

**EDWARD VUL**

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**Employment**

Assistant Professor, Department of Psychology; University of California, San Diego 2010-

**Education**

Ph.D.	Cognitive Science	2010	MIT	Cambridge, MA
	Probabilistic models of cognition	2007	UCLA IPAM	Los Angeles, CA
	Institute of Cognitive Neuroscience	2006	Dartmouth	Hanover, NH
BS	Psychology	2005	UCSD	La Jolla, CA
BA	Philosophy	2005	UCSD	La Jolla, CA

**Awards, Honors, and Grants**

2015	Cognitive Science Society: Computational modeling prize in high level cognition For: Srivastava & Vul (2015) <i>Attention dynamics in multiple object tracking</i>	
2012-2015	NSF Cyber-physical Systems grant: <i>Provably Safe Automotive Cyber-Physical Systems with Humans-in-the-Loop</i> (co-PI with F. Borrelli, E. Loboton, R. Bajcsy).	\$1,100,000
2013	UCSD Chancellor's Interdisciplinary Collaboratories grant: <i>Emulation and the Subjective Direction of Time</i> (with K. Smith, B. Bergen & R. Grush)	\$15,000
2012	Cognitive Science Society: Computational modeling prize in perception For: Smith & Vul. (2012) <i>Sources of uncertainty in intuitive physics</i>	
2011	Robert J. Glushko Dissertation prize from the Cognitive Science Society For: Vul (2010). <i>Sampling in Human Cognition</i> . (MIT BCS PhD Dissertation)	
2010-2013	Intelligence Advanced Research Projects Agency: <i>INSIGHT-ICARUS</i> (BBN/Raytheon team, PI of UCSD subaward).	\$365,000
2009-2012	BIAL Foundation grant: <i>Neural and Computational Mechanisms of Conscious and Unconscious Decisions Under Uncertainty</i>	\$51,500
2010-2011	Office of Naval Research: <i>Complex Learning and Skill Transfer with Video Games</i> (subaward via D. Bavelier)	\$12,000
2009-2010	NSF Decision, Risk, and Management Science grant: <i>Boundedly optimal sampling for decisions under uncertainty</i> (with N. Kanwisher, J. Tenenbaum)	\$23,400
2008	MIT Health Science and Technology Catalyst grant: "Neural substrates of Bayesian computation"	\$22,000
2008	American Psychological Association: Early Researcher Award	
2008	MIT McGovern Institute Neuro-Technology Program: <i>Fast Relational Clustering for High-Throughput Visual Neuroscience</i> (with N. Kanwisher, J. DiCarlo, J. Tenenbaum, V. Mansinghka, B. Cronin, K. Bonawitz)	\$100,000

- 2007-2010 National Defense Science and Engineering Graduate Fellowship
- 2007 Russell Sage Behavioral Economics Research Grant: *Measuring the crowd within: probabilistic cognition in economic decision making* \$4,800
- 2007 Sigma Xi Grant: *How does the brain compensate for vision loss?* (with N. Kanwisher)
- 2005 Sigma Xi Grant: *From retina to awareness: tracking the stages of processing in the visual system* (with D. MacLeod)
- 2004 University of California Regents Research Scholarship (with D. MacLeod)
- Conference travel awards: Neural Information Processing Systems student travel award (2009), Cognitive Science Society (2009), MIT Graduate Student Counsel (2007), Vision Science Society (2007), Institute of Humane Studies (2006), European Conference on Visual Perception (2006)

### **Professional Service**

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*Editorial board:* PLoS One, Frontiers in Perception

*Ad-hoc journal reviewer:* Attention Perception & Psychophysics; Behavioral Research; Cerebral Cortex; Cognition; Cognitive Neuroscience; Cognitive Science; Current Biology; Decision; Frontiers; Journal of Autism and Developmental Disorders; Journal of Decision Making; Journal of Experimental Psychology: General; Journal of Experimental Psychology: Human Perception and Performance; Journal of Experimental Psychology: Learning Memory and Cognition; Journal of Neuroscience; Journal of the Royal Society: Interface; Journal of Vision; Journal of Research and Personality; Management Science; Mathematical Psychology; Memory and Cognition; NeuroImage; Neuron; NeuroReport; Nature Neuroscience; PLoS One; PLoS Computational Biology; Proceedings of the National Academy of Sciences; Psychological Methods; Psychological Review; Psychological Science; Psychonomic Bulletin and Review; Psychophysiology; Science; Trends in Cognitive Science; Vision Research

*Ad-hoc academic press reviewer:* Cambridge Press, MIT Press

*Ad-hoc grant reviewer:*

NSF: Decision, Risk and Management science;  
NSF: Perception, Action, and Cognition;

*Conference reviewing:* Cognitive Science Society (2007-2015); Computational and Systems Neuroscience (2010-2012); European Cognitive Science Conference (2007); Neural and Information Processing Systems (2009-2015);

*Conference program committee:* Computational and Systems Neuroscience (2010, 2011)

*Workshop organization:*

“Rational Process Models” at 31<sup>st</sup> Annual Cognitive Science Society Conference (2009)

“Bounded-rational analyses of human cognition: Bayesian models, approximate inference, and the brain.” at Neural and Information Processing Systems (2009)

*Association Membership:* Cognitive Science Society; Judgment and Decision Making Society; Psychonomic Society; Society for Mathematical Psychology; Society for Neuroscience; Cognitive Neuroscience Society; Vision Sciences Society; Association for Psychological Science; American Psychological Association

**Teaching**

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Quantitative methods (PhD core)	UCSD Psychology	2011-
Probabilistic models of cognition (PhD seminar)	UCSD Psychology	2011, 2015
Visual cognition lab (undergrad elective)	UCSD Psychology	2013, 2015
Information theory and cognition (PhD seminar)	UCSD Psychology	2012
Introduction to Statistics (undergrad core)	UCSD Psychology	2011
Statistics and visualization for inference;	MIT IAP	2009
Sensation and perception;	MIT TA	2008, 2009
Introduction to Neuroanatomy;	MIT SPLASH	2006, 2007, 2008
Introduction to Psychology;	MIT TA	2007
Introduction to Social Psychology;	MIT SPLASH	2005

**Book Chapters**

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- Vul, E.**, Bergsma, J., & MacLeod, D.I.A. (2011) Functional Adaptive Sequential Testing. In Solomon, J. (Ed), *Fechner's Legacy in Psychology: 150 years of elementary psychophysics*.
- Vul, E.**, & Kanwisher, N.K. (2010) Begging the Question: The Non-Independence Error in fMRI Data Analysis. In *Hanson, S. & Bunzl, M (Eds), Foundational Issues in Human Brain Mapping*.
- Vul, E.**, & Kanwisher, N.K. (2010) On the advantages of not having to rely on multiple comparisons correction. In *Hanson, S. & Bunzl, M (Eds), Foundational Issues in Human Brain Mapping*.

**Peer-Reviewed Journal Articles**

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- Lew, T., Pashler, H., & Vul, E. (forthcoming) Fragile associations coexist with robust memories for precise details in long-term memory. *Journal of Experimental Psychology: Learning Memory and Cognition*.
- Smith, K. & **Vul, E.** (2015) The role of sequential dependence in creative semantic search. *Topics in Cognitive Science*.
- Smith K.A. & **Vul E.** (2014) Reductionism and practicality, *Cosmos and History: The Journal of Natural and Social Philosophy*, 10(1), 78-85
- Vul, E.**, Goodman, N., Griffiths, T., & Tenenbaum, J. (2014) One and Done: Optimal decisions from very few samples. *Cognitive Science*.
- Walker, D. & **Vul, E.** (2014) Hierarchical encoding of individuals in a group. *Psychological Science*.  
*Media Coverage:* Reported under the "cheerleader effect" moniker in [The Atlantic](#), [Scientific American](#), [The Guardian](#), [Business Insider](#), [Australian Cosmopolitan](#), and many more.
- Smith, K., Huber, D., & **Vul, E.** (2013) Multiply-constrained semantic search in the Remote Associates Test. *Cognition*, 128(1): 64-75.
- Hanus, D. & **Vul, E.** (2013) Quantifying error distributions in crowding. *Journal of Vision*.
- Smith, K. & **Vul, E.** (2013) Sources of uncertainty in intuitive physics. *Topics in Cognitive Science*.
- Rieth, C.R., Smith, K., Piantadosi, S., & **Vul, E.** (2013). Put Your Money Where Your Mouth Is: Incentivizing the Truth by Making Nonreplicability Costly. *European Journal of Personality*.

- Vul, E.**, Lashkari, D., Hsieh, P.-J., Golland, P., & Kanwisher, N. (2012) Data-driven functional clustering reveals dominance of face, place, and body selectivity in the ventral visual pathway. *J. Neurophysiology*
- Griffiths, T.L., **Vul, E.**, & Sanborn, A.N. (2012) Bridging levels of analysis for probabilistic models of cognition. *Current Directions in Psychological Science*.
- Cain, M., **Vul, E.**, Clark, K., & Mittroff, S. (2012) A Bayesian optimal foraging model of human visual search. *Psychological Science*.
- Vul, E.** & Pashler, H. (2012) Voodoo and circular analyses. *NeuroImage*.
- Gershman, S., **Vul, E.**, & Tenenbaum, J.B. (2012) Multistability and perceptual inference. *Neural Computation*.
- Lashkari, D., Sridharan, R., **Vul, E.**, Hsieh, P.-J., Kanwisher, N., & Golland, P. (2011) Search for patterns of functional specificity in the brain: a nonparametric hierarchical Bayesian model for group fMRI data. *Neuroimage*.
- Frank, M.C., **Vul, E.** & Saxe, R. (2011) Measuring the development of social attention using free-viewing. *Infancy, 1-21*.
- Teglas\*, E., **Vul\***, E., Girotto, V., Gonzalez, M., Tenenbaum, J.B. & Bonatti, L.L. (2011) Pure reasoning in 12-month-olds as probabilistic inference. *Science 332(6033)*, 1054-1059.  
\* Joint first authors
- Carpenter, S.K. & **Vul, E.** (2011) Delaying feedback by three seconds benefits retention of face-name pairs: The role of active anticipatory processing. *Memory & Cognition, 39(7)*, 1211-21.
- Vul, E.** (2011) Reductionism and practicality. *Psychological inquiry, 22(2)*, 137-138.
- Vul, E.**, Bergsma, J, and MacLeod, DIA (2010) Functional Adaptive Sequential Testing. *Seeing and Perceiving*.
- Hsieh, P.-J., **Vul, E.**, & Kanwisher, N.G. (2010) Recognition alters the spatial pattern of fMRI activation in early retinotopic cortex. *J. Neurophysiology*.
- Kriegeskorte, N., Lindquist, M.A., Nichols, T.E., & **Vul, E.** (2010) *J. Cerebral Blood Flow and Metabolism*.
- Vul, E.**, & Rich, A. (2010) Independent sampling of features enables conscious perception of bound objects. *Psychological Science*.
- Lashkari, D., **Vul, E.**, Kanwisher, N.G., & Golland, P. (2010) Discovering structure in the space of fMRI selectivity profiles. *NeuroImage, 50(3)*, 1085-1098.
- Vul, E.**, Hanus, D., & Kanwisher N. (2009) Attention as inference: Selection is probabilistic, Responses are all-or-none samples *Journal of Experimental Psychology: General, 138(4)*, 546-560.
- Vul, E.**, Harris, C., Winkielman, P., & Pashler, H. (2009) Reply to comments on Puzzlingly high correlations in fMRI studies of emotion, personality, and social cognition. *Perspectives on Psychological Science, 4*, 319–324.
- Vul, E.**, Harris, C., Winkielman, P., & Pashler, H. (2009) Puzzlingly high correlations in fMRI studies of emotion, personality, and social cognition (the paper formerly known as Voodoo Correlations in Social Neuroscience). *Perspectives on Psychological Science, 4*, 274–290.  
**Media Coverage:** Reported in Newsweek, Nature News, New Scientist, Scientific American, and many more.

- Frank, M. C., **Vul, E.**, & Johnson, S. P. (2009) Development of infants' face preference during the first year. *Cognition*, *110*, 160-170.
- Cepeda, N.J., **Vul, E.**, Rohrer, D., Wixted, J.T., & Pashler, H. (2008) Spacing effects in learning: A temporal ridgeline of optimal retention. *Psychological Science*, *19*, 1095-1102.
- Vul, E.**, Krizay, E., & MacLeod, D. (2008) The McCollough effect reflects permanent and transient adaptation in early visual cortex *Journal of Vision*, *8(12):4*, 1-12.
- Vul, E.**, Hanus, D., & Kanwisher, N. (2008) Delay of Selective Attention During the Attentional Blink *Vision Research*, *48(18)*, 1902-9.
- Vul, E.** & Pashler, H. (2008) Measuring the crowd within: probabilistic representations within individuals *Psychological Science*, *19(7)*, 645-647.  
*Media Coverage:* Reported in the *Economist*, and a number of other outlets.
- Carpenter, S. K., Pashler, H., Wixted, J. T., & **Vul, E.** (2008) The effects of tests on learning and forgetting. *Memory and Cognition*, *36*, 438-448.
- Vul, E.**, Nieuwenstein, M., & Kanwisher N. (2008) Temporal Selection is Suppressed, Delayed, and Diffused During the Attentional Blink. *Psychological Science*, *19*, 55-61.
- Vul, E.** & Pashler, H. (2007) Incubation is helpful only when people are misled. *Memory, and Cognition*, *35*, 701-710.
- Carpenter, S.K., Pashler, H., & **Vul, E.** (2006) What type of learning is enhanced by a cued recall test? *Psychonomic Bulletin and Review*. *13(5)* 826-830.
- Vul, E.** & MacLeod, D. I. A. (2006) Contingent after-effects distinguish conscious and pre-conscious colour processing. *Nature Neuroscience*, *9(7)*, 873-4.
- Huang, L & **Vul, E.** (2006) Role of a circle's center to visual interpolation. *Vision Research*, *46(15)*, 2311-2314.
- Cepeda, N., Pashler, H., **Vul, E.**, Wixted, J., and Rohrer, D. (2006) Distribution of practice in verbal recall tasks: a review and quantitative synthesis. *Psychological Bulletin*, *132(3)*:354-80.

### **Peer-Reviewed Conference Proceedings**

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- Walker, D., Smith, K., & **Vul, E.** (2015) The "Fundamental Attribution Error" is rational in an uncertain world. *Proceedings of the 37th Annual Meeting of the Cognitive Science Society*
- Hamrick, J., Griffiths, T., Smith, K., & **Vul, E.** (2015) Think again? The amount of mental simulation tracks uncertainty in the outcome. *Proceedings of the 37th Annual Meeting of the Cognitive Science Society*
- Lew, T. & **Vul, E.** (2015) Structured priors in visual working memory revealed through iterated learning. *Proceedings of the 37th Annual Meeting of the Cognitive Science Society*
- Srivastava, N. & **Vul, E.** (2015) Attention dynamics in multiple object tracking. *Proceedings of the 37th Annual Meeting of the Cognitive Science Society*
- Srivastava, N. & **Vul, E.** (2015) Differentiating choice dynamics between hedonic and utilitarian behavior. *Proceedings of the 37th Annual Meeting of the Cognitive Science Society*
- Smith, K. & **Vul, E.** (2015) Prospective uncertainty: The range of possible futures in physical prediction. *Proceedings of the 37th Annual Meeting of the Cognitive Science Society*
- Srivastava N., **Vul E.** & Schrater P. (2014) Magnitude-sensitive Preference Formation, *Advances in Neural Information Processing Systems*,

- Smith K.A. & Vul E. (2014) Looking forwards and backwards: Similarities and differences in prediction and retrodiction, *Proceedings of the 36th Annual Meeting of the Cognitive Science Society*,
- Bourgin D.D., Abbott J.T., Griffiths T.L., Smith K.A. & Vul E. (2014) Empirical evidence for Markov Chain Monte Carlo in memory search, *Proceedings of the 36th Annual Meeting of the Cognitive Science Society*,
- Vul, E., Sullivan, J., & Barner, D. (2013) Slow drift of individuals' magnitude-to-number mapping. *Proceedings of the 35th Annual Meeting of the Cognitive Science Society*.
- Smith, K.A., Dechter, E., Tenenbaum, J.B., & Vul, E. (2013). Physical predictions over time. *Proceedings of the 35th Annual Meeting of the Cognitive Science Society*.
- Smith, K.A., Battaglia, P., & Vul, E. (2013) Consistent physics underlying ballistic motion prediction. *Proceedings of the 35th Annual Meeting of the Cognitive Science Society*
- Smith, K. & Vul, E. (2012) Sources of uncertainty in intuitive physics. *Proceedings of the 34<sup>th</sup> Annual meeting of the Cognitive Science Society*
- Rieth, C.R. & Vul, E. (2012) Accounting for the Attentional Blink and Repetition Blindness through Rational Expectations of Task-Relevant Transitions. *Proceedings of the 34<sup>th</sup> Annual meeting of the Cognitive Science Society*
- Cain, M., Vul, E., Clark, K. & Mitroff, S.A. (2011) Optimal models of human multiple-target visual search. *Proceedings of the 33<sup>rd</sup> annual meeting of the Cognitive Science Society*.
- Lashkari, D., Sridharan, R., Vul, E., Hsieh, P.-J., Kanwisher, N. and Golland, P. (2010) Nonparametric hierarchical Bayesian model for functional brain parcellation. *2010 IEEE Computer Society Conference on Computer Vision and Pattern Recognition Workshops*.
- Mozer, M.C., Pashler, H., Cepeda, N., Lindsey, R., & Vul, E. (2009) Predicting the optimal spacing of study: a multiscale context model of memory. *Advances in Neural Information Processing Systems, 2009*.
- Gershman, S., Vul, E., & Tenenbaum, J.B. (2009) Perceptual multistability as Markov Chain Monte Carlo inference. *Advances in Neural Information Processing Systems, 2009*.
- Vul, E., Frank, M.C., Alvarez, G.A., & Tenenbaum, J.B. (2009) Explaining human multiple object tracking as resource-constrained approximate inference in a dynamics probabilistic model. *Advances in Neural Information Processing Systems, 2009*.
- Vul, E., Goodman, N.D., Griffiths, T.L., & Tenenbaum, J.B. (2009) One and Done: Optimal decisions from very few samples. *Proceedings of the 31 Annual Meeting of the Cognitive Science Society*, pp. 148-153.
- Lashkari, D., Vul, E., Kanwisher, N., & Golland, P. (2008) Discovering structure in the space of activation profiles in fMRI. *MICCAI, 2008*, 1016-1024.

### Invited Talks

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- 2014 NCI workshop on medical imaging perception (Bethesda, MD); UCSD Cognitive brownbag seminar (La Jolla, CA); Intelligence Advanced Research Projects Agency (IARPA) symposium on cognitive science and intelligence analysis (Fort Meade, MD); UC Berkeley symposium on foundations of mind (Berkeley, CA); BIAL Research Conference (Porto, Portugal); UC Riverside Psychology Colloquium (Riverside, CA); BBN workshop on Cog Sci for Intelligence Analysis (Boston, MA);

- 2013 UC Berkeley Cognitive Science series, (Berkeley, CA); Ohio State University Psychology Colloquium, (Columbus, OH); Raytheon/BBN seminar, (Cambridge, MA); UCSD Artificial Intelligence Seminar, (La Jolla, CA)
- 2012 Model Predictive Control Lab, Mechanical Engineering, UC Berkeley (Berkeley, CA); Society for Industrial and Applied Mathematics – workshop (San Diego, CA); Cognitive Science Judgment and Decision Making symposium (Sapporo, Japan); University of Guadalajara, Institute de Neurociencias (3 talks); Johns Hopkins Cognitive Science dept (Baltimore, MD); Johns Hopkins Psychology dept (Baltimore, MD); BBN/Raytheon on sampling in human cognition (Boston, MA); SPSP Workshop on the wisdom of crowds (San Diego, CA)
- 2011 Office of Naval Research: learning from Video-Game Playing meeting (Washington, DC); NSF SBSR Workshop on Neuroimaging Statistical Analyses (Arlington, VA); EASP, Social Neuroscience (Stockholm, Sweden); UCLA Computational Neuroscience Seminar; UCSD Cognitive Brown Bag (La Jolla, CA).
- 2010 Tsinghua University Bioengineering Colloquium, (Beijing, China); Beijing University Psychology, Colloquium, (Beijing, China); California Institute of Technology, Humanities and Social Sciences Colloquium (Pasadena, CA); UCLA Psychology (La Jolla, CA); UCSD Cognitive Neural Systems Seminar; UCSD Artificial Intelligence Seminar; UC Irvine Psychology Colloquium; Mathematical Psychology Society: Wisdom of crowds workshop; Computational and Systems Neuroscience: sampling workshop (Snowbird, UT)
- 2009 Columbia University workshop on statistics and Neuroscience; University of Guelph NeuroImaging Philosophy workshop, (Guelph, Canada); Massachusetts General Hospital Colloquium (Boston, MA); NIPS workshop on rational process models; Search Lab, Harvard (Cambridge, MA); Princeton Psychology Dept.; UCSD Psychology Dept.; Cognitive Sciences Society workshop; Berenson-Allen Center for Non-Invasive Brain Stimulation;
- 2008 MIT Cognitive Group; University of Sydney, Psychology Department Colloquium; MACCS Attention Seminar, Macquarie University; UCSD Psychology Cognitive Brown Bag; Yale Psychology Cognitive Group; MIT Cognitive Group;
- 2006 MIT Cognitive Group
- 2005 Harvard Visual Attention Laboratory Seminar Series; MIT Cognitive Group.

### **University/Department Service and Mentoring**

*PhD students:* Kevin Smith (UCSD; expected 2015), Drew Walker (UCSD; expected 2016), Tim Lew (UCSD; expected 2017)

*PhD student committees:* Aimee Chabot, Adam Dede, Scott Freeman, Tom Gillespie, Jonas Lau, Mark Myslin, Brad Monk, Mary Smith, Katherine Tillman, Randy Tran, Galit Yavne.

*Undergraduate honors students:* Deborah Hanus (MIT), Jessica Liu (UCSD), Sean Deering (UCSD).

*Co-Organizer of:* Vision Journal Club, Probabilistic Models of Cognition reading group, Cognitive Neuroscience Seminar, Cognitive seminar series, Graduate student talk series (advisor).

*Committees:* Masters Program (UCSD Psychology), Computers and Technology (UCSD Psychology), STARS Faculty panel (UCSD), Research Ethics panel (UCSD medical school), Martinos Imaging Center (graduate representative, MIT), Cognition job search (graduate representative, MIT)

### **Conference Presentations**

- 2015 Vul & Lew, *ASIC*.  
Walker, Smith, & Vul. *CogSci*.  
Hamrick, Griffiths, Smith, & Vul. *CogSci*.  
Lew & Vul. *CogSci*.  
Srivastava & Vul. *CogSci*.  
Srivastava & Vul. *CogSci*.  
Smith & Vul. *CogSci*.  
Lew & Vul. *VSS*.  
Smith & Vul. *VSS*.  
Srivastava, Rieth, & Vul. *VSS*.  
Vul & Lew. *ECVP*.  
Smith & Vul. *SPSP symposium*.
- 2014 Smith & Vul. *CogSci*.  
Bourgin, Abbott, Griffiths, Smith, & Vul. *CogSci*  
Lew & Vul. *VSS*.  
Smith, Dechter, Tenenbaum, & Vul. *VSS*  
Smith & Vul. *Psychonomics*.  
Lew & Vul. *OPAM*  
Vul & Smith. *ECVP*
- 2013 Vul, Sullivan, & Barner. *VSS*.  
Rich, Rieth, & Vul. *VSS*.  
Rieth & Vul. *VSS*.  
Smith & Vul. *VSS*.  
Walker & Vul. *VSS*.  
Hanus & Vul. *VSS*.  
Vul, Sullivan, Barner. *CogSci*  
Smith, Battaglia, Vul. *CogSci*  
Smith, Dechter, Tenenbaum, Vul. *CogSci*  
Lew & Vul. *Psychonomics*.  
Lew & Vul. *OPAM*
- 2012 Vul, Smith, Pashler. *SPSP symposium*.  
Vul, Sullivan, & Barner. *Psychonomics*.  
Rieth & Vul. *Psychonomics*.  
Smith, Olanont, Vul, & Huber. *Psychonomics*.
- 2011 Vul, E. *VSS*.  
Cain, Vul, Clark, & Mittroff. *CogSci*
- 2010 Lashkari, Vul, Hsieh, Golland, and Kanwisher, *Gordon Research Conference on Neurobiology of Cognition*
- 2009 Vul, Frank, Alvarez, & Tenenbaum. *COSYNE*.  
Hsieh, Vul, Kanwisher. *VSS*  
Vul, Lashkari, Golland, Hsieh, & Kanwisher. *VSS*  
Vul, *ASIC*  
Vul, Goodman, Griffiths, Tenenbaum. *CogSci*  
Vul, Frank, Alvarez, & Tenenbaum. *ECVP*  
Vul, Lashkari, Hsieh, Golland, & Kanwisher. *SfN*.  
Brady, Vul, Tenenbaum. *Psychonomics*.



- Vul, Frank, Alvarez, & Tenenbaum. *OPAM*  
Lashkari, Vul, Kanwisher, and Golland, *HBM*  
Carpenter, S. K., & Vul, E. *Psychonomics*  
Mozer, Pashler, Cepeda, Lindsey, & Vul. *NIPS*.  
Gershman, Vul, Tenenbaum. *NIPS*.  
Vul, Frank, Alvarez, Tenenbaum. *NIPS*.
- 2008 Frank, Vul, Mansinghka, & Alvarez, *VSS*  
Hanus, Vul, & Kanwisher, *VSS*  
Vul, Hanus, & Kanwisher, *VSS*  
Rich & Vul. *ECVP*  
Vul. & Kanwisher. *ECVP*  
Vul. *OPAM*
- 2007 Krizay, Vul, Shubel, & MacLeod, *VSS*  
Vul. *ICCNS*  
Carpenter, Pashler, Wixted, & Vul, *APS*  
Carpenter, Pashler, Wixted, & Vul, *IES*  
Vul & Kanwisher *CogSci*  
Vul & MacLeod. *ECVP*  
Frank, Vul, & Johnson, *VSS*  
Vul, Coffey, Nieuwenstein, & Kanwisher. *VSS*  
Vul, & Kanwisher, *MathPsych*  
Falconbridge, Vul, & MacLeod, *OSA*  
Pashler, Vul, & Rickard, *Psychonomics*  
Vul, Krizay, & MacLeod, *SfN*  
Vul, *Rank Prize*
- 2006 Carpenter, Pashler, Wixted & Vul, *AERA*  
Vul & MacLeod. *CNS*  
Carpenter, Pashler, & Vul. *APS*  
Vul & MacLeod. *VSS*  
Vul, Konkle, Williams, & Nieuwenstein, *ECVP*  
Carpenter, Pashler, & Vul, *Psychonomics*
- 2005 Vul & Pashler *APS*  
Carpenter, Pashler, Wixted, & Vul. *Psychonomics*  
Cepeda, Pashler, & Vul. *Psychonomics*