 1987.
15. Massachusetts General Hospital, Department of Neurology, December 1987.
16. University of California, San Francisco, Division of Neurobiology, February 1988.
17. Rockefeller University, Laboratory of Neurobiology, February 1988.
18. McDonnell Foundation Workshop on Attention, Eugene, March 1988.
19. Neuroscience Institute Summer Atelier in Theoretical Neurobiology, New York, July 1988.
20. Sloan Foundation Workshop on Computational Neuroscience, Woods Hole, August 1988.
21. State Univ. of New York at Syracuse, Dept. Anatomy and Cell Biology, January 1989.
22. Salk Institute, Neurobiology Group, March 1989.
23. Syracuse University, Institute for Sensory Research, March 1989.
24. Johns Hopkins University, Department of Neuroscience, April 1989.
25. Retinal Research Foundation Symposium, Houston, April 1989.
26. Canadian Inst. Advanced Res. Workshop on Extrastriate Visual Comp., Montreal, June 1989.
27. Gordon Conference on Neural Plasticity, Wolfboro NH, July 1989.
28. McDonnell Foundation Workshop Computational Neuroscience, Woods Hole, August 1989.
29. Office of Naval Research Workshop on Haptics, Woods Hole, September 1989.
30. Optical Soc. Amer. Symp. Functional Specialization Visual Cortex, Orlando, October 1989.
31. Electrotechnical Lab., Agency Ind. Sci. & Tech., Tsukuba Science City, Japan, Jan. 1990.
32. RIKEN Institute, Laboratory for Neural Information Processing, Wako, Japan, January 1990.
33. Nihon University School of Medicine, Dept. of Physiology, Tokyo, Japan, January 1990.
34. National Institute for Physiological Sciences, Okazaki, Japan, January, 1990.
35. Electrotechnical Lab., Agency Ind. Sci. & Tech., Tsukuba Science City, Japan, Jan. 1990.
36. Int. Sch. Adv. Stud. Wrkshp Comp. & Biol. Models Vis. Proc., Trieste, Italy, Feb. 1990.
37. Office of Naval Res. Workshop on Computational Neuroscience, Woods Hole, August 1990.
38. State University of New York at Buffalo, Dept. of Biophysical Sciences, September 1990.
39. Int. & Behav. Neurosci. Symp. Sensorimotor Int., Soc. Neurosci., St. Louis, Oct. 1990.
40. Columbia University, Department of Biological Science, New York, April 1991.
41. Harvard Medical School, Neuroscience Program Retreat, New Seabury, MA, April 1991.
42. Johns Hopkins University, Department of Neuroscience, June 1991.
43. University of California San Francisco, Dept. of Physiology Spring Symposium, June 1991.
44. Baylor College of Medicine, Division of Neuroscience, July 1991.
45. Int. Brain Res. Organization Symp. on Parallel Pathways in Vision, Montréal, August 1991.
46. International Symp. Brain Mech. of Perception & Memory, Toyama, Japan, October 1991.
47. McKnight Foundation Conference on Neuroscience, Woods Hole, April 1992.
48. ARVO Symp. Parallel Visual Channels in Primate, Sarasota, Florida, May 1992.
49. FASEB Summer Res. Conf. Biol., Chem. & Mod. of Vis. Saxtons River, VT, June 1992.
50. Hebrew University, Dept. Neurobiology - Life Sciences, Jerusalem, Israel, November 1992.
51. Weizmann Institute of Science, Dept. of Neurobiology, Rehovot, Israel, November 1992.

52. Massachusetts Institute of Technology, Dept. Brain & Cognitive Sciences, April 1993.
53. University of Chicago, Program in Neurobiology, April 1993.
54. McDonnell/Pew Summer Institute Cognitive Neuroscience, Lake Tahoe, CA, July 1993.
55. Int. Soc. Opt. Eng. Conf. Comp. Vis. Based on Neurobiol., Asilomar, CA, July 1993.
56. Canadian Soc. Brain, Behav. & Cog. Sci. & Exp. Psych. Soc. Symp., Toronto, July 1993.
57. Office of Naval Res. Workshop on Computational Neurosci., Woods Hole, August 1993.
58. University of Houston, College of Optometry, September 1993.
59. University of Texas at Houston, Department of Neurobiology and Anatomy, December 1993.
60. Office of Naval Research Workshop Comp. Neurosci., Woods Hole, MA, August 1994.
61. Harvard Medical School, Department of Neurobiology, December 1994.
62. National Institutes of Health, Laboratory of Sensorimotor Research, February 1995.
63. University of California at Berkeley, Department of Psychology, February 1995.
64. Stanford University, Department of Neurobiology, February 1995.
65. Boston University School of Medicine, Department of Anatomy, March 1995.
66. Max-Planck-Institut für biologische Kybernetik, Tübingen, Germany, May 1995.
67. Inst. Nat. Santé Recherche Médicale Symp. Cereb. Cortex Func. & Dev., Lyon, May 1995.
68. NASA Workshop on Computational Neuroscience, Woods Hole, MA, August 1995.
69. University of Texas at Austin, Department of Zoology, November 1995.
70. Houston Society for Engineering in Medicine and Biology Conference, February 1996.
71. Duke University, Department of Neurobiology, February 1996.
72. New York University, Center for Neural Science, March 1996.
73. University of California at San Diego, Psychology Department, April 1996.
74. Northwestern University, Neurobiology and Physiology Department, May 1996.
75. Helmholtz Club, University of California at Irvine, May 1996.
76. NASA Workshop on Computational Neuroscience, Woods Hole, MA, August 1996.
77. Louisiana State University, Neuroscience Center, New Orleans, September 1996.
78. University of Alabama at Birmingham, Neurobiology Research Center, September 1996.
79. University of Rochester, Department of Brain and Cognitive Science, October 1996.
80. Grass Traveling Lecturer, San Antonio Chapter Society for Neuroscience, December 1996.
81. Georgetown University, Institute for Cognitive and Computational Sciences, February 1997.
82. Johns Hopkins University, Kreiger Mind/Brain Institute, March 1997.
83. National Institutes of Health, Science of Brain Disease Symposium, March 1997.
84. University of California at Davis, Center for Neuroscience, March 1997.
85. Katholieke Universiteit, Laboratorium voor Neurofysiologie, Leuven, Belgium, May 1997.
86. Belgian Soc. Neurosci. Annual Meeting, Presidential Symp., Brussels, Belgium, May 1997.
87. Int. Union of Physiological Sciences Ann. Meeting Symp., St. Petersburg Russia, July 1997.
88. Instituto Juan March de Estudios e Investigaciones Symp., Madrid Spain, September 1997.
89. California Institute of Technology, Division of Biology, November 1997.
90. McDonnell Foundation Summer Institute Cognitive Neurosci., Lake Tahoe, CA, July 1998.
91. University of California at San Francisco, Neuroscience Program, September 1998.
92. Harvard University, Department of Neurobiology, December 1998.
93. ONR Workshop Visual Attention and Neural Circuits, Two Harbors, CA, January 1999.
94. University of Pittsburgh, Center for Neural Basis of Cognition, March 1999.
95. State University New York at Stony Brook, Dept. of Neurobiology & Behavior, May 1999.
96. Vision Research Conference on Attention, Ft. Lauderdale, FL, May 1999.
97. Workshop on Computational Neuroscience, Telluride, CO, July 1999.
98. Washington University, Department of Anatomy and Neurobiology, September 1999.
99. Medical College of Wisconsin, Department of Neurobiology and Anatomy, November 1999.
100. Vanderbilt University, Psychology Department, November 1999.
101. Yale University, Section of Neurobiology, January 2000.
102. SEIRIKEN. Symp. Neural Mech. Vis. Percept. & Cognition, Okazaki, Japan, March 2000.
103. Brandeis University, Center for Complex Systems, April 2000.
104. Workshop on Computational Neuroscience, Telluride, CO, July 2000.
105. Workshop on Computational Neuroscience, Telluride, CO, July 2001.

106. University of California at San Diego, Department of Neuroscience, November 2001.
107. Soc. Neurosci. Annual Meeting Symposium, San Diego, CA, November 2001.
108. Royal Society Discussion Meeting, London, England, December 2001.
109. Neural Information Coding Meeting, Les Houches, France, March 2002.
110. University of Rochester, Department of Brain and Cognitive Science, April 2002.
111. Symposium on Sensory Processing to Emotion, Bremen, Germany, May 2002.
112. University of Wisconsin, Program in Neuroscience, Madison, WI, September 2002.
113. USC, Provost's Symposium on Neuroscience, Los Angeles, CA, October 2002.
114. Massachusetts Institute of Technology, Center for Learning & Memory, January 2003.
115. Universität Tübingen, Department of Cognitive Neurology, February 2003.
116. German Primate Center, Göttingen, Germany, February 2003.
117. Rice University, Department of Psychology, April 2003.
118. McDonnell Foundation Summer Institute Cognitive Neurosci., Lake Tahoe, CA, June 2003.
119. National Institutes of Health, Laboratory of Sensorimotor Research, September 2003.
120. University of Rochester, Center for Visual Science, Rochester, NY, October 2003.
121. Harvard Medical School, Department of Neurobiology, Boston, MA, December 2003.
122. University of Texas, Center for Perceptual Systems, Austin, December 2003.
123. University of Washington, Neurobiology & Behavior Program, Seattle, WA, January 2004.
124. Univ. Pennsylvania, Institute of Neurological Sciences, Philadelphia, PA, February 2004.
125. NEI Training Grant Consortium, NY Academy of Science, New York, NY, March 2004.
126. Syracuse Neuroscience Organization, Syracuse, NY, October 2004.
127. Boston University, Program in Neuroscience, November 2004.
128. Instituto Juan March de Estudios e Investigaciones Symp., Madrid Spain, March 2005.
129. CSIC & Univ. Miguel Hernández, Instituto de Neurociencias, Alicante, Spain, March 2005.
130. Harvard Medical School, Neuroscience Prog. Retreat, N. Falmouth, MA, September 2005.
131. Univ. Texas, Dept. Neurobiology & Behavior, Houston, TX, February 2006.
132. Computation & Systems Neuroscience Meeting, Salt Lake City, UT, March 2006.
133. International Workshop on Visual Attention, Buenos Aires, Argentina, March 2007.
134. Montreal Neurological Institute, Montreal, Canada, March 2007.
135. University of California San Diego, Graduate Program in Neuroscience, April 2007.
136. Columbia University, Center for Neurobiology and Behavior, New York, NY, May 2007.
137. Barrow Neurological Institute, Phoenix, AZ, May 2007.
138. York University, Symposium on Cortical Mechanism Vision, Toronto, Canada, June 2007.
139. Max-Planck Institute for Biological Cybernetics, Tübingen, Germany, July 2007.
140. Eighth Congress International Society for Neuroethology, Vancouver, Canada, July 2007.
141. Children's Hospital, Program in Neurobiology, Boston, MA, January 2008.
142. Brown University, Neuroscience Graduate Program, January 2008.
143. Rutgers University, Center Molecular & Behavioral Neuroscience, Newark, NJ, March 2008.
144. University of California at Davis, Center for Neuroscience, Davis, CA, April 2008.
145. University of Utrecht, Helmholtz Lecturer Series, The Netherlands, June 2008.
146. Summer Institute in Cognitive Neuroscience, Lake Tahoe, CA, June 2008.
147. Med. College of Georgia, Brain & Behavior Discovery Institute, Augusta, GA, January 2009.
148. Univ. of Maryland, Program in Neurosci. & Cognitive Sci., College Park MD, February 2009.
149. National Institutes of Health, Neuroscience Seminar Series, Bethesda, MD, February 2009.
150. Stanford Univ., Inst. Neuro-Innovative & Trans. Neuroscience, Palo Alto, CA, March 2009.
151. Univ. Pittsburgh, Center for Neuroscience Ann. Retreat, Wheeling, WV, September 2009.
152. Washington University, Neuroscience Retreat, Pere Marquette, IL, September 2009.
153. California Institute of Technology, Prog. Computation & Neural Systems, CA, January 2010.
154. Center for Brain Science, Harvard University, Cambridge, MA, March 2010.
155. Department of Biological Structure, University of Washington, Seattle, WA, March 2010.
156. Vision Seminar Series, Massachusetts Institute of Technology, Cambridge, MA, April 2010.
157. Sloan-Swartz Annual Centers Meeting, Yale University, New Haven, CT, June 2010.
158. Neurotechnique Workshop, Columbia University, New York, NY, November 2010.
159. 4th Annual Primate Neurobiology Meeting, Göttingen, Germany, March 2011.



160. Plenary Lecture, 9th Meeting German Neuroscience Society, Göttingen, March 2011.
161. Neuroscience Program Retreat, University of Texas Southwestern, Dallas, TX, May 2011.
162. 15<sup>th</sup> International Conf. Cognition & Neural Systems, Boston Univ, Boston, MA, May 2011.
163. Meeting on Computations in Neocortical Circuits, HHMI, Ashburn, VA, May 2011.
164. Workshop Ethics in Scientific Publishing, IBRO 8th World Congr, Florence, Italy, July 2011.
165. International Workshop on Visual Attention, Allahabad, India, October 2011.
166. Center for Neural Science, New York University, New York, NY, January 2012.
167. Institute Neurosci Annual Symp, George Washington Univ, Washington, DC, May 2012.
168. Burke-Cornell Medical Research Institute, Mamaroneck, NY, May 2012.
169. Brain & Cognitive Science Symposium, Seoul National University, Seoul, Korea, July 2012.
170. Dept Brain Science, Daegu Gyeongbuk Institute of Science & Technology, Korea, July 2012.
171. Institut de Neurosciences de la Timone, Univ. Marseille, Marseille, France, Sept 2012.
172. Department of Neuroscience, Columbia University, New York City, NY, November, 2012.
173. Center for Neuroscience, University of California at Davis, Davis, CA, February, 2013.
174. Department of Neurobiology, University of Chicago, Chicago, IL, March, 2013.
175. Dept of Anatomy & Neurobiology, Boston Univ Medical Center, Boston, MA May 2013.
176. Symposium Honoring David Van Essen, Washington Univ, St. Louis, MO, October 2013.
177. Neuroscience Seminar Series, UCSF, San Francisco, CA, January 2014.
178. Connections & Communication in the Brain Workshop, Cold Spring Harbor, NY, April 2014.
179. Laboratory of Integrative Neuroscience, University of Illinois, Chicago, IL, February 2015.
180. Princeton Neuroscience Institute, Princeton University, Princeton, NJ, March 2015.
181. Visual Neuroscience Group, UCLA, Los Angeles, CA, April 2015.
182. Chicago Council on Science and Technology, Chicago, IL, October 2015.
183. Univ. Texas, Dept. Neurobiology & Behavior, Houston, TX, February 2016.
184. Baylor College of Medicine, Department of Neuroscience, Houston, TX, February 2016.
185. University of Chicago, McLean Center for Medical Ethics, Chicago, IL, March 2016.
186. Yale University, Department of Neuroscience, New Haven, CT, April 2016.
187. AREADNE Conference, Fira, Greece, June 2016.
188. Center for Perceptual Systems, University of Texas, Austin, TX, October 2016.
189. Workshop on Attention, Carnegie Mellon University, Pittsburgh, PA, April 2017.
190. Cold Spring Harbor Conference on Primate Neuroscience, Suzhou, China, June 2017.
191. Conference on Visual Motion, HHMI Janelia Research Campus, Ashburn, VA, October 2017.
192. Department of Neuroscience, Columbia University, New York, NY, April 2018.
193. National Academy of Science Sackler Colloquium, Newport Beach, CA, January 2019.
194. Waterloo Brain Day, Waterloo University, Waterloo, ON, Canada, April 2019.
195. Center for Neural Science, New York University, New York, NY, May 2019.
196. Central Research Laboratories, Italian Institute of Technology, Genoa, Italy, December 2019.
197. OPTOGEN Conference on Optogenetics and Neurophotonics, Venice, Italy, December 2019.
198. Duke University, Department of Neurobiology, Durham, NC, March 2020.
199. Johns Hopkins University, David Bodian Seminars, Video Presentation, October 2020.
200. Vanderbilt University, Vanderbilt Brain Institute, Video Presentation, November 2020.
201. Gordon Conference on Neurobiology of Cognition, Newry, ME, July 2022.