Valerie A Carr, PhD

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Stanford, CA 94305

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EDUCATION

PhD, Neuroscience, University of California Los Angeles, 2008
Dissertation: *A selective role for the hippocampus in the formation and retrieval of distinct episodic memories*
Advisor: Dr. Barbara Knowlton

BS, *Cum laude*, Biological Psychology, The College of William and Mary, 2001
Advisor: Dr. Robert Lennartz

POSITIONS

2013-current	Research associate Department of Psychology, Stanford University
2008-2013	Post-doctoral fellow Department of Psychology, Stanford University Advisor: Dr. Anthony Wagner
2002-2003	Chief MEG Technician MGH/MIT/HMS Martinos Center for Biomedical Imaging Supervisor: Dr. Matti Hamalainen
2001-2002	Research Assistant MGH/MIT/HMS Martinos Center for Biomedical Imaging Supervisor: Dr. Eric Halgren

FELLOWSHIPS, AWARDS, AND GRANTS

2010-2013	NIH Ruth L. Kirschstein National Research Service Award Individual Postdoctoral Fellowship
2012	Alzheimer's Imaging Consortium Fellowship
2012	Alzheimer's Association International Conference Travel Fellowship
2003-2008	Achievement Rewards for College Scientists
2007-2008	UCLA Graduate Division Dissertation Year Fellowship
2007, 2008	Organization for Human Brain Mapping Travel Award
2006, 07, 08	UCLA Graduate Division Travel Award
2005, 2008	UCLA Quality of Graduate Education Fellowship

2004-2005	NIH Ruth L. Kirschstein National Research Service Award Institutional Predoctoral Fellowship
2000	NSF Research Experience for Undergraduates Fellowship

PUBLICATIONS

Manuscripts:

Carr, V. A., Favila, S. E. and Wagner, A. D. (in preparation-a). High-resolution investigation of relational pattern separation in the medial temporal lobe using a rapid fMR-adaptation approach.

Carr, V. A., Favila, S. E., Arena, D. Bailenson, J.N., and Wagner, A. D. (in preparation-b). Integrated coding of space and reward in the human medial temporal lobe: A high-resolution fMRI study.

Carr, V.A., Bernstein, J. D., Favila, S. E., Wagner, A. D. and Kerchner, G. A. (in preparation-c). Individual differences in associative memory among older adults predicted by hippocampal subfield structure and function.

Publications:

Carr V. A., Castel, A.D., and Knowlton, B. J. (in press). Age-related differences in memory performance after attending to distinctiveness or similarity during learning. *Aging, Neuropsychology, and Cognition*.

Carr V. A., Engel, S. A., and Knowlton, B. J. (2013). Top-down modulation of hippocampal encoding activity as measured by high-resolution functional MRI. *Neuropsychologia*, 51, 1829-1837.

LaRocque, K.F., Smith, M.E., **Carr, V.A.**, Witthoft, N., Grill-Spector, K. and Wagner. A.D. (2013). Global similarity and pattern separation in the human medial temporal lobe predict subsequent memory. *The Journal of Neuroscience,* 33, 5466-5474.

Carr V. A., Viskontas, I. V., Engel, S. A., and Knowlton, B. J. (2010). Neural activity in the hippocampus and perirhinal cortex during encoding is associated with the durability of episodic memory. *Journal of Cognitive Neuroscience*, 22, 2652-2662.

Carr, V. A., Rissman, J., and Wagner, A.D. (2010). Imaging the human medial temporal lobe with high-resolution fMRI. *Neuron*, 65, 298-308.

Poldrack, R. A., **Carr, V. A.**, and Foerde, K. E. (2010). Flexibility and generalization in memory systems. In Banich, M.T. and Caccamise, D. (Eds), *Generalization of Knowledge: Multidisciplinary perspectives*, pp. 53-70. New York, NY: Psychology Press.

Viskontas, I. V.,***** **Carr V. A.**,***** Engel, S. A., and Knowlton, B. J. (2009). The neural correlates of recollection: Hippocampal activation declines as episodic memory fades. *Hippocampus*, 19, 265-272.

*****Authors contributed equally

Carr V. A. and Viskontas, I. V. (2007). A unique role for the hippocampus in recollecting the past and remembering the future. *Behavioral and Brain Sciences*, 30, 319-320.

Heckman, G., Bouvier, S. E., **Carr, V. A.**, Harley, E. M., Cardinal, K. S., and Engel, S. A. (2007). Nonlinearities in rapid event-related fMRI explained by stimulus scaling. *NeuroImage*, 34, 651-660.

Knake, S., Halgren, E., Shiraishi, H., Hara, K., Hamer, H. M., Grant, P. E., **Carr, V. A.**, Foxe, D., Camposano, S., Busa, E., Witzel, T., Hamalainen, M. S., Ahlfors, S. P., Bromfield, E. B., Black, P. M., Bourgeois, B. F., Cole, A. J., Cosgrove, G. R., Dworetzky, B. A., Madsen, J. R., Larsson, P. G., Schomer, D. L., Thiele, E. A., Dale, A. M., Rosen, B. R., and Stufflebeam, S. M. (2006). The value of multichannel MEG and EEG in the presurgical evaluation of 70 epilepsy patients. *Epilepsy Research*, 69, 80-86.

Marinkovic, K., Dhond, R. P., Dale, A. M., Glessner, M., **Carr, V**., and Halgren, E. (2003). Spatio-temporal dynamics of modality-specific and supramodal word processing. *Neuron*, 38, 487-97.

CONFERENCE PRESENTATIONS

Carr, V.A., Bernstein, J. D., Favila, S. E., Wagner, A. D. and Kerchner, G. A. (2013). Individual differences in associative memory among healthy older adults predicted by high-resolution MRI metrics of hippocampal subfield structure and function. Society for Neuroscience, San Diego. Oral presentation.

Carr, V.A., Bernstein, J. D., Favila, S. E., Wagner, A. D. and Kerchner, G. A. (2013). High-resolution imaging of medial temporal lobe subfield structure and function in Mild Cognitive Impairment. Alzheimer's Association International Conference, Boston. Oral presentation.

Carr, V.A. (2013). Variability in collateral sulcus anatomy: The challenge of reliably segmenting medial temporal lobe cortices. Hippocampal Subfield Segmentation Summit, Davis. Oral presentation.

Carr, V. A., Favila, S. E., Arena, D., Bailenson, J. N. and Wagner, A. D. (2012). Modulation of medial temporal lobe activity by reward value during virtual navigation: A high-resolution fMRI study. Society for Neuroscience, New Orleans. Oral presentation.

Carr, V.A., Favila, S. E., Bernstein, J. D., Wagner, A. D. and Kerchner, G. A. (2012). Successful associative memory formation and retrieval in healthy older adults is associated with hippocampal subfield activation. Alzheimer's Association International Conference, Vancouver, Canada.

Carr, V.A. and Wagner, A. D. (2011). High-resolution functional MRI: A window onto mechanism and representation in the human medial temporal lobe. International Conference on Memory, York, England. Oral presentation.

Carr, V.A., Favila, S. E., and Wagner, A. D. (2010). High-resolution investigation of relational pattern separation in the medial temporal lobe using a rapid fMR-adaptation approach. Society for Neuroscience, San Diego.

Carr, V. A., Castel, A. D., and Knowlton, B. J. (2008). Age-related reduction in the beneficial effects of attending to distinctiveness on recollection. Society for Neuroscience, Washington, DC. Oral presentation.

Carr, V. A., Engel, S. A., and Knowlton, B. J. (2008). Hippocampal activation is associated with encoding the distinctiveness of items. Human Brain Mapping, Melbourne.

Carr, V. A., Viskontas, I. V., Engel, S. A., and Knowlton, B. J. (2007). Subregional activation in the hippocampus during retrieval reflects quality but not durability of memory. Human Brain Mapping, Chicago. Oral presentation.

Carr, V. A., Viskontas, I. V., Engel, S. A., and Knowlton, B. J. (2006). Activation in the parahippocampal gyrus during retrieval at a short delay predicts durability of episodic details. Cognitive Neuroscience Society, San Francisco.

Carr, V. A., Knake, S., Shiraishi, H., Halgren, H., Schomer, D., Dale, A., and Stufflebeam, S. (2003). Unilateral giant somatosensory evoked magnetic fields as a lateralizing sign in focal epilepsy. Human Brain Mapping, New York: 1559.

TEACHING

Instructor, Stanford University
Learning and Memory, Spring 2014

Instructor, University of San Francisco
Human Neuropsychology, Fall 2014 (*scheduled*)
Biological Psychology, Summer 2014 (*scheduled*)
Biological Psychology, Fall 2013

Guest Lecturer, Stanford University:
Cognitive Neuroscience, Psychology: Spring 2014
Cognitive and Information Sciences, Psychology: Winter 2014
Thinking Matters, Human Biology: Winter 2013, Winter 2014
The Nervous System, School of Medicine: Winter 2011, Winter 2014
Memory as Art, Drama: Fall 2011

Teaching Associate, UCLA:
Fundamentals of Learning: Spring 2007, Summer 2007
Laboratory in Cognitive Psychology: Winter 2007
Sensation and Perception: Fall 2006

Teaching Assistant, UCLA:
Fundamentals of Learning: Spring 2006, Summer 2006
Introductory Psychobiology: Winter 2006
Sensation and Perception: Fall 2005

Advising:
Mentor, Stanford University research assistants: 2008-present
Supervisor, Stanford University undergraduate honors thesis: 2010-2011
Supervisor, Stanford human biology research exploration program: 2009, 2010
Mentor, UCLA research assistants: 2003-2008

PROFESSIONAL ACTIVITIES

Core Committee, Hippocampal Segmentation Effort
http://www.hippocampalsubfields.com/
Hippocampal Subfield Segmentation Summit (HS3.1), June 2013
Hippocampal Subfield Segmentation Summit (HS3.2), November 2013

Ad Hoc Reviewer:
Behavioural Brain Research; Brain Research; *Cerebral Cortex; Hippocampus; Human Brain Mapping; JAMA Psychiatry; Journal of Neuroimaging; The Journal of Neuroscience; Nature Communications; Neurobiology of Aging; NeuroCase;*

NeuroImage; Neuropsychologia; Proceedings of the National Academy of Sciences; *Psychological Science*

Memberships:
Cognitive Neuroscience Society
Society for Neuroscience

Editing:
English manuscript editor, Tokyo Medical and Dental University

REFERENCES

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Dr. Geoffrey Kerchner
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