

# Valentin Dragoi, Ph.D.

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## CURRENT POSITION

2003-present            Assistant Professor, Department of Neurobiology and Anatomy, University of Texas Medical School at Houston

## EDUCATION

1997 -2003            Postdoctoral Fellow, Massachusetts Institute of Technology, Dept. of Brain and Cognitive Sciences and Picower Center for Learning and Memory, Cambridge, MA

1992 -1997            Ph.D., Duke University, Department of Experimental Psychology, Durham, NC

1989 - 1992            Research Fellow, Institute for Computer Science, Romanian Academy, Iasi, Romania

1989                    B.S., Technical University, Dept. of Computer Science, Iasi, Romania

## HONORS AND AWARDS

2005                    James S. McDonnell Award

2004                    Pew Scholar Award

2000-2003            McDonnell-Pew Fellowship in Cognitive Neuroscience

2000-2001            Merck Fellowship

2000-2002            Medical Foundation Fellowship (declined)

1999                    American Psychological Association Award for Outstanding Paper in the Fields of Behavioral Neuroscience and Comparative Psychology

1997                    Center for Biological and Computational Learning Fellowship, Dept. of Brain and Cognitive Sciences, MIT

1997                    American Psychological Association Dissertation Research Award

1997                    ARVO Retina Research Foundation Fellowship

1996                    Marine Biological Laboratory Fellowship, Methods in Computational Neuroscience, Woods Hole, MA

1995                    National Academy of Sciences, Sigma Xi, The Scientific Research Society

1993 Connectionist Models Summer School Fellowship, Institute of Cognitive Sciences,  
University of Colorado at Boulder  
1993 Edna Bissette Award, Duke University  
1992 International Research Exchange (IREX) Fellowship  
1986 2<sup>nd</sup> Prize, National Physics Olympiad (Bucharest)

## **INVITED SPEAKER**

2006 University of Houston, College of Optometry  
2006 Vision Sciences Meeting, University of Houston  
2005 Mini-Symposium on Cortical Adaptation, SFN 2005, Washington DC  
2005 Pew Scholars Annual Meeting, Cozumel, Mexico  
2005 Baylor University, Department of Psychology and Neuroscience  
2004 University of Texas-Houston Medical School, Department of Ophthalmology  
2004 Rice University, Department of Biomedical Engineering  
2003 Columbia University, Center for Neurobiology and Behavior  
2003 Rice University, Department of Physics  
2003 Rice University, Department of Psychology  
2002 Princeton University, Department of Psychology  
2002 New York University, Courant Institute of Mathematical Sciences  
2002 Harvard University, Center for Systems Neuroscience  
2002 Lausanne Polytechnic Institute, Brain & Mind Institute  
2002 Oxford University, Physiology Laboratory  
2002 Johns Hopkins University, Department of Biomedical Engineering  
2002 University of California, San Francisco, Department of Physiology  
2002 Stanford University, Department of Neurobiology  
2002 University of Cambridge, Department of Anatomy  
2002 University of Texas, Houston, Department of Neurobiology and Anatomy  
2002 University of Texas, Austin, Center for Perceptual Systems  
2002 Boston University, Department of Biomedical Engineering  
2001 Cold Spring Harbor Laboratory, Cortical Maps Meeting  
2001 MIT Perceptual Science Seminar  
2001 Cold Spring Harbor Laboratory  
2001 University of California, San Diego, Division of Biology  
2001 Vanderbilt University, Department of Psychology  
2000-2002 MIT Center for Learning and Memory Annual Retreat  
2000 University of Maryland School of Medicine, Dept. of Anatomy & Neurobiology  
2000 Yale University, Department of Psychology  
2000 Boston University, Department of Cognitive & Neural Systems  
1999 MIT Plastic Lunch Series  
1998-1999 MIT Center for Biological and Computational Learning Workshop  
1998 10<sup>th</sup> Yale Workshop on Adaptive and Learning Systems  
1998 Society for Quantitative Analysis of Behavior (SQAB), Orlando

## PUBLICATIONS

- Chelaru M. I. and V. Dragoi (2006). Asymmetric synaptic depression in cortical networks. (submitted).
- Iliescu BF, Hansen B, and V. Dragoi (2006). Learning by exposure in the visual system. *Neuron* (revised manuscript).
- Dragoi V. and M. Sur (2006). Image structure at the center of gaze during free viewing. *Journal of Cognitive Neuroscience* (in press).
- Jin, D., Dragoi, V., Sur, M., and S. Seung (2005). The tilt aftereffect and adaptation-induced changes in orientation tuning in visual cortex. *Journal of Neurophysiology*, 94, 4038-4050.
- Sharma, J., Dragoi, V., Tenenbaum, J., Miller, E. K., and Sur M (2003). V1 neurons signal acquisition of an internal representation of stimulus location. *Science*, 300, 1758-1763.
- Dragoi, V., Sharma, J., and M. Sur (2003). Response plasticity in primary visual cortex and its role in vision and visuomotor behaviour: Bottom-up and top-down influences. *IETE Journal of Research*, 49, 1-9.
- Dragoi, V., Staddon, JER, Palmer, R., and Buhusi, C (2003). Interval timing as an emergent learning property. *Psychological Review*, 110, 126-144.
- Dragoi, V., Sharma, J., Miller, E. K., and Sur M (2002). Dynamics of neuronal sensitivity in visual cortex and local feature discrimination. *Nature Neuroscience*, 5, 883-891.
- Dragoi, V. (2002). A feedforward model of suppressive and facilitatory habituation effects. *Biological Cybernetics*, 86, 419-426.
- Sur, M., Schummers, J., and V. Dragoi (2002). Cortical plasticity: Time for a change. *Current Biology*, 12, 168-170
- Dragoi, V., Turcu, C. M. and M. Sur (2001). Stability of cortical responses and the statistics of natural scenes. *Neuron*, 32, 1181-1192.
- Dragoi, V., Rivadulla, C. and M. Sur (2001). Foci of orientation plasticity in visual cortex. *Nature*, 411: 80-86.
- Dragoi, V., Sharma, J. and M. Sur (2000) Adaptation-induced plasticity of orientation tuning in adult visual cortex. *Neuron*, 28, 287-298.
- Dragoi, V. and M. Sur (2000). Dynamic properties of recurrent inhibition in primary visual cortex: Contrast and orientation dependence of contextual effects. *Journal of Neurophysiology*, 83, 1019-1030.
- Dragoi, V. and J.E.R. Staddon. (1999). The dynamics of operant conditioning. *Psychological Review*, 106, 20-61.
- Dragoi, V. and G. Lockhead (1999). Context-dependent changes in visual sensitivity induced by Muller-Lyer stimuli. *Vision Research*, 39, 1657 – 1670.

Dragoi, V. and I. Grosu. (1998). Synchronization of locally coupled neural oscillators. *Neural Processing Letters*, 7: 199-210.

Dragoi, V. (1997). A dynamic theory of acquisition and extinction in operant learning. *Neural Networks*, 10: 201-229.

Dragoi, V. (1997). A review of origins: Brain and self organization. *Behavior and Philosophy*, 25, 81-82.

## **BOOK CHAPTERS AND PROCEEDINGS**

Dragoi, V. and M. Sur (2003). Orientation plasticity in visual cortex and its significance for vision. In L. Chalupa and J. S. Werner, *The Visual Neurosciences*, MIT Press, Cambridge.

Dragoi, V., Rivadulla, C., and M. Sur (2002). Contributions of ascending thalamic and local intracortical connections to visual cortical function. In S. G. Lomber & R. A. Galuske, *Virtual lesion: Selective blockade and deactivation studies*, Academic Press, San Diego.

Somers, D. C., Dragoi, V. and M. Sur (2001) Orientation selectivity and its modulation by local and long-range connections in visual cortex. In A. Peters & B. Payne, *Cerebral Cortex: The cat primary visual cortex*, Academic Press, San Diego.

Dragoi, V., and J.E.R. Staddon (1998). The time scales of conditioning. *Proceedings of the 10<sup>th</sup> Yale Workshop on Adaptive and Learning Systems*, 242-249.

Dragoi, V. (1997). A model of contextual interactions in primary visual cortex: Examining the influence of corticogeniculate feedback. In: *Computational Neuroscience: Trends in Research*. (Bower JM, ed.) Plenum Press, 617-622, 1997.

Dragoi, V. (1995). Neural dynamics of form perception: Geometrical illusions and after effects. *Proceedings of World Congress on Neural Networks*, 3: 275-278.

Dragoi, V. and J. E. R. Staddon (1993). A competitive neural network model for the process of recurrent choice. In M.C. Mozer, P. Smolensky, D.S. Touretzky, J.L. Elman, & A.S. Weigend (Eds.), *Proceedings of the 1993 Connectionist Models Summer School* (pp. 65-73). Hillsdale, NJ: Erlbaum Associates.

Dragoi, V. (1992). Structural organization of Boolean cellular automata. In D. Ruck (Ed.), *Science of Artificial Neural Networks*. Proceedings of the SPIE, 1710, 123-132.

Dragoi, V. and C. Buhusi (1991). A new learning algorithm based on neural relocation. In T. Yamakawa, H. Teodorescu, M. Rascanu (Eds.), *Proceedings of the 6<sup>th</sup> International Conference on Fuzzy Systems and Artificial Intelligence IFSAI 1991*, 183-189. Iasi University Publ. House, Romania.

Dragoi, V. (1991). Contextual organization of cellular automata. In T. Yamakawa, H. Teodorescu, M. Rascanu (Eds.) *Proceedings of the 6<sup>th</sup> International Conference on Fuzzy Systems and Artificial Intelligence IFSAI 1991*, 173-182. Iasi University Publ. House, Romania.

## **ABSTRACTS**

Gutnisky, DA and V. Dragoi (2005). Spontaneous activity and orientation coding in primary visual cortex: Is there any signal in the noise? *Soc. Neurosci. Abstr.*, 30.

Chelaru, MI and V. Dragoi (2005). Asymmetric synaptic depression and dynamic gain modulation in cortical networks, *Soc. Neurosci. Abstr.*, 30.

Iliescu, BF and V. Dragoi (2005). Dynamic coding of image features in primary visual cortex, *Soc. Neurosci. Abstr.*, 30.

Dragoi, V. and M. Sur (2003). Orientation discrimination in visual cortex and the statistics of natural stimuli, *Soc. Neurosci. Abstr.*, 29.

Dragoi, V., Miller, E. K. M., and Sur M. (2002). Effect of reward expectation on response selectivity in monkey V1, *Soc. Neurosci. Abstr.*, 28.

Sharma, J., Dragoi, V. and Sur M. (2002). Modulation of V1 responses by an internal model of stimulus location, *Soc. Neurosci. Abstr.*, 28.

Dragoi, V., Sharma, J., Miller, E. K. M., and Sur M. (2002). Dynamics of neuronal sensitivity in primate V1 underlying local feature discrimination, *Vision Sciences Society*, 3.

Dragoi, V., and Sur M. (2001). Inhomogeneities in the structure of V1 orientation maps and their consequences for cortical function, *Soc. Neurosci. Abstr.*, 27.

Sharma, J., Dragoi, V., and Sur M. (2001). Temporal influences of receptive field surround on center responses in awake-monkey V1, *Soc. Neurosci. Abstr.*, 27.

Dragoi, V., Miller, E. K. M., and Sur M. (2000). Reward-induced changes in orientation tuning in monkey primary visual cortex, *Soc. Neurosci. Abstr.*, 26, 12136.

Sharma, J., Dragoi, V., and Sur M. (2000). Dynamics of center-surround interactions in alert macaque V1. *Soc. Neurosci. Abstr.*, 26, 7587.

Dragoi, V., Turcu C.M., Sur M. (2000). Differences between cardinal and oblique orientations in plasticity of orientation tuning. *Invest Ophth Vis Sci*, 41, S52.

Dragoi, V. Sharma, J., Miller, E. K. M., and Sur M. (1999). Dynamics of orientation adaptation in awake monkey primary visual cortex revealed by reverse correlation, *Soc. Neurosci. Abstr.*, 25, 1548.

Sharma, J., Dragoi, V., Miller, E. K. M., and Sur M. (1999). Modulation of orientation specific responses in monkey V1 by changes in eye position. *Soc. Neurosci. Abstr.*, 25, 677.

Dragoi, V., Sharma, J., and Sur M. (1998). Orientation-specific adaptation effects in cat primary visual cortex, *Soc. Neurosci. Abstr.*, 24, 767

Dragoi, V., Somers D. C. (1997). Short and long-term plastic effects induced by multiple time scales of events at the cellular and synaptic level in a model of spiking neurons in primary visual cortex, *Invest Ophth Vis Sci*, 38, 1791.

Lockhead, G., Dragoi V., Wolbarsht, M. L. (1997). The microgenesis of geometrical illusions: Context-dependent changes in visual sensitivity and the Muller-Lyer effect. *Invest Ophth Vis Sci*, 38, 3012.

Dragoi, V. Ericksson R. P. (1996). The role of corticogeniculate feedback in mediating contextual effects in primary visual cortex and in psychophysics. *Soc. Neurosci. Abstr.*, 22, 1609.

Dragoi, V., Wolbarsht M. L. (1995). Context-dependent form perception in visual cortex. *Invest Ophth Vis Sci*, 36, S473.