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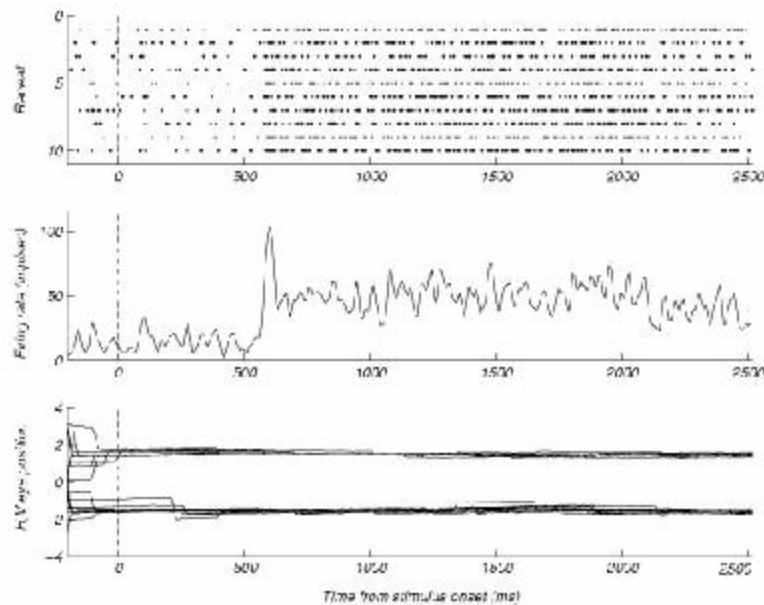
J. Anthony Movshon

Vision and visual development

I am interested in the way the brain encodes and decodes visual information, and in the mechanisms that put that information to use in the control of behavior. My research concerns the function and development of the primate visual system, especially the visual areas of the cerebral cortex. My laboratory supports work on neurophysiology, neuroanatomy, and psychophysics; the main experimental tool is electrophysiological recording from single neurons in anesthetized and alert monkeys. We stress analytical and quantitative approaches to the study of visual receptive fields. Conceptually, much of this research draws on related work in visual psychophysics, and on computational approaches to understanding brain organization and visual processing.



I received my doctorate from Cambridge University in 1975, where I studied visual neurophysiology and psychophysics. I joined the faculty at New York University that same year, and here I have remained, apart from a sabbatical year spent at Oxford University.



Presently, my laboratory's efforts are concentrated on two broad groups of studies. The first set is concerned with analysis of the functional properties of neurons in the extrastriate visual areas of the macaque monkey's cerebral cortex, with special emphasis on the roles of those areas in processing information about visual motion, form, and color. I am particularly interested in the relationships between visual signals in these areas, and the perceptual decisions and motor activity they support. The second set of projects

focuses on analysis of the functional development of the cortical visual system in monkeys, and the way that development is affected by forms of abnormal early visual experience that produce a visual system disorder known as *amblyopia*.

Much of my work seeks to uncover the links between brain and behavior by studying the relationship between neuronal activity in the visual system and its perceptual and motor consequences.

You can get my full cv [here](#).

You may also want to visit the [Visual Neuroscience Laboratory web page](#).

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Representative Publications (click [here](#) for a more complete list including downloadable PDF files)

- J. A. Movshon and W. T. Newsome (1996). Visual response properties of striate cortical neurons projecting to area MT in macaque monkeys. *Journal of Neuroscience* **16**: 7733-7741
- M. N. Shadlen, K. H. Britten, W. T. Newsome and J. A. Movshon (1996). A computational analysis of the relationship between neuronal and behavioral responses to visual motion. *Journal of Neuroscience* **16**: 1486-1510.
- M. Carandini, D. J. Heeger and J. A. Movshon (1997). Linearity and normalization in simple cells of the macaque primary visual cortex. *Journal of Neuroscience* **17**: 8621-8644.
- L. P. O'Keefe and J. A. Movshon (1998) Processing of first- and second-order motion signals by neurons in area MT of the macaque monkey. *Visual Neuroscience* **15**: 305-317.
- S. G. Lisberger and J. A. Movshon (1999). Visual motion analysis for pursuit eye movements in area MT of macaque monkeys. *Journal of Neuroscience* **19**: 2224-2246.
- M. N. Shadlen and J. A. Movshon (1999). Synchrony unbound: a critical evaluation of the temporal binding hypothesis. *Neuron* **24**: 67-77.
- J. B. Levitt, R. A. Schumer, P. D. Spear, S. M. Sherman and J. A. Movshon (2001). Visual response properties of neurons in the lateral geniculate nucleus of normally-reared and visually-deprived monkeys. *Journal of Neurophysiology* **85**: 2111-2129.
- W. Bair, J. R. Cavanaugh, M.A. Smith and J. A. Movshon (2002). The timing of response onset and offset in macaque visual neurons. *Journal of Neuroscience* **22**: 3189-3205.
- J. R. Cavanaugh, W. Bair and J. A. Movshon (2002). Nature and interaction of signals from the receptive field center and surround in macaque V1 neurons. *Journal of Neurophysiology* **88**: 2530-2546.
- S. P. McKee, D. M. Levi and J. A. Movshon (2003). The pattern of visual deficits in amblyopia. *Journal of Vision* **3**: 380-405.
- A. Kohn and J. A. Movshon (2003). Neuronal adaptation to visual motion in area MT of the macaque. *Neuron* **39**: 681-691.

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