

## CURRICULUM VITAE

*November, 2007*

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### Thomas Aaron Carlson

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Harvard University	Phone: 857-234-2832
Vision Sciences Laboratory	Fax: 617-495-3764
33 Kirkland St, 7 <sup>th</sup> Floor	email: tom@wjh.harvard.edu
Cambridge, MA 02138	web: www.wjh.harvard.edu/~tom/index.htm

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### **Education**

2004	Ph.D. Psychology University of Minnesota Dissertation advisors: Dr. Sheng He & Dr. Paul Schrater
1998	B.S. Psychology & Business Management, University of Minnesota Thesis advisor: Dr. Chad J. Marsolek

### **Academic Appointments**

2007-present	Research Associate Vision Science Lab, Harvard University, Cambridge, MA USA/ Helmholtz Research Institute, University Utrecht, The Netherlands
2004-2007	Postdoctoral Fellow Vision Science Lab, Harvard University, Cambridge, MA USA/ Helmholtz Research Institute, University Utrecht, The Netherlands

### **Academic Awards and Honors**

2000-2003	NIMH Center for Cognitive Sciences Graduate Student Research Fellowship
2003	University of Minnesota Graduate Research Proposal Program Award "Action in the absence of visual awareness"
2003	Center for Cognitive Sciences J. J. Jenkins Award
2003	Center for Cognitive Sciences Turtle Award
2001	Graduate Student Presentation award at Cognitive Neuroscience Society meeting, New York, NY
1999-2001	University of Minnesota Cognitive Neuroscience Brain Imaging Program Research Assistantship

## **Research Interests**

Object Perception, Neural basis of Object Recognition, Visual Attention, fMRI Research Methodologies

## **Publications**

### ***Refereed Journal Articles***

Carlson, T. A., Alvarez, G. A., & Cavanagh, P. (2007). Quadrantic deficit reveals anatomical constraints on selection. *Proceedings of the National Academy of Sciences USA*, 104(33), 13496-13500.

Carlson, T. A., Rauschenberger, R., & Verstraten, F. A. (2007). No representation without awareness in the lateral occipital cortex. *Psychological Science*, 18(4), 298-302.

Hogendoorn, H., Carlson, T. A., & Verstraten, F. A. (in press). The time-course of attentive tracking. *Journal of Vision*.

VanRullen, R., Carlson, T. A. & Cavanagh, P. (2007). The blinking spotlight of attention. *Proceedings of the National Academy of Sciences USA*, 104(49), 19204-19209.

Carlson, T. A., Grol, M. J., & Verstraten, F. A. (2006). Dynamics of visual recognition revealed by fmri. *Neuroimage*, 32(2), 892-905.

Carlson, T. A., Hogendoorn, H., & Verstraten, F. A. (2006). The speed of visual attention: What time is it? *Journal of Vision*, 6(12), 1406-1411.

Carlson, T. A., Schrater, P., & He, S. (2006). Floating square illusion: Perceptual uncoupling of static and dynamic objects in motion. *Journal of Vision*, 6(2), 132-144.

Kim, M., Ducros, M., Carlson, T. A., Ronen, I., He, S., Ugurbil, K., et al. (2006). Anatomical correlates of the functional organization in the human occipitotemporal cortex. *Magnetic Resonance Imaging*, 24(5), 583-590.

Carlson, T. A., & He, S. (2004). Competing global representations fail to initiate binocular rivalry. *Neuron*, 43(6), 907-914.

Carlson, T. A., Schrater, P., & He, S. (2003). Patterns of activity in the categorical representations of objects. *Journal of Cognitive Neuroscience*, 15(5), 704-717.

Carlson, T. A., & He, S. (2000). Visible binocular beats from invisible monocular stimuli during binocular rivalry. *Current Biology*, 10(17), 1055-1058.

### ***Additional Articles currently submitted or in preparation***

Battelli, L., Alvarez, G., Carlson, T., & Pascual-Leone, A. (submitted). The role of MT and the parietal lobe in visual tracking studied with transcranial magnetic stimulation.

Carlson, T. A., Hogendoorn, J.H.A., Fonteijn, H. & Verstraten, F. A. J. (submitted) Position coding in object selective cortex.

Carlson, T. A., VanRullen, R., Hogendoorn, J.H.A., Cavanagh, P. & Verstraten, F. A. J. (in preparation) Multifocal Attention? Time will tell.

Hogendoorn, J.H.A., Carlson, T. A., & Verstraten, F. A. J. (submitted) Predictive and postdictive interactions on the path of apparent motion.

Naber, M., Carlson, T. A., & Verstraten, F. A. J. (submitted) Perceptual benefits for bound object representations.

### ***Book Chapters***

He, S., Carlson, T. A., & Chen, X. (2004). Parallel pathways and temporal dynamics in binocular rivalry. In D. Alais & R. Blake (Eds.), *Binocular rivalry and perceptual ambiguity*. Boston, MA: MIT Press.

### ***Conference Presentations***

Carlson, T. A., Hogendoorn, J.H.A., Fonteijn, H. & Verstraten, F. A. J. (2007) Categorical selectivity and position invariance in FFA. *European Conference on Visual Perception*.

Hogendoorn, J.H.A., Carlson, T. A., & Verstraten, F. A. J. (2007) Predictive and postdictive visual interactions on the path of apparent motion. *European Conference on Visual Perception*.

VanRullen, R., Carlson, T. A., Cavanagh, P. (2007) The blinking spotlight of attention. *European Conference on Visual Perception*.

Verstraten, F. A. J., Paffen, C., Carlson, T. A., van der Smagt, M., Hogendoorn, J.H.A. (2007) Revealing recovery from adaptation below perceptual thresholds. *European Conference on Visual Perception*.

Carlson, T. A., VanRullen, R., Hogendoorn, J.H.A., Cavanagh, P. & Verstraten, F. A. J. (2007) Multifocal Attention? Time will tell. *Vision Science Society*.

Battelli, L., Alvarez, G., Carlson, T., & Pascual-Leone, A. (2006). The role of MT and the parietal lobe in visual tracking studied with transcranial magnetic stimulation. *Vision Science Society*.

Carlson, T., & Alvarez, G. (2006). Suboptimal allocation of visual short term memory resources. *Vision Science Society*.

Carlson, T. A., Rauschenberger, R., & Verstraten, F. A. J. (2005) Cortical adaptation of unconscious perceptual representations. *European Conference on Visual Perception*

Carlson, T. A., Kim, M., Grol, M., Kim, D.-S., & Verstraten, F. (2005). Timecourse and anatomy of recognizing a familiar face. *Vision Science Society*

Carlson, T. A., Schrater, P., & He, S. (2003). Second order motion is not second-class: A new illusion in Motion Perception. *Vision Science Society*

Carlson, T. A., & He, S. (2003). Questions as to the nature, and the possibly the existence of motion induced binocular rivalry. *Cognitive Neuroscience Society*

M. Kim, T. Carlson, M. Ducros, K. Ugurbil, S. He, D.S. Kim. (2003) *In Vivo* Visualization of axonal connectivity in high-order human occipital-temporal cortex. *Society for Neuroscience*

Cheung, S.-H., He, S., Carlson, T. A., Legge, G. E., & Hu, X. (2003). Estimating retinal fixation location using fMRI. *Vision Science Society*

Carlson, T. A., Schrater, P., & He, S. (2002). Class specific representations of objects, faces, and places in the human brain. *Vision Science Society*

Carlson, T. A., Schrater, P., & He, S. (2002). The Virtual Prosopagnosic: Bridging the gap between Neuroimaging and Neuropsychology. *Cognitive Neuroscience Society*

Carlson, T., Schrater, P., & He, S. (2001). Functional imaging of visually expanding motion stimuli: Toward a functional anatomy of visual motion processing. *Vision Science Society*

Carlson, T. A., He, S., & Verstraten, F.A.J. (2003). Eureka! A functional imaging study of visual problem solving. *Cognitive Neuroscience Society*

He, S., Costello, P., Carlson, T., Zhuang, J., Chen, Y., & Hu, X. (2001). What exactly does attention modulate in visual cortex? *Vision Science Society*

### **Invited Talks**

- 2007            Multivoxel analysis of fMRI data: An expedition into activity space.  
*Centre National de la Recherche Scientifique (CNRS), Toulouse, France.*
- 2006            Neural correlates of object recognition.  
*Harvard University, Cambridge, MA.*
- 2005            Time course and anatomy of recognizing a familiar face.  
*New England College of Optometry, Boston, MA.*
- 2004            Neural response functions in face recognition,  
*Boston University, Boston, MA.*
- 2004            Predictive mapping of object representations in inferior-temporal cortex.  
*Vision Science Lab, Harvard University, Cambridge, MA.*
- 2001            Eureka! A functional imaging study of visual problem solving.  
*Graduate Student Presentation Award at Cognitive Neuroscience Society Meeting, New York, NY.*
- 2001            Intersection of constraints in visual problem solving. *Advanced Telecommunications Research Institute, Kyoto, Japan.*

### **Teaching Experience**

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| 2007 | Teaching Fellow | Multivariate Statistics<br><i>Harvard University</i> |
| 2005 | Instructor      | Neurobiology of visual attention                     |

		<i>Netherlands Organisation for Scientific Research (NWO) Cognition Summer School</i>
2000-2003	Teaching Assistant	Sensation and Perception <i>University of Minnesota</i>
1999-2002	Teaching Assistant	Cognitive Neuropsychology <i>University of Minnesota</i>

### **Professional Service**

2003-2004	Member, Center for Magnetic Resonance Imaging Research (CMRR) and Department of Psychology cognitive neuroscience faculty search committee, University of Minnesota
2002-2003	Member, Center for Cognitive Sciences director search committee, University of Minnesota
2002-2003	Student Representative, Center for Cognitive Sciences Governing Council, University of Minnesota
2002-2003	Chair, Facilities Committee, Center for Cognitive Sciences, University of Minnesota
2002-2003	Member, Center for Cognitive Sciences Steering Committee, University of Minnesota
2002	Member, Organizing committee for Symposium on Natural Image Processing, University of Minnesota
2001-2002	Chair, Retreat Committee, Center for Cognitive Sciences, University of Minnesota

### **Academic References**

Patrick Cavanagh, Professor	Harvard University	patrick@wjh.harvard.edu
Sheng He, Associate Professor	University of Minnesota	sheng@umn.edu
Ken Nakayama, Professor	Harvard University	ken@wjh.harvard.edu
Frans Verstraten, Professor	University of Utrecht	f.a.j.verstraten@uu.nl