



William Newsome

Harman Family Provostial Professor and Professor of Neurobiology and, by courtesy, of Psychology

 NIH Biosketch available Online

 Curriculum Vitae available Online

Bio

BIO

Bill Newsome is the Harman Family Provostial Professor of Neurobiology at the Stanford University School of Medicine, and the Founding Director of the Wu Tsai Neurosciences Institute. He received a B.S. degree in physics from Stetson University and a Ph.D. in biology from the California Institute of Technology. Dr. Newsome is a leading investigator in systems and cognitive neuroscience. He has made fundamental contributions to our understanding of the neural mechanisms underlying visual perception and simple forms of decision making. Among his honors are the Rank Prize in Optoelectronics, the Spencer Award, the Distinguished Scientific Contribution Award of the American Psychological Association, the Dan David Prize of Tel Aviv University, the Karl Spencer Lashley Award of the American Philosophical Society, and the Champalimaud Vision Award. His distinguished lectureships include the 13th Annual Marr Lecture at the University of Cambridge the 9th Annual Brenda Milner Lecture at McGill University, and most recently, the Distinguished Visiting Scholar lectures at the Kavli Institute of Brain and Mind, UCSD. He was elected to membership in the National Academy of Sciences in 2000, and to the American Philosophical Society in 2011. Newsome co-chaired the NIH BRAIN working group, charged with forming a national plan for neuroscience research in the United States.

ACADEMIC APPOINTMENTS

- Professor, Neurobiology
- Professor (By courtesy), Psychology
- Member, Bio-X
- Member, Maternal & Child Health Research Institute (MCHRI)
- Member, Wu Tsai Neurosciences Institute

ADMINISTRATIVE APPOINTMENTS

- Scientific Advisory Board, Weizmann Institute, (2021- present)
- Vincent V.C. Woo Director, Wu Tsai Neurosciences Institute, Stanford University, (2013-2021)
- Stanley Center Scientific Advisory Committee, Broad Institute, Boston, (2016-2021)
- Executive Committee, Simons Collaboration on the Global Brain, Simons Foundation, New York, (2014-2020)
- International Steering Committee, Safra Center for Brain Sciences, Hebrew University, (2015-2023)
- Member, Scientific Strategy Advisory Group, The Wellcome Trust, London, (2017-2019)
- Correspondent, Committee on Human Rights, National Academy of Sciences, (2001- present)
- Scientific Advisory Board, RIKEN Center for Brain Sciences, Tokyo, (2018-2022)

HONORS AND AWARDS

- Henry J. Kaiser Award for Excellence in Teaching, Students of the Stanford University School of Medicine (1991, 1997)

- Golden Brain Award, Minerva Foundation (1992)
- The Rank Prize in Optoelectronics, The Rank Prize Funds, London (1992)
- MERIT Award, National Eye Institute (1993)
- W. Alden Spencer Award for highly original contributions to research in neurobiology, Columbia University (1994)
- Fogarty International Senior Research Fellowship, Fogarty International Center, NIH (1995)
- Guggenheim Fellowship, Guggenheim Foundation (1995)
- Investigator, Howard Hughes Medical Institute (1997)
- Elected to membership, National Academy of Sciences, USA (2000)
- Distinguished Scientific Contribution Award, American Psychological Association (2002)
- Award for Outstanding Service to Graduate Students, Students, Stanford University School of Medicine (2003)
- Dan David Prize, Dan David Foundation and Tel Aviv University (2004)
- Champalimaud Vision Award, Champalimaud Foundation, Lisbon (2010)
- Karl Spencer Lashley Award, American Philosophical Society (2010)
- Elected to Membership, The American Philosophical Society (2011)
- Honorary Doctor of Science Degree, State University of New York, School of Optometry (2012)
- PePOSE Award for the Study of Vision, Brandeis University (2015)
- Elected to Membership, American Academy of Arts and Sciences (2017)
- Werner Heisenberg Lecturer, Siemens Foundation and the Bavarian Academy of Sciences, Munich (2019)
- Elliot S. Valenstein Distinguished Lecture, University of Michigan (2021)
- Gregor Mendel Award, Villanova University (2022)

PROGRAM AFFILIATIONS

- Symbolic Systems Program

PROFESSIONAL EDUCATION

- Ph.D., California Inst. of Technology , Neurobiology (1980)

LINKS

- <http://monkeybiz.stanford.edu/>: <http://monkeybiz.stanford.edu/>
- Personal Web site: <http://monkeybiz.stanford.edu/>

Research & Scholarship

CURRENT RESEARCH AND SCHOLARLY INTERESTS

The long-term goal of our research is to understand the neuronal processes that mediate visual perception and visually guided behavior. To this end we are conducting parallel behavioral and physiological experiments in animals that are trained to perform selected perceptual or eye movement tasks. By recording the activity of cortical neurons during performance of such tasks, we gain initial insights into the relationship of neuronal activity to the animal's behavioral capacities. Hypotheses concerning this relationship are tested by modifying neural activity within local cortical circuits to determine whether behavior is affected in a predictable manner. Computer modelling techniques are then used to develop more refined hypotheses concerning the relationship of brain to behavior that are both rigorous and testable. This combination of behavioral, electrophysiological and computational techniques provides a realistic basis for neurophysiological investigation of cognitive functions such as perception, memory and motor planning.

Teaching

COURSES

2023-24

- Social and Ethical Issues in the Neurosciences: NBIO 101, NBIO 201 (Spr)
- Understanding Techniques in Neuroscience: NBIO 227 (Aut)

2022-23

- Social and Ethical Issues in the Neurosciences: NBIO 101, NBIO 201 (Spr)
- Understanding Techniques in Neuroscience: NBIO 227 (Aut)

2021-22

- Social and Ethical Issues in the Neurosciences: NBIO 101, NBIO 201 (Spr)
- Understanding Techniques in Neuroscience: NBIO 227 (Aut)

2020-21

- Social and Ethical Issues in the Neurosciences: NBIO 101, NBIO 201 (Spr)
- Understanding Techniques in Neuroscience: NBIO 227 (Aut)

GRADUATE AND FELLOWSHIP PROGRAM AFFILIATIONS

- Neurosciences (Phd Program)

Publications

PUBLICATIONS

- **Decoding and perturbing decision states in real time.** *Nature*
Peixoto, D., Verheine, J. R., Kiani, R., Kao, J. C., Nuyujukian, P., Chandrasekaran, C., Brown, J., Fong, S., Ryu, S. I., Shenoy, K. V., Newsome, W. T.
2021
- **Remote, brain region-specific control of choice behavior with ultrasonic waves** *SCIENCE ADVANCES*
Kubanek, J., Brown, J., Ye, P., Pauly, K., Moore, T., Newsome, W.
2020; 6 (21)
- **Value and choice as separable and stable representations in orbitofrontal cortex.** *Nature communications*
Kimmel, D. L., Elsayed, G. F., Cunningham, J. P., Newsome, W. T.
2020; 11 (1): 3466
- **Opportunities and limitations of genetically modified nonhuman primate models for neuroscience research.** *Proceedings of the National Academy of Sciences of the United States of America*
Feng, G. n., Jensen, F. E., Greely, H. T., Okano, H. n., Treue, S. n., Roberts, A. C., Fox, J. G., Caddick, S. n., Poo, M. M., Newsome, W. T., Morrison, J. H.
2020
- **Differential encoding in prefrontal cortex projection neuron classes across cognitive tasks.** *Cell*
Lui, J. H., Nguyen, N. D., Grutzner, S. M., Darmanis, S. n., Peixoto, D. n., Wagner, M. J., Allen, W. E., Kebschull, J. M., Richman, E. B., Ren, J. n., Newsome, W. T., Quake, S. R., Luo, et al
2020
- **Remote, brain region-specific control of choice behavior with ultrasonic waves.** *Science advances*
Kubanek, J. n., Brown, J. n., Ye, P. n., Pauly, K. B., Moore, T. n., Newsome, W. n.
2020; 6 (21): eaaz4193
- **Deviation from the matching law reflects an optimal strategy involving learning over multiple timescales** *NATURE COMMUNICATIONS*
Iigaya, K., Ahmadian, Y., Sugrue, L. P., Corrado, G. S., Loewenstein, Y., Newsome, W. T., Fusi, S.

2019; 10

- **Task representations in neural networks trained to perform many cognitive tasks.** *Nature neuroscience*
Yang, G. R., Joglekar, M. R., Song, H. F., Newsome, W. T., Wang, X.
2019
- **Deviation from the matching law reflects an optimal strategy involving learning over multiple timescales.** *Nature communications*
Iigaya, K., Ahmadian, Y., Sugrue, L. P., Corrado, G. S., Loewenstein, Y., Newsome, W. T., Fusi, S.
2019; 10 (1): 1466
- **Laminar differences in decision-related neural activity in dorsal premotor cortex** *NATURE COMMUNICATIONS*
Chandrasekaran, C., Peixoto, D., Newsome, W. T., Shenoy, K. V.
2017; 8: 614
- **THE CRITICAL ROLE OF NONHUMAN PRIMATES IN MEDICAL RESEARCH.** *Pathogens & immunity*
Friedman, H., Ator, N., Haigwood, N., Newsome, W., Allan, J. S., Golos, T. G., Kordower, J. H., Shade, R. E., Goldberg, M. E., Bailey, M. R., Bianchi, P.
2017; 2 (3): 352-365
- **Orbitofrontal Cortex Value Signals Depend on Fixation Location during Free Viewing** *NEURON*
McGinty, V. B., Rangel, A., Newsome, W. T.
2016; 90 (6): 1299-1311
- **Comment on "Single-trial spike trains in parietal cortex reveal discrete steps during decision-making".** *Science*
Shadlen, M. N., Kiani, R., Newsome, W. T., Gold, J. I., Wolpert, D. M., Zylberberg, A., Ditterich, J., de Lafuente, V., Yang, T., Roitman, J.
2016; 351 (6280): 1406-?
- **Comment on "Single-trial spike trains in parietal cortex reveal discrete steps during decision-making"** *SCIENCE*
Shadlen, M. N., Kiani, R., Newsome, W. T., Gold, J. I., Wolpert, D. M., Zylberberg, A., Ditterich, J., de Lafuente, V., Yang, T., Roitman, J.
2016; 351 (6280)
- **The BRAIN Initiative: developing technology to catalyse neuroscience discovery** *PHILOSOPHICAL TRANSACTIONS OF THE ROYAL SOCIETY B-BIOLOGICAL SCIENCES*
Jorgenson, L. A., Newsome, W. T., Anderson, D. J., Bargmann, C. I., Brown, E. N., Deisseroth, K., Donoghue, J. P., Hudson, K. L., Ling, G. S., MacLeish, P. R., Marder, E., Normann, R. A., Sanes, et al
2015; 370 (1668): 8-19
- **Natural Grouping of Neural Responses Reveals Spatially Segregated Clusters in Prearcuate Cortex** *NEURON*
Kiani, R., Cueva, C. J., Reppas, J. B., Peixoto, D., Ryu, S. I., Newsome, W. T.
2015; 85 (6): 1359-1373
- **Effects of Cortical Microstimulation on Confidence in a Perceptual Decision** *NEURON*
Fetsch, C. R., Kiani, R., Newsome, W. T., Shadlen, M. N.
2014; 83 (4): 797-804
- **Dynamics of Neural Population Responses in Prefrontal Cortex Indicate Changes of Mind on Single Trials** *CURRENT BIOLOGY*
Kiani, R., Cueva, C. J., Reppas, J. B., Newsome, W. T.
2014; 24 (13): 1542-1547
- **Dynamics of neural population responses in prefrontal cortex indicate changes of mind on single trials.** *Current biology*
Kiani, R., Cueva, C. J., Reppas, J. B., Newsome, W. T.
2014; 24 (13): 1542-1547
- **The Brain Research Through Advancing Innovative Neurotechnologies (BRAIN) initiative and neurology.** *JAMA neurology*
Bargmann, C. I., Newsome, W. T.
2014; 71 (6): 675-676
- **Context-dependent computation by recurrent dynamics in prefrontal cortex.** *Nature*
Mante, V., Sussillo, D., Shenoy, K. V., Newsome, W. T.
2013; 503 (7474): 78-84
- **Context-dependent computation by recurrent dynamics in prefrontal cortex** *NATURE*

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- Mante, V., Sussillo, D., Shenoy, K. V., Newsome, W. T.
2013; 503 (7474): 78-?
- **EFFECTIVE PARAMETERS FOR ULTRASOUND-INDUCED IN VIVO NEUROSTIMULATION** *ULTRASOUND IN MEDICINE AND BIOLOGY*
King, R. L., Brown, J. R., Newsome, W. T., Pauly, K. B.
2013; 39 (2): 312-331
 - **Tracking the eye non-invasively: simultaneous comparison of the scleral search coil and optical tracking techniques in the macaque monkey** *FRONTIERS IN BEHAVIORAL NEUROSCIENCE*
Kimmel, D. L., Mammo, D., Newsome, W. T.
2012; 6
 - **Dissociation of Neuronal and Psychophysical Responses to Local and Global Motion** *CURRENT BIOLOGY*
Hedges, J. H., Gartshteyn, Y., Kohn, A., Rust, N. C., Shadlen, M. N., Newsome, W. T., Movshon, J. A.
2011; 21 (23): 2023-2028
 - **Stimulus onset quenches neural variability: a widespread cortical phenomenon** *NATURE NEUROSCIENCE*
Churchland, M. M., Yu, B. M., Cunningham, J. P., Sugrue, L. P., Cohen, M. R., Corrado, G. S., Newsome, W. T., Clark, A. M., Hosseini, P., Scott, B. B., Bradley, D. C., Smith, M. A., Kohn, et al
2010; 13 (3): 369-U25
 - **Integration of Sensory and Reward Information during Perceptual Decision-Making in Lateral Intraparietal Cortex (LIP) of the Macaque Monkey** *PLOS ONE*
Rorie, A. E., Gao, J., McClelland, J. L., Newsome, W. T.
2010; 5 (2)
 - **Estimates of the Contribution of Single Neurons to Perception Depend on Timescale and Noise Correlation** *JOURNAL OF NEUROSCIENCE*
Cohen, M. R., Newsome, W. T.
2009; 29 (20): 6635-6648
 - **Can Monkeys Choose Optimally When Faced with Noisy Stimuli and Unequal Rewards?** *PLOS COMPUTATIONAL BIOLOGY*
Feng, S., Holmes, P., Rorie, A., Newsome, W. T.
2009; 5 (2)
 - **Context-Dependent Changes in Functional Circuitry in Visual Area MT** *NEURON*
Cohen, M. R., Newsome, W. T.
2008; 60 (1): 162-173
 - **The temporal precision of reward prediction in dopamine neurons** *NATURE NEUROSCIENCE*
Fiorillo, C. D., Newsome, W. T., Schultz, W.
2008; 11 (8): 966-973
 - **The temporal precision of reward prediction in dopamine neurons.** *Nature neuroscience*
Fiorillo, C. D., Newsome, W. T., Schultz, W.
2008
 - **Brain stimulation: Feeling the buzz** *CURRENT BIOLOGY*
Reppas, J. B., Newsome, W. T.
2007; 17 (10): R358-R360
 - **Local field potential in cortical area MT: Stimulus tuning and behavioral correlations** *JOURNAL OF NEUROSCIENCE*
Liu, J., Newsome, W. T.
2006; 26 (30): 7779-7790
 - **Linear-Nonlinear-Poisson models of primate choice dynamic** *JOURNAL OF THE EXPERIMENTAL ANALYSIS OF BEHAVIOR*
Corrado, G. S., Sugrue, L. P., Seung, H. S., Newsome, W. T.
2005; 84 (3): 581-617
 - **Choosing the greater of two goods: Neural currencies for valuation and decision making** *NATURE REVIEWS NEUROSCIENCE*
Sugrue, L. P., Corrado, G. S., Newsome, W. T.
2005; 6 (5): 363-375

- **A general mechanism for decision-making in the human brain?** *TRENDS IN COGNITIVE SCIENCES*
Rorie, A. E., Newsome, W. T.
2005; 9 (2): 41-43
- **Correlation between speed perception and neural activity in the middle temporal visual area** *JOURNAL OF NEUROSCIENCE*
Liu, J., Newsome, W. T.
2005; 25 (3): 711-722
- **Microstimulation of the superior colliculus focuses attention without moving the eyes** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
Muller, J. R., Philiastides, M. G., Newsome, W. T.
2005; 102 (3): 524-529
- **Cone signal interactions in direction-selective neurons in the middle temporal visual area (MT)** *JOURNAL OF VISION*
Barberini, C. L., Cohen, M. R., Wandell, B. A., Newsome, W. T.
2005; 5 (7): 603-621
- **Linear-Nonlinear-Poisson models of primate choice dynamics** *Journal of the Experimental Analysis of Behavior*
GS Corrado, LP Sugrue, WT Newsome
2005; 84: 581-617
- **Choosing the greater of two goods: neural currencies for valuation and decision making** *Nature Reviews Neuroscience*
LP Sugrue, GS Corrado, WT Newsome
2005; 6: 363-375
- **Direction-selective visual responses in macaque superior colliculus induced by behavioral training** *NEUROSCIENCE LETTERS*
Horwitz, G. D., Batista, A. P., Newsome, W. T.
2004; 366 (3): 315-319
- **Matching behavior and the representation of value in the parietal cortex** *SCIENCE*
Sugrue, L. P., Corrado, G. S., Newsome, W. T.
2004; 304 (5678): 1782-1787
- **Representation of an abstract perceptual decision in macaque superior colliculus** *JOURNAL OF NEUROPHYSIOLOGY*
Horwitz, G. D., Batista, A. P., Newsome, W. T.
2004; 91 (5): 2281-2296
- **What electrical microstimulation has revealed about the neural basis of cognition** *CURRENT OPINION IN NEUROBIOLOGY*
Cohen, M. R., Newsome, W. T.
2004; 14 (2): 169-177
- **Perceptual "Read-Out" of conjoined direction and disparity maps in extrastriate area MT** *PLOS BIOLOGY*
DeAngelis, G. C., Newsome, W. T.
2004; 2 (3): 394-404
- **Perceptual "read-out" of conjoined direction and disparity maps in extrastriate area MT** *PLOS Biology*
DeAngelis, G., WT Newsome
2004; 2: 394-404
- **Matching behavior and the encoding of value in parietal cortex** *Science*
Sugrue, L., GS Corrado, WT Newsome
2004; 304: 1782-1787
- **Functional organization of speed tuned neurons in visual area MT** *JOURNAL OF NEUROPHYSIOLOGY*
Liu, J., Newsome, W. T.
2003; 89 (1): 246-256
- **Middle temporal visual area microstimulation influences veridical judgments of motion direction** *JOURNAL OF NEUROSCIENCE*
Nichols, M. J., Newsome, W. T.
2002; 22 (21): 9530-9540

- **Target selection for saccadic eye movements: Direction-selective visual responses in the superior colliculus** *JOURNAL OF NEUROPHYSIOLOGY*
Horwitz, G. D., Newsome, W. T.
2001; 86 (5): 2527-2542
- **Target selection for saccadic eye movements: Prelude activity in the superior colliculus during a direction-discrimination task** *JOURNAL OF NEUROPHYSIOLOGY*
Horwitz, G. D., Newsome, W. T.
2001; 86 (5): 2543-2558
- **Neural basis of a perceptual decision in the parietal cortex (area LIP) of the rhesus monkey** *JOURNAL OF NEUROPHYSIOLOGY*
Shadlen, M. N., Newsome, W. T.
2001; 86 (4): 1916-1936
- **Correlated firing in macaque visual area MT: Time scales and relationship to behavior** *JOURNAL OF NEUROSCIENCE*
Bair, W., Zohary, E., Newsome, W. T.
2001; 21 (5): 1676-1697
- **A comparison of spiking statistics in motion sensing neurones of flies and monkeys** *Conference on Motion Vision*
Barberini, C. L., Horwitz, G. D., Newsome, W. T.
SPRINGER-VERLAG BERLIN.2001: 307-320
- **Somatosensation: Touching the mind's fingers** *CURRENT BIOLOGY*
Liu, J., Newsome, W. T.
2000; 10 (16): R598-R600
- **Visuo-motor control: Giving the brain a hand** *CURRENT BIOLOGY*
Batista, A. P., Newsome, W. T.
2000; 10 (4): R145-R148
- **The neurobiology of cognition** *NATURE*
Nichols, M. J., Newsome, W. T.
1999; 402 (6761): C35-C38
- **Color signals in human motion-selective cortex** *NEURON*
Wandell, B. A., Poirson, A. B., Newsome, W. T., Baseler, H. A., Boynton, G. M., Huk, A., Gandhi, S., Sharpes, L. T.
1999; 24 (4): 901-909
- **Color signals in area MT of the macaque monkey** *NEURON*
Seidemann, E., Poirson, A. B., Wandell, B. A., Newsome, W. T.
1999; 24 (4): 911-917
- **Motion opponency in visual cortex** *JOURNAL OF NEUROSCIENCE*
Heeger, D. J., Boynton, G. M., Demb, J. B., Seidemann, E., Newsome, W. T.
1999; 19 (16): 7162-7174
- **Sensory systems - Editorial overview** *CURRENT OPINION IN NEUROBIOLOGY*
Eatock, R. A., Newsome, W. T.
1999; 9 (4): 385-388
- **Separate signals for target selection and movement specification in the superior colliculus** *SCIENCE*
Horwitz, G. D., Newsome, W. T.
1999; 284 (5417): 1158-1161
- **Effect of spatial attention on the responses of area MT neurons** *JOURNAL OF NEUROPHYSIOLOGY*
Seidemann, E., Newsome, W. T.
1999; 81 (4): 1783-1794
- **Organization of disparity-selective neurons in macaque area MT** *JOURNAL OF NEUROSCIENCE*
DeAngelis, G. C., Newsome, W. T.
1999; 19 (4): 1398-1415

- **Nonhuman Primate Models of Visually Based Cognition.** *ILAR journal*
Newsome, W. T., Stein-Aviles, J. A.
1999; 39 (2): 78-91
- **Cortical area MT and the perception of stereoscopic depth** *NATURE*
DeAngelis, G. C., Cumming, B. G., Newsome, W. T.
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- **Tuning bandwidths for near-threshold stimuli in area MT** *JOURNAL OF NEUROPHYSIOLOGY*
Britten, K. H., Newsome, W. T.
1998; 80 (2): 762-770
- **Temporal gating of neural signals during performance of a visual discrimination task** *NATURE*
Seidemann, E., Zohary, E., Newsome, W. T.
1998; 394 (6688): 72-75
- **Neurophysiology: Sensing and categorizing** *CURRENT BIOLOGY*
Horwitz, G. D., Newsome, W. T.
1998; 8 (11): R376-R378
- **The variable discharge of cortical neurons: Implications for connectivity, computation, and information coding** *JOURNAL OF NEUROSCIENCE*
Shadlen, M. N., Newsome, W. T.
1998; 18 (10): 3870-3896
- **Sense and the single neuron: Probing the physiology of perception** *ANNUAL REVIEW OF NEUROSCIENCE*
PARKER, A. J., Newsome, W. T.
1998; 21: 227-277
- **The King Solomon Lectures in Neuroethology. Deciding about motion: linking perception to action.** *Journal of comparative physiology. A, Sensory, neural, and behavioral physiology*
Newsome, W. T.
1997; 181 (1): 5-12
- **Deciding about motion: Linking perception to action** *JOURNAL OF COMPARATIVE PHYSIOLOGY A-NEUROETHOLOGY SENSORY NEURAL AND BEHAVIORAL PHYSIOLOGY*
Newsome, W. T.
1997; 181 (1): 5-12
- **How is a sensory map read out? Effects of microstimulation in visual area MT on saccades and smooth pursuit eye movements** *JOURNAL OF NEUROSCIENCE*
Groh, J. M., Born, R. T., Newsome, W. T.
1997; 17 (11): 4312-4330
- **Visual response properties of striate cortical neurons projecting to area MT in macaque monkeys** *JOURNAL OF NEUROSCIENCE*
Movshon, J. A., Newsome, W. T.
1996; 16 (23): 7733-7741
- **Neurophysiology: Neural fingerprints of visual attention** *CURRENT BIOLOGY*
Groh, J. M., Seidemann, E., Newsome, W. T.
1996; 6 (11): 1406-1409
- **Visual attention: Spotlights, highlights and visual awareness** *CURRENT BIOLOGY*
Newsome, W. T.
1996; 6 (4): 357-360
- **A computational analysis of the relationship between neuronal and behavioral responses to visual motion** *JOURNAL OF NEUROSCIENCE*
Shadlen, M. N., Britten, K. H., Newsome, W. T., Movshon, J. A.
1996; 16 (4): 1486-1510
- **Motion perception: Seeing and deciding** *Colloquium on Vision - From Photon to Perception*

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- Shadlen, M. N., Newsome, W. T.
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- **A relationship between behavioral choice and the visual responses of neurons in macaque MT** *VISUAL NEUROSCIENCE*
Britten, K. H., Newsome, W. T., Shadlen, M. N., Celebrini, S., Movshon, J. A.
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 - **MICROSTIMULATION OF EXTRASTRIATE AREA MST INFLUENCES PERFORMANCE ON A DIRECTION DISCRIMINATION TASK** *JOURNAL OF NEUROPHYSIOLOGY*
Celebrini, S., Newsome, W. T.
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 - **On neural codes and perception** *J. Cogn. Neurosci.*
Newsome, W.
1995; 7: 95-100
 - **ON NEURAL CODES AND PERCEPTION** *JOURNAL OF COGNITIVE NEUROSCIENCE*
Newsome, W. T.
1995; 7 (1): 95-100
 - **Noise, neural codes and cortical organization.** *Current opinion in neurobiology*
Shadlen, M. N., Newsome, W. T.
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 - **CORRELATED NEURONAL DISCHARGE RATE AND ITS IMPLICATIONS FOR PSYCHOPHYSICAL PERFORMANCE** *NATURE*
Zohary, E., Shadlen, M. N., Newsome, W. T.
1994; 370 (6485): 140-143
 - **NEURONAL AND PSYCHOPHYSICAL SENSITIVITY TO MOTION SIGNALS IN EXTRASTRIATE AREA MST OF THE MACAQUE MONKEY** *JOURNAL OF NEUROSCIENCE*
Celebrini, S., Newsome, W. T.
1994; 14 (7): 4109-4124
 - **POWER SPECTRUM ANALYSIS OF BURSTING CELLS IN AREA MT IN THE BEHAVING MONKEY** *JOURNAL OF NEUROSCIENCE*
Bair, W., Koch, C., Newsome, W., Britten, K.
1994; 14 (5): 2870-2892
 - **NEURAL MECHANISMS FOR FORMING A PERCEPTUAL DECISION** *SCIENCE*
SALZMAN, C. D., Newsome, W. T.
1994; 264 (5156): 231-237
 - **NEURONAL PLASTICITY THAT UNDERLIES IMPROVEMENT IN PERCEPTUAL PERFORMANCE** *SCIENCE*
Zohary, E., Celebrini, S., Britten, K. H., Newsome, W. T.
1994; 263 (5151): 1289-1292
 - **RESPONSES OF NEURONS IN MACAQUE MT TO STOCHASTIC MOTION SIGNALS** *VISUAL NEUROSCIENCE*
Britten, K. H., Shadlen, M. N., Newsome, W. T., Movshon, J. A.
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 - **MICROSTIMULATION IN VISUAL AREA MT - EFFECTS OF VARYING PULSE AMPLITUDE AND FREQUENCY** *JOURNAL OF NEUROSCIENCE*
MURASUGI, C. M., SALZMAN, C. D., Newsome, W. T.
1993; 13 (4): 1719-1729
 - **THE NEURONAL BASIS OF MOTION PERCEPTION** *CIBA FOUNDATION SYMPOSIA*
Newsome, W. T., SALZMAN, C. D.
1993; 174: 217-246
 - **THE NEURONAL BASIS OF MOTION PERCEPTION** *SYMP ON EXPERIMENTAL AND THEORETICAL STUDIES OF CONSCIOUSNESS*
Newsome, W. T., SALZMAN, C. D.
JOHN WILEY & SONS LTD.1993: 217-246

- **MICROSTIMULATION OF VISUAL AREA MT - EFFECTS ON CHOICE BEHAVIOR IN THE ABSENCE OF MOVING VISUAL-STIMULI** *International Symposium on Brain Mechanisms of Perception and Memory: From Neuron to Behavior*
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