CURRICULUM VITAE
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Thomas Aaron Carlson

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Education

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

Academic Appointments

2016-present	Associate Professor School of Psychology University of Sydney, Sydney, Australia
2013-2016	Senior Lecturer Department of Cognitive Sciences Macquarie University, Sydney, Australia
2008-2013	Assistant Professor Department of Psychology University of Maryland, College Park
2004-2008	Postdoctoral Fellow Vision Science Lab, Harvard University, Cambridge, MA USA/ Helmholtz Research Institute, University Utrecht, The Netherlands

Research Interests

Object recognition, Visual Attention, fMRI and MEG decoding methods.

Publications

Journal Articles

1. Wardle, S., Kriegeskorte, N., Grootswagers, T., Khaligh-Razavi, S. **Carlson, T.A.** Perceptual similarity of visual patterns predicts dynamic neural activation patterns measured with MEG. *Neuroimage* (in press).
2. Goddard, E., **Carlson, T.A.,** Dermody, N., Woolgar, A. Representational dynamics of object recognition: feedforward and feedback information flows. *Neuroimage* (in press).

3. **Carlson, T.A.,** Wardle, S.G. (2015) Sensible Decoding. *Neuroimage* Apr 15;110:217-8.
4. Wardle, S.G., & **Carlson, T.A.** (2015). Zen mountains: An illusion of perceptual transparency. *i-Perception*, 6(2), 108-110. [BBC Press coverage "The mountain illusion: What's wrong with this picture"]
5. Ritchie, J.B., Tovar, D.A., & **Carlson, T.A**. (2015). Emerging object representations in the visual system predict reaction times for categorization. *PLoS Computational Biology*, 11(6), e1004316.
6. Redcay, E., **Carlson, T.A**. (2015). Rapid neural discrimination of communicative gestures. *Social Cognitive, Affective Neuroscience.* Apr;10(4):545-51.
7. **Carlson, T.A.** (2014). Orientation Decoding in Human Visual Cortex: New Insights from an Unbiased Perspective. *The Journal of Neuroscience 34 (24), 8373-8383*.
8. **Carlson, T.A.,** Ritchie, J.B., Kriegeskorte, N, Durvasula, S., & Ma, J., (2014). Reaction Time for Object Categorization is Predicted by Representational Distance. *Journal of Cognitive Neuroscience*. 26(1):132-42.
9. **Carlson, T.A.,** Simmons, R.A., Kriegeskorte, N., & Slevc, L.R. (2014). The emergence of semantic meaning in the ventral temporal pathway. *Journal of Cognitive Neuroscience*. 26(1):132-42.
10. Chakravarthi, R., **Carlson, T.A.,** Chaffin, J., Turret, J., VanRullen, R. (2014). The Temporal Evolution of Coarse Location Coding of Objects: Evidence for Feedback. *Journal of Cognitive Neuroscience*. Oct;26(10):2370-84.
11. Plow, E.B., Cattaneo, Z., **Carlson, T.A.,** Alvarez, G.A., Pascual-Leone, A., Battelli, L. (2014). The compensatory dynamic of inter-hemispheric interactions in visuospatial attention revealed using rTMS and fMRI. *Frontiers in human neuroscience*. 8.
12. **Carlson, T.A.,** Tovar, D., Alink, A., & Kriegeskorte, N (2013). Representational dynamics of object vision: the first 1000 ms. Journal of Vision.
13. Ritchie, J.B., **Carlson, T.A.** (2013). Dynamic touch and tool integration. *Psychological Science.* 12 (6), 1066-1068.
14. **Carlson, T.A.,** Hogendoorn, H., Kanai, R., & Turret, J. (2011). High temporal resolution decoding of object position and category. Journal of Vision. 11 (10), 9.
15. **Carlson, T. A.,** Hogendoorn, H., Fonteijn, H., Verstraten, F.A.J. (2011). Spatial coding and invariance in object-selective cortex. Cortex. 47(1), 14-22.
16. Dakin, S.C., Greenwood, J.A., **Carlson, T.A.,** & Bex, P.J. (2011). Crowding is tuned for perceived (not physical) location. Journal of Vision. 11 (9), 2.
17. Hogendoorn, J.H.A., **Carlson, T. A.** & Verstraten, F. A. J. (2011). Mapping the route to visual awareness. Journal of Vision. 11 (13), 4.
18. Naber, M., **Carlson, T.A.,** Verstraten, F.A.J., & Einhäuser M. (2011). Perceptual benefits of objecthood. Journal of Vision. 11 (4), 8.
19. **Carlson, T. A.,** Alvarez, G., Wu, D., & Verstraten, F. A. J. (2010) Rapid assimilation of external objects into the body schema. Psychological Science, 21(7), 1000-1005.
20. Hogendoorn, J.H.A., **Carlson, T. A.,** VanRullen, R., & Verstraten, F. A. J. (2010) Timing Divided Attention. Attention, Perception, & Psychophysics, 72, 2059-2068.
21. Richie, J. B., & **Carlson, T. A.** (2010). Mirror, mirror, on the wall, is that even my hand at all? Changes in the afterimage of one's reflection in a mirror in response to bodily movement. Neuropsychologia, 48, pp. 1495-1500.

22. Kanai, R., **Carlson, T. A.,** Verstraten, F. A. J., & Walsh, V. (2009). Perceived timing of new objects and feature changes. *Journal of Vision*, 9 (7), 1-13.
23. Hogendoorn, H., Kammers, M. P., **Carlson, T. A.,** Verstraten, F. A. J. (2009). Being in the dark about your hand: resolution of visuo-proprioceptive conflict by disowning visible limbs. *Neuropsychologia*, 47, 2698-2703.
24. Battelli, L., Alvarez, G., **Carlson, T.,** & Pascual-Leone, A. (2009). The role of MT and the parietal lobe in visual tracking studied with transcranial magnetic stimulation. *Journal of Cognitive Neuroscience,* 21 (10), 1946-1955.
25. Hogendoorn, H., **Carlson, T. A.,** & Verstraten, F. A. (2008). Interpolation and extrapolation on the path of apparent motion. *Vision Research*, 48(7), 872-881.
26. **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.
27. **Carlson, T. A.,** Rauschenberger, R., & Verstraten, F. A. (2007). No representation without awareness in the lateral occipital cortex. *Psychological Science, 18*(4), 298-302.
28. 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.*
29. **Carlson, T. A.,** Grol, M. J., & Verstraten, F. A. (2006). Dynamics of visual recognition revealed by fMRI. *Neuroimage, 32*(2), 892-905.
30. **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.
31. **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.
32. 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.
33. **Carlson, T. A.,** & He, S. (2004). Competing global representations fail to initiate binocular rivalry. *Neuron, 43*(6), 907-914.
34. **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.
35. **Carlson, T. A.,** & He, S. (2000). Visible binocular beats from invisible monocular stimuli during binocular rivalry. *Current Biology, 10*(17), 1055-1058.

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.

Grants, Fellowships and Awards

- *Australian Research Council (ARC) Discovery Project (*2016-2019*)* " Predicting Behaviour from Brain Representations." Carlson, T. ($535,000)

- *Australian Research Council (ARC) Future Fellowship (*2013-2017*)* "Decoding the neural representation of the objects." Carlson, T. ($704,000)
- *Macquarie University New Staff Grant (*2013-2015*)* "Decoding the neural representation of the objects." Carlson, T. ($100,000)
- *Macquarie University Strategic Infrastructure Scheme Grant (*2013*)* "Magnetic resonance-compatible integrated audio-visual stimulus delivery system." Seymour, K., Woolgar, A., Rich, A.N., Williams, M.A., McMahon, C., Demuth, K., Magnussen, J., Carlson, T., Curby, K., & Zopf, R. ($40,621)
- *Macquarie University Faculty of Human Sciences Research Centre Scheme* (2014 - 2017) "Perception in Action Research Centre (PARC)" Rich, A., Finkbeiner, M., Williams, M., Carlson, T., Sowman, P., Brooks, K., Coltheart, V., Curby, K., & Stevenson, R.J. ($30,000)
- *National Science Foundation (NSF) Center Grant (*2011-2013*)* "A Center for Cognitive, Social, Computational & Mathematical Neuroscience" ($1,500,000) Wallsten, Dougherty, Gelfand, and Carlson
- *University of Maryland Dean's Research Initiative Grant (*2011*)* "Top down processing effects on the categorization of object representations." Carlson, T ($50,000)
- *University of Maryland teaching facilities renovation grant (*2009*)* "Revitalizing Psychology Computer Teaching Labs" Carlson, T., Dougherty, M. ($9,075)
- *National Institute of Mental Health Graduate Student Research Fellowship (*2000-2004*).* ($120,000)
- *University of Minnesota Center for Cognitive Sciences Turtle Award (Best Student) (*2004*)* ($1,000)
- *University of Minnesota Center for Cognitive Sciences J.J. Jenkins Award (Outstanding Service) (*2003*)* ($500)
- *University of Minnesota student dissertation grant (*2003*)* "Action in the absence of visual awareness" ($1,000)
- *Cognitive Neuroscience Society Graduate Student Presentation Award (*2001*)* " Eureka! A functional imaging study of visual problem solving." ($9,075)
- *University of Minnesota Cognitive Neuroscience Brain Imaging Program Research Assistantship (*2000*)* ($16,000)

Teaching

2015	Lecturer	Advanced Principles of Cognitive Science: Sensation and Perception (COGS 700) *Macquarie University*
2009-2013	Instructor	Speaking to the brain (PSYC488H/PSYC798P) *Honors College, University of Maryland*
2009-2013	Instructor	Sensation and Perception (PSYC 310) *University of Maryland*
2009	Instructor	Cognitive Neuroscience (NACS 642) *University of Maryland*
2008	Instructor	Sensory Processes Lab (PSYC 410)

		University of Maryland
2007	Teaching Fellow	Multivariate Statistics
		Harvard University
2005	Instructor	Neurobiology of visual attention
		Netherlands Organisation for Scientific Research (NWO) Cognition Summer School
2000-2003	Teaching Assistant	Sensation and Perception
		University of Minnesota
1999-2002	Teaching Assistant	Cognitive Neuropsychology
		University of Minnesota

Invited Talks

2015	*University of Queensland; University of Melbourne*
2014	*University of Sydney; University of Newcastle*; *University of New South Wales*
2013	*Dartmouth College*
2012	*Centre National de la Recherche Scientifique (CNRS),* Toulouse, France.
2011	*Oxford Centre for Functional MRI of the Brain (fMRIB)*, Oxford, UK
2010	*Medical Research Council, Cognition and Brain Sciences Unit,* Cambridge, UK
2009	*Harvard Medical School,* Boston, MA; *University College London,* London, U.K; *University of Maryland,* College Park, MD
2007	*Centre National de la Recherche Scientifique (CNRS),* Toulouse, France.
2006	*Harvard University,* Cambridge, MA.
2005	*New England College of Optometry,* Boston, MA.
2004	*Boston University,* Boston, MA; *Harvard University,* Cambridge, MA.
2001	*Graduate Student Presentation Award at Cognitive Neuroscience Society Meeting,* New York, USA; *Advanced Telecommunications Research Institute,* Kyoto, Japan.

Service

2016- present	Organization for Human Brian Mapping (OHBM) Communication Committee
2013- present	Deputy Chair, Magnetoencephalography (MEG) Executive Committee, Macquarie University
2013- present	Research Committee, Department of Cognitive Sciences, Macquarie University
2009-2013	Cognitive Science Colloquium Committee, University of Maryland
2011-2013	Brain and Behavioral Science lab Facilities Committee, University of Maryland
2011	Cognitive Neuroscience Faculty Search Committee, University of Maryland
2009-2010	Neuroscience and Cognitive Science (NACS) Graduate Admissions Committee, University of Maryland

2003-2004	Student Representative, Center for Magnetic Resonance Imaging Research (CMRR) and Department of Psychology cognitive neuroscience faculty search committee, University of Minnesota
2002-2003	Student Representative, 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