

Alyssa A. Brewer, M.D., Ph.D.

Department of Cognitive Sciences ♦ Center for Cognitive Neuroscience ♦ University of California, Irvine
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EDUCATION

Sept. 1997-June 2007	Stanford University School of Medicine	M.D.
Mar. 2000-Sept. 2005	Stanford University Neurosciences Graduate Program	Ph.D.
June 1993-Aug. 1993	University of California, Irvine (Summer school: intensive Physics program)	
Sept. 1991-June 1996	Stanford University – Biological Sciences, with Honors	BSh
Sept. 1991-June 1996	Stanford University – Comparative Literature, with Interdisciplinary Honors in the Humanities	BA, IHn
Sept. 1990-June 1991	University of California, Irvine - Biology (University Program for High School Scholars – early entrance for advanced high school students)	

POSITIONS AND EMPLOYMENT

2007 – present	Assistant Professor, Department of Cognitive Sciences, University of California, Irvine
2005-2007	Postdoctoral Researcher, Department of Psychology, Stanford University
1999-2005	Research Assistant / Graduate Student, Neurosciences Program and Department of Psychology, Stanford University
1999	Research Assistant, Department of Neurology, Stanford University, and AGY Therapeutics
1998	Medical Scholar, Department of Vascular Surgery and Biomechanical Engineering, Stanford University School of Medicine
1996-1997	Project Assistant, The Smith-Kettlewell Eye Research Institute, San Francisco, CA

ACADEMIC HONORS

2010 – 2012	National Institutes of Health Loan Repayment Program Scholar
2008 – 2010	National Institutes of Health Loan Repayment Program Scholar
2006	American Medical Association (AMA) Seed Grant
2002 – 2006	M.D. / Ph.D. pre-doctoral National Research Service Award (NRSA) Grant, National Institute of Neurological Disorders and Stroke.
2002	First Place Poster: Stanford Medical Student Research Symposium
1998	Resident Medical Scholars Grant – Gerbode Scholar
1998	Biological Sciences Excellence in Teaching Award
1996	Departmental Honors in the Biological Sciences
1996	Interdisciplinary Honors in the Humanities
1996	Biological Sciences Laura Weinstein Teaching Award and Grant (for the top undergraduate teaching assistant)
1995	Biological Sciences Excellence in Teaching Award
1995	Howard Hughes Medical Institute Summer Fellowship

GRANT AWARDS

5/2010	PI, Social Sciences Assistant Professor Research Award. ‘Visual working memory in the human dorsal stream.’ \$1,500.
3/2010 – 12/2010	PI, The Academic Senate Council on Research, Computing and Libraries (CORCL) Special Research Grant, University of California, Irvine. ‘Functional Plasticity in Human Visual Cortex.’ \$3,695.
4/2009 – 3/2010	PI, Alzheimer’s Disease Research Center Pilot Grant, University of California, Irvine. “Neuroimaging of visual cortex in Alzheimer’s disease and related dementias.” \$23,306.
3/2009 – 2/2011	Co-PI, Office of Naval Research, Award #N000140910036. ‘The Effects of Neuromodulation on Human-Robot Interaction.’ \$299,319.

PROFESSIONAL MEMBERSHIPS

- 2010 – 2013 Chair, Vision Division, Fall Vision Meeting, Optical Society of America
- 2009-2010 Vice-Chair, Vision Division, Fall Vision Meeting, Optical Society of America
- 2009 – present Member, Optical Society of America
- 2008 – present Executive Committee Member, Center for Cognitive Neuroscience, University of California, Irvine
- 2002 – present Member, Vision Sciences Society
- 2001 – present Member, Society for Neuroscience

INVITED TALKS

- March, 2011 9th Goettingen Meeting of the German Neuroscience Society, Goettingen, Germany
Functional plasticity in adult human cortex in response to an extreme alteration of visual input
- October, 2010 Brain Science 5th Grade Assembly, Bonita Canyon Elementary School, Irvine, California
Visual Neuroscience
- February, 2010 The School of Social Science Expert Speaker Series, Inaugural Speaker, University of California, Irvine
Inducing plasticity in normal adult human cortex
- October, 2009 The School of Social Sciences Chancellor's Club, University of California, Irvine
Inducing plasticity in normal adult human cortex
- September, 2009 Fall Vision Meeting, Optical Society of America
A novel use for visual field maps: tracking functional plasticity in posterior parietal cortex
- February, 2008 Mesa Court Myth Busters, University of California, Irvine
Visual Neuroscience
- February, 2008 San Francisco Museum of Modern Art, San Francisco, California
Take your time: Olafur Eliasson. Visual Illusions

- January, 2008 .Center for Cognitive Neuroscience, University of California, Irvine
Visual Field Maps: from Properties to Plasticity in Human and Macaque Cortex
- January, 2006 Department of Cognitive Sciences, University of California, Irvine
Visual field map properties and plasticity
- December, 2005 Smith-Kettlewell Eye Research Institute, San Francisco, California
New subdivisions of the human VO cluster
- May, 2005 Workshop, Vision Sciences Society Annual Meeting, Sarasota, Florida
New Concepts of Cortical Retinotopy: Evaluation of visual field map organization in ventral occipital cortex

REVIEW ACTIVITY

Journals

Cerebral Cortex
Human Brain Mapping
Journal of Cognition
Journal of Neuroscience
Journal of Vision
NeuroImage
Neuropsychologia
Neuroscience Research
Proceedings of the National Academy of Sciences

Grants

Alzheimer's Association, Annual Reviewer
National Science Foundation (NSF), ad hoc grant reviewer

Conferences

Optical Society of America, Fall Vision Meeting

PUBLICATIONS

- In preparation for submission to Nature:* L. Lin, B. Barton, **A.A. Brewer**. Functional Plasticity in Parietal Cortex: Adapting to Reversed Visual Input. (*To be submitted October, 2010*).
- 17) *Under revision for Nature Neuroscience:* B. Barton, **A.A. Brewer**. Pinwheel Cartography: Visual Field Map Clusters in Medial, Lateral, and Ventral Occipital Cortex. (*Initial submission: April, 2010*).
- 16) **A.A. Brewer**. Visual Maps: To merge or not to merge. (2009). **Current Biology**. 19(20):R945-7.
- 15) B.A. Wandell, S.O. Dumoulin, **A.A. Brewer**. Visual field maps in human visual cortex. (2008). Ed. L.R. Squire, **New Encyclopedia of Neuroscience**.

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- 14) B.A. Wandell, S.O. Dumoulin*, **A.A. Brewer***. {**First and Second authors contributed equally.*} Visual Field Maps in Human Cortex. (2007). **Neuron**. 56(2):366-83.
 - 13) B. A. Wandell, S.O. Dumoulin, **A. A. Brewer**. Computational Neuroimaging; Color Signals in the Visual Pathways. (2006). **Neuro-ophthalmology Japan**. vol. 23 pp. 324-343.
 - 12) **A.A. Brewer**, J. Liu, A.R. Wade, B.A. Wandell. Visual field maps and stimulus selectivity in human ventral occipital cortex. (2005). **Nature Neuroscience**. 8(8), 1102-9.
 - 11) S.M. Smirnakis, {**A.A. Brewer**, M. Schmid}, A.S. Tolias, M. Augath, W. Inhoffen, A. Shuz, B.A. Wandell, N.K. Logothetis, [{}: Authors had equal contribution]. Lack of long-term cortical reorganization after macaque retinal lesions. (2005). **Nature**. 435(7040), 300-7.
News and Views by M. I. Sereno (**Nature** 435, 288-289).
 - 10) R.F. Dougherty, M. Ben-Shacher, R. Bammer, **A.A. Brewer**, B.A. Wandell. Functional organization of human occipital-callosal fiber tracts. (2005). **Proc Natl Acad Sci U S A**. 102(20), 7350-5.
 - 9) B.A. Wandell, **A.A. Brewer**, R.F. Dougherty. Visual field map clusters in human cortex. (2005). **Philosophical Transactions of the Royal Society, Series B. (London)**. Vol: 360, 693-707. (Special theme issue on Cerebral Cortex.)
 - 8) R. F. Dougherty, V. M. Koch, **A.A. Brewer**, B. Fischer, J. Modersitzki, B. A. Wandell. Visual field representations and locations of visual areas V1/2/3 in human visual cortex. (2003). **Journal of Vision**. 3(10), 586-598.
 - 7) I. Fine, A.R. Wade, **A.A. Brewer**, M.G. May, D.F. Goodman, G.M. Boynton, B.A. Wandell, D.I. MacLeod. Long-term deprivation affects visual perception and cortex. (2003). **Nature Neuroscience**. 6(9), 915-916.
 - 6) **A.A. Brewer**, W. A. Press, N. K. Logothetis, B. A. Wandell. Visual areas in macaque cortex measured using functional magnetic resonance imaging. (2002). **Journal of Neuroscience**. 22(23), 10416-10426.
 - 5) A.R. Wade, **A.A. Brewer**, B.A. Wandell. Functional Measurements of Human Ventral Occipital Cortex: Retinotopy and Color. (2002). **Philosophical Transactions of the Royal Society, Series B. (London)**. Vol: 357, No.1424, 963- 973.
 - 4) H.A. Baseler, **A.A. Brewer**, L.T. Sharpe, A.B. Morland, H. Jägle, B.A. Wandell. Reorganization of human cortical maps caused by inherited photoreceptor abnormalities. (2002) **Nature Neuroscience**. 5(4), 364-70.
 - 3) W.A. Press, **A.A. Brewer**, R.F. Dougherty, A.R. Wade, B.A. Wandell. Visual areas and spatial summation in human visual cortex. (2001). **Vision Research**. 41(10-11), 1321-32.
 - 2) **A. Brewer**, P. Fisher. Review of conventional and alternative treatments for glioblastoma multiforme. (1999). Donated to **AGY Therapeutics** and the **National Brain Tumor Foundation**.
 - 1) **A. Brewer**. The role of the laterodorsal tegmentum in the induction and maintenance of REM sleep in freely-behaving rats. (1996). **The Stanford Biologist**.

CONFERENCE PRESENTATIONS

- A.A. Brewer & B. Barton.** Pinwheel cartography: Visual field map clusters in posterior parietal cortex that subserve visual attention and working memory. (2010) Society for Neuroscience Abstract.
- B. Barton & **A.A. Brewer.** Pinwheel cartography: A fundamental organizing principle of the human visual system. (2010) Society for Neuroscience Abstract.
- S.A. Drew, D.E. Asher, B. Barton, A.A. Brewer. Pinwheel cartography: New visual field map cluster in the human posterior parahippocampal complex. (2010) Society for Neuroscience Abstract.
- D.E. Asher, S.A. Drew, B. Barton & **A.A. Brewer.** Pinwheel cartography: Novel visual field map cluster within human ventro-lateral occipital cortex. (2010) Society for Neuroscience Abstract.
- A.A. Brewer & B. Barton.** Visual field map organization and connectivity in aging human visual cortex. (2010) Alzheimer's Association International Conference on Alzheimer's Disease. *Alzheimer's & Dementia: The Journal of the Alzheimer's Association* Volume 6, Issue 4, July Supplement pg. S437, Abstract P2-405.
- B. Barton & **A.A. Brewer.** White and gray matter of visual cortex in Alzheimer's disease: Visual field maps, population receptive fields, and diffusion tensor imaging. (2010) Alzheimer's Association International Conference on Alzheimer's Disease. *Alzheimer's & Dementia: The Journal of the Alzheimer's Association* Volume 6, Issue 4, July Supplement pg. S284, Abstract P1-382.
- B. Barton & **A.A. Brewer.** White and gray matter of visual cortex in Alzheimer's disease: Visual field maps, population receptive fields, and diffusion tensor imaging. (2010) Alzheimer's Imaging Consortium Abstract.
- A.A. Brewer & B. Barton.** Visual Field Map Organization and Connectivity in Aging Human Visual Cortex. (2010) Alzheimer's Imaging Consortium Abstract.
- B. Barton, & **A.A. Brewer.** Visual Working Memory Capacity in Retinotopic Cortex: Number, Resolution, and Population Receptive Fields. (2010) Vision Sciences Society Abstract.
- A.A. Brewer, B. Barton, & L. Lin.** Putting The Prisms Back On: Both Maps of Visual Space Persist, as Revealed by Cortical Adaptation to Left-Right Field Reversal. (2010) Vision Sciences Society Abstract.
- B. Barton, L. Lin, & **A.A. Brewer.** Visuomotor Adaptation to an Extreme Alteration of Visual Input. (2009) Annual Meeting of the Center for Cognitive Neuroscience.
- A.A. Brewer, B. Barton, D.E. Asher.** Projections of rod pathways in human visual cortex. (2009) Society for Neuroscience Abstract, 453.25.
- B. Barton, L. Lin, & **A.A. Brewer.** Functional plasticity in normal adult humans demonstrated by shifts in laterality of visual field representation in a wide array of visual field maps. (2009) Society for Neuroscience Abstract.
- D.E. Asher, B. Barton, & **A.A. Brewer.** Novel foveal representations in human ventro-lateral cortex. (2009) Society for Neuroscience Abstract.
- L. Lin, B. Barton, D.E. Asher, & **A.A. Brewer.** Visual field mapping of visuomotor adaptation to reversing prisms. (2009) Society for Neuroscience Abstract.
- B. Barton, D.E. Asher, & **A.A. Brewer.** Rod Pathway Projections in Human Visual Cortex. (2009) Optical Society of America Vision Meeting.
- A.A. Brewer, B. Barton, & L. Lin.** A Novel Use for Visual Field Maps: Tracking Functional Plasticity in Posterior Parietal Cortex. (2009) Optical Society of America Vision Meeting Abstract.
- D.E. Asher, B. Barton, & **A.A. Brewer.** Novel foveal representations in human ventro-lateral cortex.

- (2009) Vision Sciences Society Abstract.
- B. Barton, L. Lin, D.E. Asher, & **A.A. Brewer**. Alteration of Visuomotor Processing Following Left-Right Prism Adaptation. (2009) Vision Sciences Society Abstract.
- A.A. Brewer**, B. Barton, D.E. Asher, & D. Liu. Rod Signals in Human Ventral Cortex. (2009) Vision Sciences Society Abstract.
- L. Lin, B. Barton, D.E. Asher, **A.A. Brewer**, Visual Field Mapping of Visuomotor Adaptation to Prisms. (2009) Vision Sciences Society Abstract.
- S.O. Dumoulin, **A.A. Brewer**, M. Ben-Shachar, R.F. Dougherty, B.A. Wandell. Distinguishing visual field map clusters: a new paradigm. (2006) Vision Sciences Society Abstract.
- A.A. Brewer**, J. Liu, A. Wade, B.A. Wandell. New subdivisions of the human VO cluster derived from visual field mapping and stimulus selectivity. (2005) Society for Neuroscience Abstract, 582.11.
- S.M. Smirnakis, {**A.A. Brewer**, M. Schmid}, A.S. Tolias, M. Augath, W. Inhoffen, A. Shuz, B.A. Wandell, N.K. Logothetis, [{}: Authors had equal contribution]. Adult macaque V1 fails to reorganize in the months following homonymous retinal lesions. (2005) Stanford Medical Student Research Symposium.
- A.A. Brewer**. Evaluation of visual field map organization in ventral occipital cortex. (2005) *Invited talk: Workshop on New Concepts of Cortical Retinotopy*. Vision Sciences Society.
- A.A. Brewer**, J. Liu, A.R. Wade, B.A. Wandell. Human ventral occipitotemporal cortex contains several visual field maps with differential stimulus selectivity. (2004) Society for Neuroscience Abstract, 300.23.
- S.M. Smirnakis, {**A.A. Brewer**, M. Schmid}, A.S. Tolias, M. Augath, W. Inhoffen, A. Shuz, B.A. Wandell, N.K. Logothetis, [{}: Authors had equal contribution]. V1 cortical reorganization revisited: fMRI and electrophysiology in macaque following retinal lesions. (2004) Society for Neuroscience Abstract, 605.3.
- A.A. Brewer**, A.R. Wade, J. Liu, B.A. Wandell. Visual field maps in human ventral occipitotemporal cortex. (2004) Stanford Medical Student Research Symposium.
- J. Liu, **A.A. Brewer**, B.A. Wandell. Variations in temporal and chromatic responses across human visual cortex. (2004) Vision Sciences Society Abstract.
- A.R. Wade, **A.A. Brewer**, M. Augath, N.K. Logothetis, B.A. Wandell. Color responses in human and macaque. (2003) Society for Neuroscience Abstract, 439.9.
- J. Liu, **A.A. Brewer**, B.A. Wandell. Human visual areas differ in their amplification of S-cone signal. (2003) Society for Neuroscience Abstract, 819.3.
- A.A. Brewer**, A.R. Wade, J. Liu, B.A. Wandell. Visual field maps in human ventral occipitotemporal cortex. (2003) Society for Neuroscience Abstract, 818.15.
- A.A. Brewer**, A.R. Wade, N.K. Logothetis, B.A. Wandell. Is V4-Dorsal alive and well in human ventral occipital cortex? (2003) Stanford Medical Student Research Symposium.
- AA Brewer**, AR Wade, NK Logothetis, BA Wandell. Is V4-dorsal alive and well in human ventral occipital cortex? (2002) Society for Neuroscience Abstract, 721.8.
- I. Fine, A.R. Wade, **A.A. Brewer**, M.G. May, G.M. Boynton, B.A. Wandell, D.I.A. MacLeod. Long-term deprivation has differential effects on color, motion and pattern processing in human visual cortex. (2002) Society for Neuroscience Abstract, 721.24.
- SM Smirnakis, {**A Brewer**, M Schmid}, AS Tolias, W Inhoffen, BA Wandell, NK Logothetis, [{}: Authors had equal contribution]. Macaque visual cortex reorganization after homonymous retinal scotoma probed by fMRI. (2002) Society for Neuroscience Abstract, 760.2.
- R.F. Dougherty, **A.A. Brewer**, A.R. Wade, B.A. Wandell. Measurement of human visual areas across individuals. (2002) Society for Neuroscience Abstract, 658.12.

- A.A. Brewer**, H.A. Baseler, L.T. Sharpe, A.B. Morland, H. Jägle, B.A. Wandell. Reorganization of human cortical maps caused by inherited photoreceptor abnormalities. (2002) Stanford Medical Student Research Symposium. (*First Place Poster*).
- A.A. Brewer**, A.R. Wade, B.A. Wandell. Visual field maps and color signals in human ventral occipital cortex. (2002) Vision Sciences Society Abstract, 552.
- A.R. Wade, R.F. Dougherty, **A. Brewer**, B.A. Wandell. Red Priests, Fast Houses: Cortical regions involved in reading color and motion specific adjectives. (2001) Society for Neuroscience Abstract, 119.11.
- I. Fine, A. R. Wade, **A.A. Brewer**, G.M. Boynton, B.A. Wandell and D.I.A. MacLeod. Neural and functional effects of long-term visual deprivation. (2001) Optical Society of America Abstract.
- B.A. Wandell, W.A. Press, **A.A. Brewer**, N.K. Logothetis. FMRI measurements of visual area and retinotopic maps in monkey. (2000) Society for Neuroscience Abstract, 309.9.

TEACHING

2010-2011

Graduate Courses:

- Psychology 262: Functional Neuroanatomy
- Psychology 260ABC: Seminar of Cognitive Neuroscience Skills

Undergraduate Courses:

- Psychology 160D / Biological Sciences N165: Brain Disorders

2009-2010

Graduate Courses:

- Psychology 262: Functional Neuroanatomy
- Psychology 263ABC: Current Topics in Visual Neuroscience Research

Undergraduate Courses:

- Psychology 160D / Biological Sciences N165: Brain Disorders

2008-2009

Graduate Courses:

- Psychology 262: Functional Neuroanatomy
- Psychology 263ABC: Current Topics in Visual Neuroscience Research

Undergraduate Courses:

- Psychology 165: Brain Disorders

2007-2008

Graduate Courses:

- Psychology 269: Functional Neuroanatomy
- Psychology 269: Retinotopic Mapping and Diffusion Tensor Imaging

GRADUATE STUDENT SUPERVISION

Thesis Advisor:

- ◆ Derrick Asher, 9/2008 - present
- ◆ Brian Barton, 8/2008 - present

Thesis Co-advisor:

- ◆ Veronica Eckstein, 5/2008 - present
- ◆ Ling Lin, 2/2008 - 12/2009

POSTDOCTORAL SPONSOR

- ◆ Stefanie Drew, PhD, 6/2009 – present

UNDERGRADUATE STUDENT SUPERVISION

- ◆ Jacob Messer, 8/2010 – present
- ◆ Anne Nguyen, 4/2010 – present
- ◆ Anthony Bonilla, 4/2010 – present
- ◆ Benjamin Szu, 4/2010 – present
- ◆ Chandni Patel, 4/2010 – present
- ◆ Kelly Wang, 4/2010 – present
- ◆ Mike Ward, 4/2010 – present
- ◆ William Quezada, 4/2010 – present
- ◆ Martin Dean, 4/2009 – 6/2009
- ◆ Elizabeth Jordan, 4/2009 – 6/2009
- ◆ Saman Mohseni, 4/2009 – 6/2009
- ◆ Christine Mikhail, 1/2009 – 6/2009
- ◆ Christian Herrera, 12/2008 – 6/2009
- ◆ Myra Engalla, 9/2008 – 6/2009

OTHER RESEARCH SUPERVISION

- ◆ Cindy Shih, 7/2008 – 12/2008; Advisor, Directed Individual/Independent Study
- ◆ Robert Coleman, 6/2008 – 5/2009; Supervisor, Internship
- ◆ Danting Liu, 6/2008 – 4/2009; Supervisor, Directed Individual/Independent Study
- ◆ Nick Baitoo, 5/2008 – 1/2009; Supervisor, Internship

DISSERTATION, CANDIDACY, AND CONCENTRATION COMMITTEES

- ◆ Ling Lin, Dissertation Committee (co-advisor; 2009)
- ◆ Pamela Jeter, Dissertation Committee (2008)

- ◆ David Bridwell, Advancement to Candidacy Committee (2010)

- ◆ Joyce Lacy, Advancement to Candidacy Committee (2010)
- ◆ Pamela Jeter, Advancement to Candidacy Committee (2008)
- ◆ Steven Thurman, Advancement to Candidacy Committee (2008)

- ◆ Andrew Zaldivar, Concentration Committee (2010)
- ◆ Brian Barton, Concentration Committee (advisor, 2009)
- ◆ Derrik Asher, Concentration Committee (advisor, 2009)
- ◆ Mike Avery, Concentration Committee (2009)
- ◆ Jonathan Venezia, Concentration Committee (2009)

SERVICE

2010	Personnel Review Committee, Department of Cognitive Sciences
2007-present	Center for Cognitive Neuroscience, Executive Committee
2007-present	Cognitive Neuroscience Concentration Committee
2008	John I. Yellott Scholar Award Committee (Graduate student award)
2008	Center for Cognitive Neuroscience Summer Fellowship Committee