

Stephen D. Van Hooser

Curriculum Vitae

Address through April 2010

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Research focus

Development and function of neural circuits

Neuroscience research skills

2-photon microscopy *in vivo*; single and multi-channel extracellular recording; whole-cell and sharp intracellular recording *in vivo*; intrinsic signal imaging; immunohistochemistry; realistic neuronal modeling; computer programming in many languages like Matlab, C, Java.

Positions and Education

Brandeis University, Assistant Professor of Biology	'10-
Duke University Medical Center, Postdoctoral Fellow	'05-'10
Brandeis University, Ph.D., Neuroscience	'99-'05
California Institute of Technology, B.S., Engineering & Applied Science	'94-'98

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Research experience

Postdoctoral Fellow, Duke University Medical Center '05-'10
Development of motion selectivity in ferret visual cortex; color processing and convergence of functional pathways in tree shrew visual cortex. Advisor: David Fitzpatrick

Doctoral Student, Brandeis University '99-'05
Functional organization of lateral geniculate nucleus and primary visual cortex of the gray squirrel. Advisor: Sacha B. Nelson

Research Assistant, Emory University '98-'99
Development of multi-compartmental, anatomically realistic, conductance-based models of leech heart interneurons. Advisor: Ronald L. Calabrese

Summer Research Fellowships, Caltech '97, '98
Testing of multichannel silicon electrodes in rat cortex. Advisor: James M. Bower

Summer Research Fellowship, University of Michigan '96
Programming software to examine statistics of multiple, simultaneously recorded neurons. Advisor: David J. Anderson

Awards and fellowships

2x National Research Service Award, National Institutes of Health '03-'05, '07-'10
Translational and Fundamental Neuroscience Fellowship, Duke '05-'06
IGERT Graduate Research Trainee, National Science Foundation '99-'02
Summer Undergraduate Research Fellowship, Caltech '97

Teaching assistant experience

Computational Neuroscience, Brandeis, taught by Larry Abbott '02
Introduction to Neuroscience, Brandeis, taught by John Lisman '00
Collective Computation, Caltech, taught by Christof Koch, Demitri Psaltis '98

Professional activities

Reviewing Editor, Frontiers in Neuroscience '08-
Member, Society for Neuroscience '99-

Publications

Research articles — * indicates shared lead authorship

1. *Li Y, *Van Hooser SD, Mazurek M, White LE, Fitzpatrick D. Experience with moving visual stimuli drives the early development of cortical direction selectivity. *Nature* 2008 456(7224):952-6.
2. Van Hooser SD, Heimel JA, Chung S, Nelson SB. Lack of patchy horizontal connectivity in V1 of a mammal without orientation maps. *J Neurosci.* 2006 26:7680-92.
3. Tobin AE, Van Hooser SD, Calabrese RL. Creation and reduction of a morphologically detailed model of a leech heart interneuron. *J Neurophysiol.* 2006 96:2107-20.
4. Heimel JA, Van Hooser SD, Nelson SB. Laminar organization of response properties in primary visual cortex of the gray squirrel (*Sciurus carolinensis*). *J Neurophysiol.* 2005 94:3538-54.
5. *Van Hooser SD, *Heimel JA, Chung S, Nelson SB, Toth LJ. Orientation selectivity without orientation maps in visual cortex of a highly visual mammal. *J Neurosci.* 2005 25:19-28.
6. Van Hooser SD, Heimel JA, Nelson SB. Receptive field properties and laminar organization of lateral geniculate nucleus in the gray squirrel (*Sciurus carolinensis*). *J Neurophysiol.* 2003 90:3398-418.

Reviews and book chapters

1. Van Hooser SD. Similarity and Diversity in Visual Cortex: Is There a Unifying Theory of Cortical Computation? *The Neuroscientist* 2007 13:639-656.
2. Van Hooser SD, Nelson SB. The squirrel as a rodent model of the human visual system. *Visual Neuroscience* 2006 23:765-78.
3. Van Hooser SD, Heimel JA, Nelson SB. Functional cell classes and functional architecture in the early visual system of a highly visual rodent. *Prog Brain Res* 2005 149:127-45.
4. Van Hooser SD, Nelson SB "Visual System" in *Encyclopedia of Life Sciences*, Macmillan Ref. Ltd., 2005.
5. Calabrese RL, Hill AAV, Van Hooser SD "Realistic modeling of small neuronal circuits" in *Computational Neuroscience: Realistic Modeling for Experimentalists*, CRC-Press, 2001.