

CURRICULUM VITAE

Ingrid R. Olson

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CURRENT RESEARCH

- High-level vision
 - First impressions
 - Statistical learning
 - Dorsal stream visual processing (distance, space, etc.)
- Memory
 - Visual short-term /working memory
 - Role of hippocampus and parietal lobe in memory
- Techniques used: behavioral analysis, fMRI, transcranial magnetic stimulation (TMS), and patient testing

EDUCATION

Post-Doctoral Fellow, Yale University Medical School, Department of Diagnostic Radiology and Medical Imaging, and Yale Psychology
SUPERVISOR: John Gore 2000-02

Ph.D. Department of Psychology, Yale University, New Haven, CT 2000
Thesis title: Spatial and Temporal Context Effects in Visual Cognition
SUPERVISOR: Marvin Chun

M.S. Department of Psychology, Yale University, New Haven, CT
Masters title: Plasticity in Learning and Development in *Aplysia Californica*
SUPERVISOR: Tom Carew

B.A. University of Michigan, Ann Arbor, Michigan

EMPLOYMENT

Assistant Professor, Temple University 2007-
Adjunct Assistant Professor, University of Pennsylvania 2007-
Research Assistant Professor, University of Pennsylvania 2006-2007
Research Associate Scientist, University of Pennsylvania 2002-2005

TEACHING

Teaching Fellow, Department of Psychology, Yale University
Courses: *Physiological Psychology, Neural Networks, Perception.*

Instructor, Vision Sciences Major, University of Pennsylvania
Course: *Eye, Mind, Image,*
Instructor, Cognitive Neuroscience, Temple University

Fall 2005
Spring 2008

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ADVISING and MENTORING EXPERIENCE

- Advised M.D./Ph.D. student on studies of perception, 2000-2002
- Advised Penn undergraduate honors thesis projects (Samantha Cooper; Alan Plotzker; Yonatan Mazuz Lauren Picasso), independent study projects (Alan Plotzker, Lauren Picasso, Yonatan Mazuz, Lisa Phong), 2004-present.
- Advisor to Marian Berryhill, postdoctoral associate

RESEARCH SKILLS

- ERPs (with Truett Allison and Greg McCarthy)
- Functional Brain Imaging, (with John Gore)
- Neuropsychology: patient testing (with Anjan Chatterjee and Branch Coslett)
- Eye-movement analysis
- Computer skills include use of Unix based operating systems and Matlab programming
- Molecular biology, genetic techniques (with Frank Ruddle, Tom Carew, and Emanuel Calenoff)

HONORS & AWARDS

- American Psychological Association Dissertation Award.
- John B. Enders Dissertation Award.
- Yale University Dissertation Fellowship. Award for doctoral research.
- Fellow, McDonnell Summer Institute in Cognitive Neuroscience.
- National Science Foundation Graduate Fellowship.
- Yale University Combined Fellowship Award. Granted for Ph.D. study.
- Excellence in Education, Academic Scholarship. University of Michigan.
- Redmond-Potter, Academic Scholarship. University of Michigan.

RESEARCH SUPPORT

Funded: NIH RO1 MH071615-01A1, "Brain and Behavior of Visual Expectations"

Role: Principal Investigator, 5 year grant, beginning in 2005.

Purpose – To investigate the planning and decision processes of the posterior parietal cortex.

Pending: NIH R01. "The Human Medial Temporal Lobes in Visual Cognition"

Role: Principle Investigator

ARTICLES PUBLISHED, and IN PRESS

- Plotzker, A. Ezzyat, Y., Chatterjee, A. Aguirre, G. & Olson, I.R. (2007-accepted pending revisions). Does the Ventral Visual Stream End in Perirhinal Cortex? Evidence For and Against Involvement of the Perirhinal Cortex.
- Olson, I.R., Moore, K. (2007-accepted, pending revisions). The contents of visual working memory are not under volitional control but are under attentional control. *Memory & Cognition*.
- Ezzyat, Y., & Olson, I.R. (2007-in press) The medial temporal lobe and visual working memory. *Cognitive, Affective, and Behavioral Neuroscience*.
- Olson, I.R. Plotzker, A., & Ezzyat, Y. (2007). The enigmatic temporal poles: A review of findings on social and emotional processing. *Brain*. Published online, doi: 10.1093/brain/awm052.

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- Olson, I.R., Page, K., Moore, K., Chatterjee, A., Verfaellie, M. (2006). Working memory for conjunctions relies on the medial temporal lobe. *Journal of Neuroscience*, 26(17): 4596-4601.
- Olson, I.R., Rao, H., Moore, K.S., Wang, J.J., Detre, J., Aguirre, G.K. (2006). Using Perfusion fMRI to Measure Continuous Changes in Neural Activity with Learning. *Brain and Cognition*. 60(3): 262-271.
- Olson, I.R., Moore, K., Stark, M., Chatterjee, A. (2006). Visual working memory is impaired when the medial temporal lobe is damaged. *Journal of Cognitive Neuroscience*, 18: 1087-1097.
- Yi, D., Chun, M.M., Olson, I.R. (2006). Shape-specific perceptual learning in a figure-ground segregation task. *Vision Research*, 46, 914-924.
- Olson, I.R., Jiang, Y. & Moore, K.S. (2005). Associative learning improves visual working memory performance. *Journal of Experimental Psychology: Human Perception and Performance*, 31(5), 889-900.
- Olson, I.R. & Marshuetz, C. (2005). Facial attractiveness is appraised in a glance. *Emotion*, 5 (4), 498-502.
- Olson, I.R. & Jiang, Y. (2005). Visual short-term memory is not affected by training. *Memory & Cognition*, 32(8), 1326-1332.
- Olson, I.R. & Marshuetz, C. (2005). Remembering “What” Brings Along “Where” in visual working memory. *Perception & Psychophysics*, 67(2): 185-194.
- Hampson, M., Olson, I.R., Leung, H-C. & Gore, J.C. (2004). Changes in functional connectivity of human MT/v5 with visual motion input. *Neuroreport*, 15 (8): 1315-1319.
- Jiang, Y., Chun, M.M., & Olson, I.R. (2004). Perceptual Grouping in Change Detection. *Perception & Psychophysics*, 66(3): 446-453.
- Ross, D.A., Olson, I.R., Marks, L.E., & Gore, J.C. (2004). A nonmusical paradigm for identifying absolute pitch possessors. *Journal of the Acoustical Society of America*, 116 (3): 1793-1799.
- Olson, I.R., Zhang, J.X, Mitchell, K.J., Johnson, M.K., Bloise, S.M., Higgins, J.A. (2004). Preserved spatial memory over brief intervals in older adults. *Psychology and Aging*, 19: 310-317.
- Donegan, N.H., Stanislow, C.A., Blumberg, H.P, Fulbright, R.K., Lacadie, C., Scudlarski, P, Gore, J.C, Olson, I.R., McGlashan, T.H., Wexler, B.E. (2003). Amygdala hyperreactivity in borderline personality disorder: implications for emotional dysregulation. *Biological Psychiatry*, 54, 1284-1293.
- Olson, I.R., Leung, H-C., Gatenby, J.C., Scudlarski, P., & Gore, J.C. (2003). Neuronal representations of occluded objects in the human brain. *Neuropsychologia*, 42: 95-104.
- Ross, D.A., Olson, I.R., & Gore, J.C. (2003). Absolute pitch does not depend on early training. *Annals of the New York Academy of Sciences*, 999: 522-526.
- Ross, D.A., Olson, I.R., & Gore, J.C. (2003). Functional plasticity in an early blind musician: an fMRI study. *Magnetic Resonance Imaging*, 21(7): 821-828.
- Olson, I.R., Gatenby, J.C., & Gore, J.C. (2002). A comparison of bound and unbound audio-visual information processing in the human cerebral cortex. *Cognitive Brain Research*, 14: 129-138.
- Olson, I.R. & Jiang, Y. (2002). Is visual short term memory object based? *Perception & Psychophysics*, 64: 1055-1067.
- Olson, I.R., & Chun, M.M. (2001). Perceptual constraints on implicit learning of spatial context. *Visual Cognition*, 9:273-302.
- Olson, I.R., Chun, M.M, & Anderson, A.K. (2001) Effects of phonological length on the attentional blink. *Journal of Experimental Psychology: Human Perception and Performance*, 27: 1116-1123.
- Olson, I.R. & Chun, M.C. (2001). Temporal contextual cuing of visual attention. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 27:1299-1313.
- Olson, I.R., Chun, M.M, & Allison, T. (2001). Contextual guidance of attention: Human intracranial event-related potential evidence for feedback modulation in anatomically early, temporally late stages of visual processing, *Brain*, 124:1417-1425.
- Jiang, Y., Olson, I.R. & Chun, M.M. (2000). Organization of visual short term memory. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 26(3):683-702.
- Olson, I.R. (2000). The eye’s mind. *Contemporary Psychology*, 45: 285-286

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- Calenoff, E.; Zhao J.C.; Derlacki E.L.; Harrison W.H.; Selmezi K.; Dutra J.C.; Olson I.R.; Hanson D.G., (1995). Patients with Menieres Disease possess IgE reacting with Herpes family viruses. *Archives of Otolaryngology*, 121 (8): 861-864.

ARTICLES SUBMITTED or In PREPARATION

- Berryhill, M.E., & Olson, I.R. (submitted, 2007) The right parietal lobe is critical for remembering objects and locations during visual short-term memory.
- Berryhill, M.E., Picasso, L., Phuong, L., Cabeza, R., and Olson, I.R. (submitted, 2007). The parietal lobe and episodic memory: bilateral damage causes impaired free recall of autobiographical memory.
- Berryhill, M.E. & Olson, I.R. (in preparation, 2007). What is the role of the parietal lobe in visual short-term memory? Recall task is key.
- Plotzker, A. Ezzyat, Y., Olson, I.R. (in preparation). A review of findings on the anterior temporal lobes in memory and perception.
- Olson, I.R., Ezzyat, Y., Sledge, K., & Higgins, S. (in preparation). Is visual working memory limited by the number of memory slots or by attention? An fMRI investigation.
- Cabeza & Olson (in preparation). The parietal cortex and episodic memory: a review of recent findings.
- Berryhill, M.E. Mazzuz, Y., Olson, I.R. (in preparation). Sequence learning is intact after parietal lobe damage.
- Berryhill, M.E., & Olson, I.R. (in preparation, 2007). Size constancy fails when the inferior parietal lobe is damaged.
- Berryhill, M.E., Aguirre, G.K., and Olson, I.R. (in preparation, 2007). Distance perception: monocular distance cues activate occipitoparietal regions

CONFERENCE ABSTRACTS

- Berryhill, M.E., Fendrich, R., & Olson, I.R. (2007) Determining size constancy after bilateral parietal damage. European Conference on Visual Perception, Arezzo, Italy.
- Berryhill, M., Olson, I.R. (2007). Is the parietal lobe critical for visual working memory? Evidence from patients with unilateral and bilateral parietal lesions. Vision Science Society, Sarasota, FL.
- Olson, I.R., Berryhill, M., Most, S. (2007). The Blinking Attentional Blink. Vision Science Society, Sarasota, FL.
- Thomas, A., Lawler, K., Olson, I.R., Aguirre, G.K. (2007). The Philadelphia Face Perception Battery. Vision Science Society, Sarasota, FL.
- Ezzyat, Y., Sledge Moore, K., Olson, I. (2007). Learning Modulates Neural Activity in Visual Working Memory. Cognitive Neuroscience Society, New York, NY.
- Berryhill, M., Olson, I.R. (2007). Is the parietal lobe critical for visual working memory? Evidence from patients with unilateral and bilateral parietal lesions. Cognitive Neuroscience Society, New York, NY.
- Olson, I.R., Plotzker, A., Ezzyat, Y. (2007). The Human Perirhinal Cortex: Involvement in Visual Perception is Task Specific, Cognitive Neuroscience Society, New York, NY.
- Moore, K.S., Ezzyat, Y., Wallen, T., Olson, I.R. (2006). How information value modulates task preparation in the human cerebral cortex. Cognitive Neuroscience Society, San Francisco, CA.
- Moore, K.S., Chatterjee, A., Page, K., Verfaellie, M., Olson, I.R. (2006). Binding in visual short-term memory is impaired in patients with medial temporal lobe amnesia. Vision Science Society, Sarasota, FL.
- Olson, I.R., Chatterjee, A., Page, K., Verfaellie, M. (2005). Binding in Visual Short Term Memory is Impaired in Patients with Medial Temporal Lobe Amnesia. Vision Science Society, Sarasota, FL.
- Sledge, K., Olson, I.R. (2005). Control fails in visual-short term memory. Vision Science Society, Sarasota, FL.
- Sledge, K., Olson, I.R., Rao, H., Wang, J., Detre, J.A., Aguirre, G.K. (2005). Continuous sequence learning studied with perfusion fMRI. Cognitive Neuroscience Society, New York, NY.

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- Olson, I.R., Chatterjee, A., Page, K., Verfaellie, M. (2005). Binding in visual short-term memory is impaired in patients with medial temporal lobe amnesia. Cognitive Neuroscience Society, New York, NY.
- Olson, I.R., Jiang, Y., Sledge, K. (2004). Visual short-term memory capacity is increased by training. Vision Science Society, Sarasota, FL.
- Olson, I.R., Morales, D. (2004). What do you remember when you aren't trying to remember? Vision Science Society, Sarasota, FL.
- Olson, I.R., Jiang, Y. (2003). Is the capacity of visual short-term memory increased by long-term memory? Presented at the Cognitive Neuroscience Society, NY, NY.
- Marchuetz, C., Olson, I.R. (2003). Remembering "what" bring along "where." Presented at the Cognitive Neuroscience Society, NY, NY.
- Olson, I.R., Jiang, Y., Sledge, K. (2004). Visual short-term memory capacity is increased by training. Cognitive Neuroscience Society, San Francisco, CA.
- Olson, I.R., Gatenby, J.C., Leung, H-C, Gore, J.C. (2001). Perceiving motion that isn't there. Presented at the Cognitive Neuroscience Society, NY, NY.
- Meltzer, J., Olson, I.R. & Constable, R.T. (2001). Medial temporal lobe activation correlates with encoding success for memory of novel information. Presented at the Society for Neuroscience meeting in San Diego, CA.
- Olson, I.R., Chun, M.M. & Allison, T.(2000). Top-down contextual cueing of attention: ERP evidence for an anatomically early, temporally late mechanism. Presented at the Society for Neuroscience, New Orleans, LS.
- Olson, I.R., Gatenby, J.C. & Gore, J.C. (2000). The integration of sight and sound by the human brain. Presented at the 2nd annual Multisensory Research Conference in Tarrytown, NY.
- Olson, I.R., Allison, T. & Chun, M.M. (1999). Electrophysiology of implicit learning: encoding visuospatial associations. Presented at the Cognitive Neuroscience Conference, Washington D.C.
- Jiang, Y., Olson, I.R. & Chun, M.M. (1999). The organization of visual short term memory is based on configurations. Presented at the 7th Annual Workshop on Object Perception and Memory, Los Angeles, CA.
- Olson, I.R. & Chun, M.M. (1999). Temporal contextual cueing: temporal association formation of times, locations, and events. Presented at the 7th Annual Workshop on Object Perception and Memory, Los Angeles, CA (talk).
- Olson, I.R., Marois, R., Ruddle, F. & Carew, T.J. (1996). Cloning of two homeobox genes in *Aplysia*. Presented at the Society for Neuroscience, Washington D.C.

INVITED TALKS

- Cardiff University, Wales "The Parietal Lobes and Memory, " 2007.
- University College, London "The Parietal Lobes and Memory, " 2007.
- Cambridge University "The Parietal Lobes and Memory, " 2007.
- Temple University "Visual Memory: Contributions by the Hippocampus and Parietal Lobe," 2007.
- Drexel University "Visual Memory: Contributions by the Hippocampus and Parietal Lobe," 2007.
- Wesleyan University "Visual Memory: Contributions by the Hippocampus and Parietal Lobe," 2006.
- Yale University "The Medial Temporal Lobe: Elapsed Time, Memory Binding, and Memory Orthogonalizing," 2006.
- Society for Neuroscience, Washington, D.C. "Visual Working Memory is Impaired in Patients with Medial Temporal Lobe Amnesia, 2005
- Vision Science Society Conference. "Binding in Visual Short-term Memory is Impaired in Patients with Medial Temporal Lobe Amnesia. 2005.
- Center for Functional Neuroimaging, University of Pennsylvania School of Medicine. " Perfusion Imaging of Continuous Motor Learning". 2005.
- Philadelphia Neuropsychological Society. "Memory Systems in the Medial Temporal Lobe" 2005.
- Brandeis University, Department of Psychology and Neuroscience. "How to Circumvent Visual Processing Constraints." 2004

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- Michigan State University, Department of Psychology. “How to Circumvent Visual Processing Constraints.” 2004.
- Center for Cognitive Neuroscience, University of Pennsylvania, “Visual Memory.” 2004.
- Center for Cognitive Neuroscience, University of Pennsylvania, “Strategies Used to Compensate for Limited Visual Memory and Attention.” 2002.
- University of Maryland, Department of Psychology. “Strategies Used to Compensate for Limited Visual Memory and Attention.” 2002.
- Stony Brook University, Department of Psychology. “Strategies Used to Compensate for Limited Visual Memory and Attention.” 2002.

PROFESSIONAL MEMBERSHIP

American Psychological Association
Cognitive Neuroscience Society
Psychonomic Society
Society for Neuroscience
Vision Science Society

JOURNAL REVIEWING

Ad-hoc Reviewer for: *Cognition, Cognitive Brain Research, Cerebral Cortex, Cortex, Experimental Brain Research, Human Brain Mapping, Journal of Experimental Psychology: Human Perception & Performance, Journal of Cognitive Neuroscience, Journal of Neurochemistry, Memory & Cognition, Neuroreport, Neuroimage, Neuropsychologia, Neuroscience Letters, Perception & Psychophysics, Psychological Science, Psychology and Aging, Psychonomic Bulletin & Review, Visual Cognition.*

Ad-hoc Editor for the APA Dictionary of Neuroscience.

GRANT REVIEWING

Ad-hoc Reviewer for NIMH Study Panel ZMHI BST-Q 01 S, NICD Study Panel, Program Project Grants
Ad-hoc Reviewer for NSF

MEDIA

Print: University of Pennsylvania press release “Why the Pretty Prosper.” January 2006.
Philadelphia Inquirer “Humans Know Beauty in an Instant” by Faye Flam, January 30, 2006.
University of Pennsylvania Gazette “Why Beauty is Better, March 2006.
Allure Magazine, in press.
University of Pennsylvania press release “Amnesiac Study Offers Insights into How Working Memory Works.”

Radio: WHYY Public Radio, “Why the Pretty Prosper”, January 2006.
KYW Newsradio, “Why the Pretty Prosper”, January 2006.
AAAS Science Update (www.scienceupdate.com/index.cfm)

Internet: “First Impressions of Beauty May Demonstrate why the Pretty Prosper” on Sciencedaily.com, Foxnews.com, Webmd.com, Eurekalert.com, ghi.com, scienceblog.com, worldhealth.net, biopsychology.com, brainmind.com.
“Lost connections Amid the Hippocampus: Amnesiac Study Offers Insights into How Working Memory Works.” Eurekalert.com; brightsurf.com; whatsnextnetwork.com; scienceblog.com; biopsychology.com; innovations-report.com.

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