

Justin L. Gardner, PhD

Associate Professor, Department of Psychology, Stanford University
Co-director, Neurosciences Interdepartmental Program, Stanford University

Address: Department of Psychology
Stanford University
450 Jane Stanford Way, Stanford, CA 94305
Tel: +1 (650) 725-5038
Fax: +1 (650) 736-6199
Email: jlg@stanford.edu
Web: <https://gru.stanford.edu>

Education

1989 - 1993 BS, Computer Science, Yale University
1996 - 2002 PhD, Bioengineering, University of California, Berkeley and UCSF

Research and Professional Experience

1996 - 2002 Graduate Student, Lab of Stephen G. Lisberger, University of California, Berkeley and UCSF
2002 - 2004 Postdoctoral Fellow, Lab of Keiji Tanaka, RIKEN Brain Science Institute
2004 - 2009 Postdoctoral Fellow, Lab of David J. Heeger, New York University
2009 - 2013 Unit Leader (Assistant Professor equivalent), RIKEN Brain Science Institute
2011 - 2014 Adjunct Associate Professor, University of Tokyo, Department of Life Sciences
2013 - 2015 Team Leader (Assistant/Associate Professor equivalent), RIKEN Brain Science Institute
2014 - 2021 Assistant Professor, Department of Psychology, Stanford University
2021 - present Associate Professor (with tenure), Department of Psychology, Stanford University
2021 - present Co-director, Neurosciences Interdepartmental Program, Stanford University

Industry

1993 - 1994 **Member of Technical Staff**, Epson Research and Development ASD Group, San Jose, CA
Worked on image processing and compression algorithms and implementation
Two research and development awards from Seiko-Epson
1994 - 1996 **Programmer**, Smoking Car Productions, San Francisco, CA
Core programmer on The Last Express, an action-adventure game by Jordan Mechner, published by Broderbund and SoftBank.

Awards, Fellowships and Honors

1993 Tau Beta Pi national engineering honor society
1993 BS in Computer Science awarded Cum Laude with Distinction in the major
1996 - 1999 National Science Foundation Graduate Research Fellowship

2001 - 2002	Burroughs Wellcome Fund Fellowship in Quantitative Biology
2002 - 2004	Japan Society for the Promotion of Science (JSPS) Fellow
2004 - 2007	NRSA from the National Eye Institute
2006 - 2009	Burroughs Wellcome Fund Career Award in the Biomedical Sciences
2015 - 2016	Hellman Fellow
2017 - 2020	Research to Prevent Blindness / Lions Clubs International Foundation: Low Vision Research Award
2018 - 2019	John Philip Coghlan Fellowship

Publications (peer-reviewed unless noted with a *)

Journal Articles

Gardner, J. L., Anzai, A., Ohzawa, I., and Freeman, R. D. (1999) Linear and nonlinear contributions to orientation tuning of simple cells in the cat's striate cortex *Visual Neuroscience* 16:1115-1121

Gardner, J. L., and Lisberger, S. G. (2001) Linked target selection for saccadic and smooth pursuit eye movements *The Journal of Neuroscience* 21(6):2075-2084

Gardner, J. L., and Lisberger, S. G. (2002) Serial linkage of target selection for orienting and tracking eye movements *Nature Neuroscience* 5:892-899

Churchland, A. K., **Gardner, J. L.**, Chou, I. H., Priebe, N. J., and Lisberger, S. G. (2003) Directional anisotropies reveal a functional segregation of visual motion processing for perception and action *Neuron* 37:1001-1011

Gardner, J. L., Tokiyama, S., and Lisberger, S. G. (2004) A population decoding framework for motion aftereffects on smooth pursuit eye movements *The Journal of Neuroscience* 24:9035-9048

Gardner, J. L., Sun, P., Waggoner, R. A., Ueno K., Tanaka, K., and Cheng K. (2005) Contrast adaptation and representation in human early visual cortex *Neuron* 47:607-620

Sun, P., Ueno K., Waggoner, R. A., **Gardner, J. L.**, Tanaka, K., and Cheng K. (2007) A temporal frequency-dependent functional architecture in human V1 revealed by high-resolution fMRI *Nature Neuroscience* 10:1404-1406

Gardner, J. L., Merriam, E. P., Movshon, J. A., and Heeger, D.J. (2008) Maps of visual space in human occipital cortex are retinotopic, not spatiotopic *The Journal of Neuroscience* 28:3988-3999

Dinstein, I., **Gardner, J. L.**, Jazayeri, M., and Heeger, D.J. (2008) Executed and observed movements have different distributed representations in human aIPS *The Journal of Neuroscience* 28:11231-11239

Gardner, J. L. (2010) Is cortical vasculature functionally organized? *Neuroimage* 49:1953-6

Offen, S., **Gardner, J. L.**, Schluppeck, D., and Heeger, D.J. (2010) Differential roles for frontal eye fields (FEFs) and intraparietal sulcus (IPS) in visual working memory and attention *Journal of Vision* 10:1-14

Liu, T., Hospadaruk, L., Zhu, D. C., and **Gardner, J. L.** (2011) Feature-specific attentional priority signals in human cortex *The Journal of Neuroscience* 31:4484-95

Pestilli, F., Carrasco, M., Heeger, D. J., and **Gardner, J. L.** (2011) Attentional enhancement via selection

and pooling of early sensory responses in human visual cortex **Neuron** 72:832-46

Suzuki, S., Harasawa, N., Ueno, K., **Gardner, J. L.**, Ichinohe, N., Haruno, M., Cheng, K., and Nakahara H. (2012) Learning to simulate others' decisions **Neuron** 74:1125-37

Sun, P., **Gardner, J. L.**, Costagli, M., Ueno, K., Waggoner, R. A., Tanaka, K., and Cheng K. (2013) Demonstration of tuning to stimulus orientation in the human visual cortex: A high-resolution fMRI study with a novel continuous and periodic stimulation paradigm **Cerebral Cortex** 23:1618-29

Merriam, E. P., **Gardner, J. L.**, Movshon, J. A., and Heeger, D.J. (2013) Modulation of visual responses by gaze direction in human visual cortex **The Journal of Neuroscience** 33:9879-89

Costagli, M., Ueno, K., Sun, P., **Gardner, J. L.**, Wan, X., Ricciardi, E., Pietrini, P., Tanaka, K., and Cheng, K. (2014) Functional signalers of changes in visual stimuli: Cortical responses to increments and decrements in motion coherence **Cerebral Cortex** 24:110-8

Hara, Y., Pestilli, F., and **Gardner, J. L.** (2014) Differing effects of attention in single-units and populations are well predicted by heterogeneous tuning and the normalization model of attention **Frontiers in Computational Neuroscience** 8:12

Vintch, B., and **Gardner, J. L.** (2014) Cortical correlates of human motion perception biases **The Journal of Neuroscience** 34:2592-2604

Hara, Y., and **Gardner, J. L.** (2014) Encoding of graded changes in spatial specificity of prior cues in human visual cortex **Journal of Neurophysiology** 112:2834-49

Gardner, J. L. (2015) A case for human systems neuroscience **Neuroscience** 296:130-137

*Birman, D., and **Gardner, J. L.** (2016) Parietal and prefrontal: categorical differences? **Nature Neuroscience** 19:5-7 *(News and Views, not peer-reviewed)

Abrahamyan, A., Silva, L. L., Dakin, S. C., Carandini, M., and **Gardner, J. L.** (2016) Adaptable history biases in human perceptual decisions **Proceedings of the National Academy of Sciences** 113.25:E3548-57

Liu, T., Cable, D., and **Gardner, J. L.** (2018) Inverted encoding models of human population response conflate noise and neural tuning width **The Journal of Neuroscience** 38(2):398-408

Laquitaine, S., and **Gardner, J. L.** (2018) A switching observer for human perceptual estimation **Neuron** 97(2):462-474

Dobs, K., Schultz, J., Bulthoff, I., and **Gardner, J. L.** (2018) Task-dependent enhancement of facial expression and identity representations in human cortex **Neuroimage** 10:689-702

Birman, D., and **Gardner, J. L.** (2018) A quantitative framework for motion visibility in human cortex **Journal of Neurophysiology** 120(4):1824-1839

Gardner, J. L. (2019) Optimality and heuristics in perceptual neuroscience **Nature Neuroscience** 22:514-523

Gardner, J. L., and Liu, T. (2019) Inverted encoding models reconstruct an arbitrary model response, not the stimulus **eNeuro** 6:e0363-18.2019 1-11

Fukuda, H., Ma, N., Suzuki, S., Harasawa, N., Ueno, K., **Gardner, J. L.**, Ichinohe, N., Haruno, M., Cheng, K., and Nakahara, H. (2019) Computing social value conversion in the human brain *The Journal of Neuroscience* 39(26):5153-72

Birman, D., and **Gardner, J. L.** (2019) A flexible readout mechanism of human sensory representations *Nature Communications* 10:3500:

Riesen, G., Norcia, A.M., and **Gardner, J. L.** (2019) Humans perceive binocular rivalry and fusion in a tristable dynamic state *The Journal of Neuroscience* 39(43):8527-8537

Lin W-H, **Gardner, J. L.**, and Wu, S-W (2020) Context effects on probability estimation *PLoS Biology* 18:e3000634

Gardner, J. L., and Merriam, E.M. (2021) Models, not analyses, of human neuroscience measurements *Annual Review of Vision Science* 7:In press

Patents

Tostevin, N. H., Moran, M. R., **Gardner, J. L.**, Marrero, N. M., and Cook, R. A. (1997) Digital cartoon and animation process *U.S. Patent Office* 6061462

Teaching

2016 - current **Psych 50: Introduction to Cognitive Neuroscience**, Introductory Undergraduate (150-200 students), Stanford Psychology Department, *Instructor and course designer*

2014 - current **Psych 164: Brain Decoding**, Upper-level Undergraduate (15-30 students), Stanford Psychology Department, *Instructor and course designer*

2016 - current **NEPR 207: Neurosciences Cognitive Core**, Graduate (10-20 students), Stanford Neurosciences PhD Program, *Co-instructor and course designer with Russ Poldrack*

2017 - 2019 **Psych/NSUR 287: Brain Machine Interfaces: Science, Technology, and Application**, Graduate (15-25 students), Stanford Psychology and Neurosurgery Departments, *Co-instructor with EJ Chichilnisky*

2016 **Psych 263: Cognitive Neuroscience: Vision**, Graduate (10 students), Stanford Psychology Department, *Instructor and course designer*

2015, 2020 **Psych 202: Cognitive Neuroscience Core**, Graduate (28-40 students), Stanford Psychology Department, *Co-instructor with Sam McClure, Co-instructor with Brian Wandell*

Documented created on: Wed Nov 3 10:18:16 PDT 2021

For updated short version see http://gru.stanford.edu/doku.php/shared/justin_gardner_cv