

## Edward K. Vogel

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University of Oregon  
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### Education

#### Tacoma Community College

A.A. (Psychology) June, 1990-1992.

#### University of Puget Sound

B.A. (Psychology) May, 1992-1994

#### University of Iowa

Ph.D. (Psychology [Cognition & Perception]) July, 2000

Doctoral Dissertation: "Selective storage in visual working memory: Distinguishing between perceptual-level and working memory-level mechanisms." Dissertation Advisor: Steven J. Luck

### Research Interests

My research examines the operation of visual working memory and the selective attention processes that interact with this storage mechanism. I also examine the cognitive and neural substrates of individual differences in working memory capacity. My primary approach to examining these processes is with the event-related potential (ERP) technique as well as with functional neuroimaging (fMRI) to provide both anatomical and temporal constraints for existing cognitive theories of visual working memory and selective attention.

### Academic and Professional Experience

#### Positions

1995-2000 Graduate Research Assistant  
University of Iowa –Psychology Department

1996-1999 Graduate Teaching Assistant  
University of Iowa –Psychology Department

2000-2002 Post-doctoral Fellow  
University of California, San Diego –Institute for Neural Computation

2000-2002 Post-graduate Research Neuroscientist  
University of California, San Diego –Department of Neurosciences

2001-2006 Assistant Professor  
University of Oregon –Department of Psychology

2006- Associate Professor (with Tenure)  
University of Oregon –Department of Psychology

2009 Visiting Scientist  
Picower Institute for Learning & Memory, MIT

#### Ad Hoc Reviewer

Journals

Behavioural Brain Research; Biological Psychiatry; Cognitive Brain Research; Developmental Science; Journal of Cognitive Neuroscience; JEP: General; JEP:HPP; JEP: LMC; Journal of Neuroscience; Nature; Nature Neuroscience; NeuroImage; Neuropsychologia; Perception; Perception & Psychophysics Proceedings of the National Academy of Sciences; Psychological Research; Psychological Science Psychonomic Bulletin & Review (**member of Editorial Board**); Psychophysiology Quarterly Journal of Experimental Psychology; Trends in Cognitive Sciences; Visual Cognition; Visual Neuroscience

Research Grant Funding Agencies

Canada Foundation for Innovation  
National Institute of Mental Health; B-start; Special emphasis panel; Challenge Grant panel  
National Science Foundation  
Oregon Medical Research Foundation

Departmental and University Committee Memberships

Cognition and Perception (Iowa) area faculty search, 1997-8  
Cognition and Perception (Iowa) area graduate student admissions, 1998-9  
Lewis Center for Neuroimaging: Executive Committee, 2001-2004  
Cognitive faculty search, 2002-3  
Cognitive faculty search, 2003-4  
Graduate Student Admissions Committee, 2002-3  
Graduate Education Committee, 2003-2005  
Individualized Masters Program Committee (Chair), 2003-2005  
Psychology Department Executive Committee, 2005-2007  
Graduate Student Admissions Committee, 2005-2006  
Clinical faculty search, 2006  
Psychology Colloquium Committee, 2006-2008  
Undergraduate Education Committee, 2007-2008  
Psychology Human Subjects Pool Faculty Supervisor, 2007-2008  
University Institutional Review Board (IRB) member, 2006-2008  
Tenure Committee for Dr. Kentros, 2009-2010  
Chair, Graduate Admissions Committee, 2009-2011

Student Committee Memberships

**First Year Project Committee:** Stevens; Perez; Drew; McCollough; Oh; Rowland; Fukuda; Batterink  
**Supporting Area:** V. Perez; Aikath; Lester; Hulbert  
**Preliminary Examination Committee:** Capek; Halverson; Yamada; Perez (chair); Drew (chair); Pakulak  
**Dissertation Committee:** Capek; Bell; Yamada; Halverson; Holbrook; Perez(chair); Pakulak; Drew(chair)  
**Masters Evaluation Committee:** Machizawa; Fieger; Ikkai; Fair; Ishikawa; Paulsen; Ashby; Umemoto  
**Honors Thesis:** Shula; Hansen; Ikkai; Fair; Corder; Fukuda; Shiozawa; Ashby

Supervision of Students

<b>Name of Student</b>	<b>Position in my Laboratory</b>
Andrew McCollough	PhD Student
Trafton Drew	PhD Student (completed PhD May, 2009; now Post-Doc at Harvard Med)
Veronica Perez	PhD Student (completed PhD May, 2008; now Post-Doc at UC Davis)
Keisuke Fukuda	PhD Student
Nathan Ashby	Master's student
Jason Fair	Master's student (completed degree 2008)

Masahiro Machizawa	Master's student (completed degree 2003; now at UCL PhD program)
Akiko Ikkai	Master's student (completed degree 2005; now at NYU PhD program)
Nathan Ashby	Honor's student (completed thesis 2007)
Keisuke Fukuda	Honor's student (completed thesis 2006)
Laura Shula	Honor's student (completed thesis 2003)
Jason Fair	Honor's student (completed thesis 2004)

TeachingType of Course (# of students)**University of Iowa**

Cognition and the Brain	Undergraduate	(~65)
Sensation and Perception	Undergraduate	(~80)
Experimental Psychology II	Undergraduate	(~35)
Introduction to Cognition	Undergraduate	(~40)

**University of Oregon**

Cognitive Psychology (Psy 435/535)	Undergraduate	(~50-65)
Experimental Research Methods (Psy 303)	Undergraduate	(~55)
Transfer Student Seminar (Psy 399)	Undergraduate	(~30)
First Year Project Seminar (Psy 607)	Graduate	(~16)
Seminar in Attention (Psy 607)	Graduate	(~12)
Seminar in Cognitive Neuroscience (Psy 607)	Graduate	(~20)
Issues in Cognitive Neuroscience (Psy 614)	Graduate	(~15)

Support

National Institute of Mental Health NRSA fellowship (2000-2002) Institute for Neural Computation, UC San Diego; "Selective storage in visual working memory."

National Institute of Mental Health R03 grant (2003-2005) "Updating Representations in Visual Working Memory"; 2 years \$100,000 direct costs. **Principal Investigator.**

Oregon Medical Research Foundation Research Grant (2004-2005) "Neural Measurements of Working Memory Capacity"; 1 year \$30,000 direct costs. **Principal Investigator.**

National Science Foundation grant (2006-2010) "Controlling the allocation of visual memory capacity"; 4 years \$525,000 direct costs. **Principal Investigator.**

National Institute of Mental Health R01 grant (2007-2011) "Control of Dynamic Attention"; 4 years \$772,000 direct costs (PI, Todd Horowitz). Vogel **Principal Investigator on subcontract** (\$168,000 direct costs for subcontract).

National Institute of Mental Health R01 grant (2009-2014) "The distinction between number and resolution in visual working memory"; 5 years \$2,070,509 direct costs. **Co-Principal Investigator** (w/ Ed Awh).

National Science Foundation grant (pending) "Resisting attentional capture"; 3 years \$650,000 direct costs. **Principal Investigator.**

Publications (\* denotes papers coauthored by my graduate students)

Peer-Reviewed Publications (total number of citations=2063; H-index = 19)

1. Luck, S. J., Vogel, E. K., & Shapiro, K. L. (1996). Word meanings can be accessed but not reported during the attentional blink. **Nature**, 383, 616-618.
2. Luck, S. J. & Vogel, E. K. (1997). The capacity of visual working memory for features and conjunctions. **Nature**, 390, 279-281.
3. Luck, S. J. & Vogel, E. K. (1998). Visual and auditory working memory capacity: Response from Luck and Vogel. **Trends in Cognitive Sciences**, 2, 78-80.
4. Hillyard, S. A., Vogel, E. K., & Luck, S. J. (1998). Sensory gain control (amplification) as a mechanism of selective attention: Electrophysiological and neuroimaging evidence. **Philosophical Transactions of the Royal Society: Biological Sciences**, 353, 1257-1270.
5. Vogel, E. K., Luck, S. J., & Shapiro, K. L. (1998). Electrophysiological evidence for a post-perceptual locus of suppression during the attentional blink. **Journal of Experimental Psychology: Human Perception and Performance**, 24 (6), 1656-1674.
6. Vogel, E. K. & Luck, S. J. (2000). The visual N1 component as an index of a discrimination process. **Psychophysiology**, 37, 190-203.
7. Luck, S. J., Woodman, G. F., & Vogel, E. K. (2000). Event-related potential studies of attention. **Trends in Cognitive Sciences**, 4, 432-440.
8. Vogel, E. K., Woodman, G. F., & Luck, S. J. (2001). Storage of features, conjunctions, and objects in visual working memory. **Journal of Experimental Psychology: Human Perception and Performance**, 27 (1) 92-114.
9. Woodman, G. F., Vogel, E. K., & Luck, S. J. (2001). Visual search remains efficient when visual working memory is full. **Psychological Science** 12, 219-224.
10. Schmidt, B. K., Vogel, E. K., Woodman, G. F., & Luck, S. J. (2002). Voluntary and involuntary control of visual working memory. **Perception & Psychophysics**, 64, 754-763.
11. Vecera, S. P., Vogel, E. K., & Woodman, G. F. (2002). Lower region: A new cue to figure-ground segregation. **Journal of Experimental Psychology: General**, 131 (2) 194-205.
12. Hopf, J. M., Vogel, E. K., Woodman, G. F., Hagner, T., Heinze, H. J., & Luck, S. J. (2002). Localizing visual discrimination processes in time and space. **Journal of Neurophysiology**, 88, 2088-2095.
13. Vogel, E. K., & Luck, S. J. (2002). Delayed working memory consolidation during the attentional blink. **Psychonomic Bulletin & Review**, 9, 739-743.
14. Vogel, E. K. & \*Machizawa, M. G. (2004). Neural activity predicts individual differences in visual working memory capacity. **Nature**, 428, 784-751.

15. Woodman, G. F. & Vogel, E. K. (2005). Fractionating working memory: Memory encoding and maintenance are independent processes. **Psychological Science**, 16, 106-113.
16. Vogel, E. K., Woodman, G. F., & Luck, S. J. (2005). Pushing around the locus of selection: Evidence for the flexible selection hypothesis. **Journal of Cognitive Neuroscience**, 17, 1907-1922.
17. Vogel, E. K., \*McCullough, A. W., & \*Machizawa, M. G. (2005). Neural measures reveal individual differences in controlling access to visual working memory. **Nature**, 438, 500-503.
18. Vogel, E. K., Woodman, G. F., & Luck, S. J. (2006). The time course of consolidation in visual working memory. **Journal of Experimental Psychology: Human Perception and Performance**, 32, 1436-1451.
19. Awh, E., Vogel, E. K., & Oh, S. (2006). Interactions between selective attention and working memory. **Neuroscience**, 139, 201-208.
20. \*Drew, T., \*McCullough, A. W., & Vogel, E. K. (2006). Event-related potential measures of working memory. **Clinical Electroencephalography and Neuroscience**, 37, 286-291.
21. \*McCullough, A. W., \*Machizawa, M. G., & Vogel, E. K. (2007). Electrophysiological measures of maintaining representations in visual working memory. **Cortex**, 43, 77-94.
22. Awh, E., Barton, B., & Vogel, E. K. (2007). Visual working memory represents a fixed number of items regardless of complexity. **Psychological Science**, 18, 622-628.
23. Woodman, G. F. & Vogel, E. K. (2008). Selective storage and maintenance of an object's features in visual working memory. **Psychonomic Bulletin and Review**, 15, 223-229.
24. Scolari, M., Vogel, E. K., & Awh, E. (2008). Perceptual expertise enhances the resolution but not the number of items that can be maintained in visual working memory. **Psychonomic Bulletin and Review**, 15, 215-222.
25. \*Drew, T., & Vogel, E. K. (2008). Recently attended masks are less effective. **Perception & Psychophysics**, 70, 96-103.
26. Vogel, E. K. & Awh, E. (2008). How to exploit diversity for scientific gain: Using individual differences to constrain cognitive theory. **Current Directions in Psychological Science**, 17(2), 171-176.
27. \*Drew, T. & Vogel, E. K. (2008). Neural measures of individual differences in selecting and tracking multiple moving objects. **Journal of Neuroscience**, 28(16), 4183-4191.
28. Serences, J. T., Ester, E. F., Vogel, E. K., & Awh, E. (2009). Stimulus-specific delay activity in human primary visual cortex. **Psychological Science**, 20 (2) 207-214.
29. \*Drew, T., \*McCullough, A.W., Horowitz, T.S., & Vogel, E.K. (2009). Attentional enhancement during multiple object tracking. **Psychonomic Bulletin and Review**, 16 (2), 411-417.
30. Hyun, J.-S., Woodman, G. F., Vogel, E. K., Hollingworth, A., & Luck, S. J. (in press). The comparison of visual working memory representations with perceptual inputs. **Journal of Experimental Psychology: Human Perception and Performance**.

31. \*Fukuda, K. & Vogel, E.K. (in press). Human variation in overriding attentional capture. **Journal of Neuroscience**.

Book Chapters and Other Invited Publications

1. Luck, S. J. & Vogel, E. K. (2001). Multiple sources of interference in dual-task performance: The cases of the attentional blink and the psychological refractory period. In K. L. Shapiro (Ed.), **The limits of attention: Temporal constraints on human information processing**, New York: Oxford University Press.

2. Woodman, G.F., Vogel, E.K., Luck, S.J. (2001). Attention is not unitary: Response to Cowan (2001). **Behavioral and Brain Sciences**, 24, 153-154.

3. \*McCollough, A. W. & Vogel, E. K. (2008). Your brain's spam filter. **Scientific American Mind**, June/July, 32-35.

4. Awh, E. & Vogel, E. K. (2008). The bouncer in the brain. **Nature Neuroscience**, News & Views commentary, 11, 5-6.

5. \*Drew, T. & Vogel, E. K. (2008). The fuzziness of memory. **Scientific American**, Mind Matters Commentary, November.

6. \*Drew, T. & Vogel, E. K. (2009). Working Memory, Capacity Limitations. In: L. Squire (Ed.). **The New Encyclopedia of Neuroscience**, Volume 10, pp. 523-531. Amsterdam, Elsevier.

7. \*Perez, V.B. & Vogel, E.K. (in press). What can ERPs tell us about working memory? In S. Luck & E. Kappenman (Eds.), **Oxford Handbook of Event-related Potential Components**. New York, Oxford University Press.

Papers in preparation or under review

Umemoto, A., Scolaro, M., Vogel, E.K., & Awh, E. (under review). Implicit knowledge about target location guides encoding into visual working memory.

\*Fukuda, K. Vogel, E.K., Mayr, U., & Awh, E. (under review). Quantity not quality: The relationship between fluid intelligence and working memory capacity.

Lee, E.Y., Cowan, N., Vogel, E.K., Rolan, T., Valle-Inclan, F., & Hackley, S. (under review). Parkinson's patients are impaired at filtering irrelevant information from visual working memory.

Jost, K. Bryck, R., Vogel, E.K., & Mayr, U. (under review). Age differences in visual working memory: the role of filtering efficiency.

Voytek, B., Vogel, E.K., & Knight, R.T. (under review). Working memory deficits and functional recovery after unilateral prefrontal or basal ganglia lesions in humans.

\*Fukuda, K. & Vogel, E.K. (in preparation). Individual differences in release time from attentional capture.

\*Drew, T., Horowitz, T., Wolfe, J., & Vogel, E.K. (in preparation). Updating objects and motion during attentional tracking.

\*Perez, V.B. & Vogel, E.K. (in preparation). Neural measures of working memory capacity in schizotypal personality disorder individuals.

### Invited Lectures

#### **1999**

Vision Research Center, Vanderbilt University

#### **2000**

Department of Visual System Analysis; University of Amsterdam

Institute for Neural Computation; UC San Diego

Department of Psychology, University of Iowa

Department of Cognitive Science; UC San Diego

#### **2001**

Department of Psychology; Vrije University, Netherlands

Salk Institute; UC San Diego

#### **2004**

Department of Psychology, University of Puget Sound

Center for Mammalian Genetics, University of Oregon

Symposium Speaker, International Conference on Working Memory; Kyoto, Japan

Brain Sciences Institute; RIKEN, Saitama, Japan

Symposium Speaker, Psychonomics Society; Minneapolis, MN

#### **2005**

Brain & Cognitive Sciences department; MIT

Computational & Neural Systems Department; Boston University

#### **2006**

Colloquium Speaker, Oregon Health Sciences University

Department of Psychology; Vrije University, Netherlands

Department of Psychology; Johns Hopkins University

#### **2007**

Individual Differences in Vision Symposium; Vision Sciences Society, Sarasota, FL

Department of Cognitive Psychology; Leiden University, Netherlands

Attentional Binding Symposium; Endo Neuro Psycho meeting; Doorwerth, Netherlands

Master Lecture; Royal Dutch Academy of Sciences; Amsterdam, Netherlands

Colloquium Speaker; Psychology Department; North Dakota State University

New Frontiers in Brain Sciences; Picower Center for Learning & Memory; MIT

#### **2008**

Symposium Speaker; University of Copenhagen; Denmark

Symposium Speaker; Cognitive Neuroscience Society; San Francisco, CA

Keynote Speaker; Binding in Working Memory meeting; Bristol, UK

Keynote Speaker; European Society of Working Memory; Bristol, UK

Symposium Speaker; International Congress of Psychology; Berlin, Germany

Colloquium Speaker; Department of Psychology; University of Toronto

#### **2009**

Colloquium Speaker; Department of Psychology; UC Berkeley

Colloquium Speaker; Department of Psychology; Harvard University  
 Colloquium Speaker; Picower Institute; Massachusetts Institute of Technology  
 Colloquium Speaker; Department of Ophthalmology; Harvard Medical School  
 Symposium Speaker; Summer Institute in Cognitive Neuroscience; Santa Barbara, CA  
 Colloquium Speaker; Center for Mind and Brain; UC Davis

**2010**

Keynote Speaker; European Workshop on Imagery and Cognition; Helsinki, Finland  
 Invited Speaker; Gordon Research Conference on Neurobiology of Cognition; New Hampshire

Conference Presentations

McCollough, A.W., Drew, T., Horowitz, T.S., & Vogel, E.K. (2008). Probing the allocation of attention during tracking with ERPs. Paper presented at the 2008 meeting of the Vision Sciences Society. Naples, FL.

Perez, V.B. & Vogel, E.K. (2008). Measuring visual working memory capacity in schizophrenia-spectrum individuals. Poster presented at the 2008 meeting of the Vision Sciences Society. Naples, FL.

Fukuda, K. & Vogel, E.K. (2008). Individual differences in resisting attentional capture. Poster presented at the 2008 meeting of the Vision Sciences Society. Naples, FL.

Drew, T., Horowitz, T.S., Wolfe, J. & Vogel, E.K. (2008). Neural measures of dynamic load changes during attentional tracking. Poster presented at the 2008 meeting of the Vision Sciences Society. Naples, FL.

Drew, T., Horowitz, T.S., Wolfe, J. & Vogel, E.K. (2007). Sustained tracking during occlusion. Paper presented at the 2007 meeting of the Vision Sciences Society. Sarasota, FL.

McCollough, A.W. & Vogel, E.K. (2007). Visual chunking efficiently allocates visual working memory capacity.

Poster presented at the 2007 meeting of the Vision Sciences Society. Sarasota, FL.

Fukuda, K. & Vogel, E.K. (2007). Individual differences in attentional filtering efficiency. Poster presented at the 2007 meeting of the Vision Sciences Society. Sarasota, FL.

Perez, V.B., Awh, E., & Vogel, E.K. (2007). Complex objects do not consume additional working memory capacity. Poster presented at the 2007 meeting of the Vision Sciences Society. Sarasota, FL.

McCollough, A. W. & Vogel, E. K. (2006). Appending new representations into old locations in visual working memory. Poster presented at the 2006 meeting of the Vision Sciences Society. Sarasota, FL.

Perez, V., Ikkai, A. & Vogel, E. K. (2006). Do complex objects consume more working memory capacity? Poster presented at the 2006 meeting of the Vision Sciences Society. Sarasota, FL.

Drew, T. W. & Vogel, E. K. (2006). An electrophysiological measure of multiple object tracking. Poster presented at the 2006 meeting of the Vision Sciences Society. Sarasota, FL.

Vogel, E. K. & Ikkai, A. (2005). Do perceptually demanding objects consume more working memory capacity? Paper presented at the 2005 meeting of the CSAIL conference. Hood River, OR.

- Drew, T. W. & Vogel, E. K. (2005). Repeated masks are less effective. Poster presented at the 2005 meeting of the CSAIL conference. Hood River, OR.
- Vogel, E. K., McCollough, A. W., Fair, J. A., & Woodman, G. F. (2005). Maintaining working memory representations across new object onsets. Paper presented at the 2005 meeting of the Vision Sciences Society. Sarasota, FL.
- Drew, T. W. & Vogel, E. K. (2005). Repeated masks are less effective. Poster presented at the 2005 meeting of the Vision Sciences Society. Sarasota, FL.
- McCollough, A. W. & Vogel, E. K. (2005). Appending new representations into visual working memory. Poster presented at the 2005 meeting of the Cognitive Neuroscience Society. New York, NY.
- Ikkai, A. & Vogel, E. K. (2005). Do perceptually demanding objects consume more working memory capacity? Poster presented at the 2005 meeting of the Cognitive Neuroscience Society. New York, NY.
- Vogel, E. K., Machizawa, M. G., & McCollough, A. W. (2004). Memory capacity and the efficiency of attentional control. Paper presented at the 2004 meeting of the Psychonomic Society. Minneapolis, MN.
- Vogel, E. K., McCollough, A. W., Machizawa, M. G., & Ikkai, A. (2004). Neural estimates of the time-course of encoding multiple items into visual short-term memory. Paper presented at the 2004 meeting of the Society for Neuroscience. San Diego, CA.
- McCollough, A. W. & Vogel, E. K. (2004). Adding new representations to existing ones in visual working memory. Poster presented at the International Conference on Working Memory. Kyoto, Japan.
- Vogel, E. K., Machizawa, M. G., & McCollough, A. W. (2004). Controlling access to visual working memory. Paper presented at the International Conference on Working Memory. Kyoto, Japan.
- McCollough & Vogel, E. K. (2004). Appending representations in visual short-term memory. Poster presented at the 2004 meeting of the CSAIL conference. Hood River, OR.
- Vogel, E. K., Machizawa, M. G., & McCollough, A. W. (2004). Memory capacity and the efficiency of attentional control. Paper presented at the 2004 meeting of the CSAIL conference. Hood River, OR.
- Vogel, E. K., Machizawa, M. G., & Fair, J. A. (2003). A neural correlate of visual working memory maintenance. Poster presented at the 2003 meeting of the Psychonomic Society. Vancouver, BC.
- Vogel, E. K., Machizawa, M. G., & Fair, J. A. (2003). A neural correlate of visual working memory maintenance. Paper presented at the 2003 meeting of the CSAIL conference. Hood River, OR.
- Vogel, E. K. & Fair, J. A. (2003). Maintaining representations in visual working memory. Poster presented at the 2003 meeting of the Cognitive Neuroscience Society. New York, NY.
- Vogel, E. K. & Luck, S. J. (2002). The spatial properties of attention in visual working memory. Poster presented at the 2002 meeting of the Psychonomic Society. Kansas City, MO.
- Vogel, E. K. & Luck, S. J. (2002). The rapid time course of consolidation in visual working memory. Paper presented at the 2002 meeting of the Vision Sciences Society. Sarasota, FL.

Luck, S. J., Vogel, E. K., & Woodman, G. F. (2001). The locus of attention is flexible. Paper presented at the 2001 meeting of the Psychonomic Society. Orlando, FL.

Vogel, E. K. & Luck, S. J. (2001). Quartering the spotlight: Spatial properties of selective storage in visual working memory. Poster presented at the 2001 meeting of the Vision Sciences Society. Sarasota, FL.

Vogel, E. K. & Luck, S. J. (2000). Selective storage in visual working memory. Poster presented at the 2000 meeting of the Cognitive Neuroscience Society. San Francisco, CA.

Woodman, G. F., Vogel, E. K., & Luck, S. J. (2000). Visual search remains efficient when visual working memory is full. Poster presented at the 2000 meeting of the Cognitive Neuroscience Society. San Francisco, CA.

Vogel, E. K. & Luck, S. J. (1999). Delayed visual working memory consolidation during the attentional blink. Poster presented at the 1999 meeting of the Cognitive Neuroscience Society. Washington, D.C.

Luck, S. J., Vogel, E. K., & Woodman, G. F. (1998). Selective attention in visual working memory. Paper presented at the 1998 meeting of the Psychonomic Society. Dallas, TX.

Vogel, E. K., Woodman, G. F., & Luck, S. J. (1998). Masking in visual working memory: Evidence for a limited-capacity encoding mechanism. Poster presented at the 1998 meeting of the Cognitive Neuroscience Society. San Francisco, CA.

Luck, S. J., Vogel, E. K., & Woodman, G. F. (1998). Visual working memory for features, conjunctions, and objects. Poster presented at the 1998 meeting of the Cognitive Neuroscience Society. San Francisco, CA.

Vogel, E. K. & Luck, S. J. (1997). ERP evidence for a general-purpose visual discrimination mechanism. Poster presented at the 1997 meeting of the Society for Neuroscience. New Orleans, LA.

Vogel, E. K., Luck, S. J., & Shapiro, K. L. (1997). Electrophysiological evidence for a post-perceptual locus of suppression during the attentional blink. Poster presented at the 1997 meeting of the Cognitive Neuroscience Society. Boston, MA.

Luck, S. J., Vogel, E. K., & Shapiro, K. L. (1996). Electrophysiological evidence for a post-perceptual locus of suppression during the attentional blink. Paper presented at the 1996 meeting of the Psychonomics Society. Chicago, IL.

Vogel, E. K., Rohde, T., & Hale, C. (1994). Irrelevant thought processing and depressed mood states. Poster presented at the 1994 meeting of the Western Psychological Association. Kona, HI.

Vogel, E. K. & Foster, R. (1993). The influence of negative affect on visual sustained attention. Poster presented at the 1993 meeting of the Western Psychological Association. Phoenix, AZ.