

Stephen A. Engel

Curriculum Vitae, January, 2016

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Academic History

2007-present	University of Minnesota, Dept. of Psychology, Full Professor
2006-2007	UCLA, Dept. of Psychology, Full Professor
2002-2006	UCLA, Dept. of Psychology, Associate Professor
1996- 2002	UCLA, Dept. of Psychology, Assistant Professor
1995-1996	Stanford Univ., Dept. of Psychology, Post-doctoral fellow
1989-1995	Stanford Univ., Dept. of Psychology Ph.D., Cognitive Psychology Thesis Title: <i>Mapping Human Primary Visual Cortex with Functional Magnetic Resonance Imaging</i>
1983-1987	Harvard College B.A. with High Honors, Computer Science

Selected Grants, Fellowships, and Honors

- Honorary Visiting Fellow, Clare Hall, Cambridge University, 2013-2014
- National Eye Institute R01 EY023101, “Spatiotemporal imaging study of the mechanisms of binocular rivalry”, (multiple PI with S. He and B. He) \$750,00, 2012-2015 (total direct costs, as are all below)
- National Science Foundation, BCS-1028584: “Mechanisms of long term adaptation visual cortex”, \$450,000, 2010-2014

- University of Minnesota Infrastructure Initiative: “New infrastructure for campus-wide access to 3T MRI”, \$1,499,000 for new MRI scanner. 2011
- Keck Foundation, “UCLA Program for Vision and Image Sciences” (co-PI with Yuille and Soatto), \$660,000, 2005-2007
- National Eye Institute, RO1 EY11862: “Color Processing in Human Cortex”, \$575,185, 1999-2007
- Associate Editor, *Frontiers in Human Neuroscience*, 2007- present
- UCLA Copenhaver Award for Teaching with Technology, 2004
- National Eye Institute, James A Shannon Director's Award: “Color Processing in Human Cortex”, \$100,000, 1997-1999
- Phi Beta Kappa, 1986

Refereed Publications

1. Katyal, S., Engel, S.A., He, B., & He, S. (2016) Neurons that detect interocular conflict during binocular rivalry revealed with EEG. *Journal of Vision*, **16**(3):18, 1–12. doi: 10.1167/16.3.18
2. McGonigle, C., van der Linde, I., Pardhan, S. Engel, S.A., Mallen, E., and Allen, P. (2016). Myopes experience greater contrast adaptation during reading. *Vision Research*, **121**:1–9. doi: 10.1016/j.visres.2016.01.001
3. Jimenez, A. M., Lee, J., Wynn, J. K., Cohen, M. S., Engel, S. A., Glahn, D. C., Nuechterlein, K. H., Reavis, E. A., & Green, M. F. (2016). Abnormal Ventral and Dorsal Attention Network Activity during Single and Dual Target Detection in Schizophrenia. *Frontiers in Psychology*, **7**: 323. doi: 10.3389/fpsyg.2016.00323
4. Haak, K. V., Morland, A. B., & Engel, S. A. (2015). Plasticity, and Its Limits, in Adult Human Primary Visual Cortex. *Multisensory Research*, **28**:297–307.
5. Jamison K.W., Roy A.V., He S., Engel S.A., He B. (2015). SSVEP signatures of binocular rivalry during simultaneous EEG and fMRI. *J Neurosci Methods*, **243**:53-62. doi: 10.1016/j.jneumeth.2015.01.024.
6. Haak, K.V., Fast, E., Bao, M., Lee, M., & Engel, S.A. (2014). Four Days of Visual Contrast Deprivation Reveals Limits of Neuronal Adaptation. *Current Biology*, **24**(21): 2575-2579, <http://dx.doi.org/10.1016/j.cub.2014.09.027>.

7. Qin, A., Koutstaal, W., & Engel, S.A., (2014) The hard-won benefits of familiarity in visual search: naturally familiar brand logos are found faster. *Attention, Perception, and Psychophysics*. **76**(4):914-30.
8. Lee, J., Cohen, M. S., Engel, S. A., Glahn, D., Nuechterlein, K. H., Wynn, J. K., & Green, M. F. (2014). Neural substrates of visual masking by object substitution in schizophrenia. *Human Brain Mapping*. **35**(9):4564:62.
9. Dong, X., Engel, S. A., & Bao, M. (2014). The time course of contrast adaptation measured with a new method: Detection of ramped contrast. *Perception*, **43**(5), 427-37.
10. Thompson, S., Engel, S. A., Olman, C., & Engel, S. (2014). Larger Neural Responses Produce BOLD Signals That Begin Earlier in Time. *Frontiers in Neurosciences: Brain Imaging Methods*, **8**, 159.
11. Engel, S.A. & Burton, P.C. (2013) Confidence Intervals for fMRI Activation Maps. *PLoS One*, **8**(12): e82419
12. Mesik J., Bao M., & Engel S.A. (2013). Spontaneous recovery of motion and face aftereffects. *Vision Res*. **89**:72-8.
13. Bao M., Fast E., Mesik J., & Engel S.A. (2013) Distinct mechanisms control contrast adaptation over different timescales. *J Vis*. **13**(10).
14. Carr V.A., Engel S.A., & Knowlton B.J. (2013). Top-down modulation of hippocampal encoding activity as measured by high-resolution functional MRI. *Neuropsychologia*. **51**(10):1829-37.
15. Holm L., Engel S.A., & Schrater P. (2012) Object learning improves feature extraction but does not improve feature selection. *PLoS One*. **7**(12):e51325.
16. Bao M., & Engel S.A. (2012) Distinct mechanism for long-term contrast adaptation. *Proc Natl Acad Sci U S A*. **109**, 5898-903.
17. Engel S.A. (2012) The development and use of phase-encoded functional MRI designs. *Neuroimage*. **62**, 1195-200.
18. Boynton, G.M., Engel, S.A., Heeger, D.J. (2012) Linear Systems Analysis of the fMRI Signal. *Neuroimage*. **62**, 975-84.
19. Zhang P., Jamison K., Engel S.A., He B., He S. (2011) Binocular rivalry requires visual attention. *Neuron*. **71**, 362-9
20. Crossland, M.D., Engel, S.A., Legge, G.E (2011) The Preferred Retinal Locus In Macular Disease: Towards A Consensus Definition. *Retina*. **10**, 2109-14

21. Bouvier S.E., Engel S.A. (2011) Delayed effects of attention in visual cortex as measured with fMRI. *Neuroimage*. **57**, 1177-83.
22. Harvey P.O., Lee J., Cohen M.S., Engel S.A., Glahn D.C., Nuechterlein K.H., Wynn J.K., Green M.F. (2011) Altered dynamic coupling of lateral occipital complex during visual perception in schizophrenia. *Neuroimage*. **55**, 1219-26.
23. Bao M., Yang L., Rios C., He B., Engel S.A. (2010). Perceptual learning increases the strength of the earliest signals in visual cortex. *Journal of Neuroscience* **30**, 15080-15084.
24. Lee J., Cohen M.S., Engel S.A., Glahn D., Nuechterlein K.H., Wynn J.K., Green M.F. (2010). Regional brain activity during early visual perception in unaffected siblings of schizophrenia patients. *Biological Psychiatry*. **68**, 78-85.
25. Carr VA, Viskontas IV, Engel SA, Knowlton B. (2010) Neural Activity in the Hippocampus and Perirhinal Cortex during Encoding Is Associated with the Durability of Episodic Memory. *J Cogn Neurosci*. **22**, 2652-62.
26. Falconbridge, M., Wozny, D., Shams, L., & Engel, S.A. (2009). Adapting to altered image statistics using processed video. *Vision Research*, **49**(14):1757-64
27. Zhang, P., Bao, M., Kwon, M., He, S., & Engel, S.A. (2009). Effects of orientation specific visual deprivation measured using altered reality. *Current Biology* **19**, 1956–1960.
28. Harley, E.M., Pope, W.M., Villablanca, J.P., Mumford, J., Suh, R. Mazziotta, J.C., Enzmann, D. & Engel, S.A. (2009). Engagement of fusiform cortex and disengagement of lateral occipital cortex across the acquisition of radiological expertise. *Cerebral Cortex* **19**(11):2746-54
29. Green, M.F., Lee, J., Cohen, M.S., Engel, S.A., Korb, A., Nuechterlein, K.H., Wynn, J.K., & Glahn, D. (2009). Functional Neuroanatomy of Visual Masking Deficits in Schizophrenia. *Archives of General Psychiatry* **66**(12):1295-303.
30. Viskontes, I.V., Carr, V.A., Engel, S.A., & Knowlton, B.J. (2009). The neural correlates of recollection: Hippocampal activation declines as episodic memory fades. *Hippocampus*, **19**, 265-272.
31. Bouvier S.E, Cardinal, K.S., & Engel S.A. (2008). Activity in Visual Area V4 Correlates with Surface Perception. *Journal of Vision*, **8**(7):28, 1-9.
32. Engel, S.A. (2008). Computational cognitive neuroscience of the visual system. *Current Directions in Psychological Science*, **17**, 68-72

33. Wynn J.K., Green M.F., Engel S.A., Korb A, Lee J., Glahn D., Nuechterlein K.H., & Cohen M.S. (2008). Increased extent of object-selective cortex in schizophrenia. *Psychiatry Research*, 164, 97-105.
34. Heckman, G.M., Bouvier, S.E., Carr, V.A., Harley, E.M., Cardinal. K.S, & Engel, S.A. (2007). Nonlinearities in rapid event-related fMRI explained by stimulus scaling. *Neuroimage*, 34, 651–60.
35. Engel, S.A, Remus, D.A., Sainath, R. (2006). Motion from Occlusion. *Journal of Vision*, **10**, 649-52.
36. Bouvier S.E & Engel S.A. (2006). Behavioral Deficits and Cortical Damage Loci in Cerebral Achromatopsia. *Cerebral Cortex*. **16**, 183-91.
37. Engel S.A. (2005). Adaptation of oriented and unoriented color-selective neurons in human visual areas. *Neuron* **45**, 613-23.
38. Eldridge L.L., Engel S.A., Zeineh M.M., Bookheimer S.Y., & Knowlton B.J. (2005). A dissociation of encoding and retrieval processes in the human hippocampus. *Journal of Neuroscience* **25**, 3280-6.
39. Green M.F., Glahn D., Engel S.A., Nuechterlein K.H., Sabb F., Strojwas M., & Cohen M.S. (2005). Regional brain activity associated with visual backward masking. *Journal of Cognitive Neuroscience* **17**, 13-23
40. Furmanski, C.S, Schluppeck, D., & Engel, S.A. (2004) Learning Strengthens The Response of Primary Visual Cortex to Simple Patterns. *Current Biology* **14**, 573-578
41. Zeineh, M.M., Engel, S.A., Thompson, P.M., & Bookheimer, S.Y. (2003). Dynamics of the hippocampus during encoding and retrieval of face-name pairs. *Science*, **299**, 577-580.
42. Schluppeck, D., & Engel, S.A. (2002). Color opponent neurons in V1: A review and model reconciling results from imaging and single-unit recording. *Journal of Vision*, **2**, 480-492
43. Yin, C., Shimojo, S., Moore, C., & Engel, S.A. (2002). Dynamic shape integration in extrastriate cortex. *Current Biology*, **12**, 1379-1385.
44. Moore, C., & Engel, S.A. (2001). Mental models change rapidly with implicitly acquired information about the local environment: A 2-tone image study. *Journal of Experimental Psychology: Human Performance and Perception* **27**, 1211-1228.
45. Engel, S.A. & Furmanski, C.S. (2001). Selective adaptation to color contrast in human primary visual cortex. *Journal of Neuroscience*, **21**, 3949-3954

46. Tong, F.H., & Engel, S.A. (2001). Interocular rivalry revealed in the human cortical blind-spot representation. *Nature*, **411**, 195-199.
47. Zeineh M.M., Engel S.A., Thompson P.M., Bookheimer S.Y. (2001). Unfolding the human hippocampus with high resolution structural and functional MRI. *The Anatomical Record: The New Anatomist* **265**:111-120.
48. Moore, C., & Engel, S.A. (2001). Neural response to the perception of volume in the lateral occipital complex. *Neuron*, **29**, 277-286.
49. Eldridge, L.L, Knowlton, B.J., Furmanski, C.S., Bookheimer, S.Y., & Engel, S.A. (2000). Remembering episodes: a selective role for the hippocampus during retrieval. *Nature Neuroscience*, **3**, 1149-1152.
50. Furmanski, C.S. & Engel, S.A. (2000). An oblique effect in human primary visual cortex. *Nature Neuroscience*, **3**, 535-536
51. Zeineh, M.M., Engel, S.A., & Bookheimer, S.Y. (2000). Application of cortical unfolding techniques to functional MRI of the human hippocampal region. *Neuroimage*, **11**, 668–683.
52. Furmanski, C.S. & Engel, S.A. (2000). Perceptual learning in object recognition: Object specificity and size invariance. *Vision Research* **40**, 473-485.
53. Engel, S.A. (1999). Using neuroimaging to measure mental representations: Finding color-opponent neurons in cortex. *Current Direction in Psychological Science* **8**, 23-27.
54. Servos, P., Engel, S.A., Gati, J. & Menon, R. (1999). fMRI evidence for an inverted face representation in human somatosensory cortex. *Neuroreport*, **10**, 1393-1395
55. Olds, E.L., & Engel, S.A. (1998). Linearity across spatial frequency in object recognition. *Vision Research*, **38**, 2019-2118.
56. Engel, S.A., Zhang, X., & Wandell, B.A. (1997). Colour tuning in human visual cortex measured with functional magnetic resonance imaging. *Nature*, **388**, 68-71.
57. Engel, S.A., Glover, G.H., & Wandell, B.A. (1997). Retinotopic organization in human visual cortex and the spatial precision of functional MRI. *Cerebral Cortex*, **7**, 181-192.
58. Boynton, G.M., Engel, S.A., Glover, G.H., & Heeger, D.H. (1996). Linear systems analysis of fMRI in human V1. *Journal of Neuroscience*, **16**, 4207-4221.
59. Engel, S.A., Rumelhart, D.E., Wandell, B.A., Lee, A.T., Glover, G.H., Chichilnisky, E.J., & Shadlen, M.N. (1994). fMRI of human visual cortex. *Nature*, **369**, 525.

Un-refereed Publications

60. Wandell, B.A., Baselar, H., Poirson, A.B., Boynton, G.M., & Engel, S.A. (1999) Computational neuroimaging: Color tuning in two human cortical areas measured using fMRI. In *Color Vision: From Molecular Genetics to Perception*. Gegenfurtner, K. & Sharpe, L.T., ed.s, Cambridge Univ. Press.
61. Moore, C. & Engel, S.A. (1999). Visual perception: Mind and brain see eye to eye. *Current Biology*, **9**, R74-76.
62. Engel, S.A. (1996). Looking into the black box: New directions in neuroimaging. *Neuron*, **17**, pp. 375-378.

Recent Conference Presentations

1. Mesik, J., Patke, A., & Engel, S. (2015). Repeatedly adapting to orientation ensembles does not change contrast adaptation dynamics. *Journal of vision*, 15(12), 36-36.
2. Katyal, S., He, S., & Engel, S. (2015). Adapting the mechanism that initiates binocular rivalry. *Journal of vision*, 15(12), 274-274.
3. Lau, B., Ruggles, D. R., Katyal, S., Engel, S. A., & Oxenham, A. J. (2015). The influence of short term perceptual learning of pitch discrimination and modulation discrimination on subcortical envelope-following and cortical steady-state EEG responses. *The Journal of the Acoustical Society of America*, 137(4), 2409-2409.
4. Winkler, A., Marcos, S., Engel, S., & Webster, M. (2015). Dynamics of blur adaptation. *Journal of vision*, 15(12), 27-27.
5. O'Keefe, J., Jozwik, K., Engel, S., & Kriegeskorte, N. (2015). Predicting face dissimilarity judgements from Basel Face Space. *Journal of vision*, 15(12), 421-421.
6. Fast, E., Haak, K., Bao, M., & Engel, S. A. (2014). Four days of visual contrast adaptation: effects on perceived contrast grow monotonically while effects on orientation rise then fall. Annual meeting of the Vision Sciences Society.
7. Olman, C. A., Bao, P., Engel, S. A., Grant, A. N., Purington, C., Qiu, C., ... & Tjan, B. S. (2014). Do hemifield representations co-opt ocular dominance column structure in achiasma? Annual meeting of the Vision Sciences Society.
8. Dong, B., Jiang, Y., Engel, S., & Bao, M. (2014). Adaptation to patch-wise complementary video reduces perceptual ocular dominance. Annual meeting of the Vision Sciences Society.
9. Mesik, J., & Engel, S. A. (2014). Repeated days of 2 hr visual adaptation create effects that are faster but weaker. Annual meeting of the Vision Sciences Society.

10. Baek, Y., & Engel, S. A. (2014). Change in asymptote reveals distinct mechanisms underlying adaptation to faces. Annual meeting of the Vision Sciences Society.
11. Katyal, S., Cho, S., Engel, S.A., & He, S. (2014). Neural signature of the initiation of binocular rivalry. Annual meeting of the Vision Sciences Society.
12. Fast, E., Baek, Y. Mesik, M., Haak, K., and Engel, S.A. (2013) “Detection reveals multiple temporally tuned mechanisms controlling contrast adaptation”, annual meeting of the Vision Sciences Society.
13. Qin, X., Koutstaal, W., & Engel, S.A. (2013) “Perceptual exposure does not alter advantage for familiar brand logos in visual search”, annual meeting of the Vision Sciences Society.
14. Engel S.A., and Bao M. (2012), “Multiple mechanisms of visual adaptation”, 3rd International Conference on Perceptual Learning, Nara, Japan.
15. Mesik J., and Engel. S. (2012). “Spontaneous recovery of the motion aftereffect”, annual meeting of the Vision Sciences Society.
16. Bao M., and Engel. S. (2012). “Distinct mechanisms control contrast adaptation over different timescales”, annual meeting of the Vision Sciences Society
17. Bao, M., & Engel, S.A. (2011). Separate mechanisms for long- and short-term contrast adaptation. Annual meeting of the Vision Sciences Society.
18. Burton, P. & Engel, S.A. (2011). Confidence intervals for fMRI activation maps. Annual meeting of the Human Brain Mapping Society.
19. Jamison, K., Engel, S.A., He, S., He, B. (2011). Simultaneous recording of EEG and fMRI during binocular rivalry. Annual meeting of the Society for Neuroscience.

Selected Invited Colloquia

- “Plasticity, and its limits, in the adult visual system”, Peking University, Spring 2015.
- “Plasticity, and its limits, in the adult visual system”, Chinese Academy of Sciences, Institute of Psychology, Beijing, Spring 2015.
- “Plasticity, and its limits, in the adult visual system”, Helmholtz Institute, University of Utrecht, Netherlands, Spring 2015.
- University of Pennsylvania, OSA Fall Vision Meeting (2014)
- University of Wisconsin (2014)
- Cambridge University (2014)
- University College, London (2013)

- University of Paris, Descartes (2013).
- Oxford University (2013)
- University of Washington (2011)
- University of Nevada, Reno (2009)
- University of Pennsylvania (2008)
- University of California, Berkeley (2006)
- University of Minnesota (2006)
- Vanderbilt University (2006)
- University of Chicago (2005)

Selected Courses Taught

- Introduction to Sensation and Perception (2012, 2014, 2015)
- Psychology of Design (2010, 2011, 2012, 2016)
- Introduction to Functional MRI with Lab Component (2010, 2011, 2013)