

# Curriculum Vitae

## Michael A. Silver

### Contact Information

School of Optometry  
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### Education

1999 Ph.D. in Neuroscience, Univ. of Calif., San Francisco (advisor: Michael Stryker)  
1991 B.S. in Biological Sciences, Carnegie Mellon University, Pittsburgh, PA  
1991 B.S. in Chemistry, Carnegie Mellon University, Pittsburgh, PA

### Research Experience

7/2011 – present Associate Professor of Optometry and Vision Science and Neuroscience, School of Optometry and Helen Wills Neuroscience Institute, University of California, Berkeley (also Affiliated Professor in Department of Psychology)

7/2005 – 6/2011 Assistant Professor of Optometry and Vision Science and Neuroscience, University of California, Berkeley

2/2002 – 6/2005 Postdoctoral fellow, Department of Psychology, Stanford University, laboratory of David Heeger, and Department of Psychology, University of California, Berkeley, laboratory of Mark D'Esposito. Functional magnetic resonance imaging and pharmacological studies of human visual perception and attention.

4/2000 – 1/2002 Postdoctoral fellow, Max Planck Institute for Biological Cybernetics, Tübingen, Germany, laboratory of Nikos Logothetis. Psychophysical and electrophysiological studies of neural correlates of visual perception.

11/1999 – 3/2000 Postdoctoral fellow, RIKEN Institute, Wako-shi, Japan, laboratory of Takao Hensch. Effects of visual cortical and basal forebrain nerve growth factor administration on cortical EEG activity.

9/1992 – 10/1999 Graduate student, Department of Physiology, University of California, San Francisco, laboratory of Michael Stryker. Anatomical studies of changes in distributions of presynaptic terminals in visual cortex following monocular deprivation. Effects of nerve growth factor administration on cortical plasticity (assessed using single-unit electrophysiology and intrinsic signal optical imaging) and on basal forebrain cell biology (assessed with immunohistochemistry).

## **Awards and Fellowships**

- 2011 Visiting Scholar, Wales Institute of Cognitive Neuroscience and School of Psychology, Bangor University, Wales
- 2010 Recipient, Royal Society Travel Grant for International Collaboration, to visit the Institute of Neuroscience, Newcastle University, England
- 2002-2005 National Institutes of Health, Ruth L. Kirschstein Postdoctoral National Research Service Award (NRSA), administered by the National Eye Institute
- 1993-1998 Howard Hughes Medical Institute Predoctoral Fellowship in Biological Sciences
- 1992-1993 University of California Regents Fellowship
- 1991-1992 Rotary Foundation Scholarship, Academic Department of Pharmacology, Royal Free Hospital School of Medicine, London, England

## **Grants**

- 2017 – 2019 Multicampus Research Programs and Initiatives award, University of California, \$296,000, “Towards a nicotine therapy for age-related hearing disorders”, (with Raju Metharate, Khaleel Razak, and Fan-Gang Zeng)
- 2016 – 2020 R01 grant, National Eye Institute, “Effects of attention and acetylcholine on cortical stimulus representations”, \$1,250,000
- 2014 – 2017 National Science Foundation, “Cholinergic and sleep regulation of human memory and learning”, \$67,624 subcontract (PI: Sara Mednick)
- 2014 – 2016 R21 grant, National Eye Institute, “fMRI of human LGN: Functional subdivisions and geniculocortical connectivity”, \$275,000 (with David Feinberg)
- 2014 – 2015 Cottonwood Research Foundation, “The effect of monoamine oxidase inhibition on the detection and quantitation of endogenous psychoactive tryptamines”, \$2000
- 2011 – 2014 Gustavus and Louise Pfeiffer Research Foundation, “Enhancement of visual perception in patients with visual impairments”, \$221,000
- 2012 – 2013 Mary Elizabeth Rennie Endowment for Epilepsy Research, “The effects of pharmacologically-reduced propagation of cerebral cortical activity on visual perception”, \$25,000
- 2010 – 2012 R21 grant, National Eye Institute, “Neural mechanisms of perceptual learning in the human brain”, \$275,000
- 2009 – 2010 Chancellor’s Faculty Partnership Fund, UC Berkeley, “Space perception and cortical organization in patients with retinal degeneration”, \$100,000 (with Lynn Robertson)
- 2008 – 2010 R21 grant, National Eye Institute, “Analysis of human cortical networks during sustained visuospatial attention”, \$275,000
- 2008 – 2010 Lundbeck Foundation, “Acetylcholine and attention networks in the human brain”, \$84,697
- 2008 – 2009 Hellman Family Faculty Fund, UC Berkeley, “Pharmacological studies of spatial integration and visual perception in macular degeneration patients”, \$37,000
- 2007 – 2008 Lundbeck Foundation, “Physiological and pharmacological analysis of cortical networks during sustained visuospatial attention”, \$68,907
- 2007 – 2008 Fight for Sight Foundation Grant-in-Aid, “Space perception and cortical organization in patients with retinal degeneration”, \$20,000

## Teaching Experience

- Instructor, VS262, Visual Cognitive Neuroscience (Vision Science, Psychology, Neuroscience, and Bioengineering graduate students; 2009, 2012, 2015)
- Instructor, VS300, Teaching Methods in Vision Science (Vision Science graduate students; 2006 - 2016)
- Co-instructor, VS206D, Neuroanatomy and Neurophysiology of the Eye and Visual System (Optometry students; 2006 - present)
- Co-instructor, VS212B, Visual Neurophysiology and Development (Vision Science, Psychology, Neuroscience, Computer Science, and Bioengineering graduate students; 2006 - 2007; 2009 - present)
- Co-instructor, Opt10, Vision in a Changing Environment (freshman seminar; 2006 - present)
- Co-instructor, Neuroscience Bootcamp (first year Psychology and Neuroscience graduate students; 2011 - present)
- Co-instructor, Neurosc290, Student Research Presentation Seminar (Neuroscience graduate students; 2008, 2012 - 2013)
- Guest Lecturer, Psych214, Functional Magnetic Resonance Imaging Methods (Psychology and Neuroscience graduate students; 2005 - present)
- Guest Lecturer, CogSci 98/198, Berkeley Review of CogSci Articles (Cognitive Science undergraduate students; 2012, 2013, 2016)

## Mentoring

- 2017 – present PhD supervisor, Justin Theiss, UC Berkeley Vision Science Program
- 2016 – present PhD supervisor, Elizabeth Lawler, UC Berkeley Vision Science Program
- 2016 – present PhD supervisor, Arjun Mukerji, UC Berkeley Neuroscience Program
- 2014 – present PhD supervisor, Kelly Byrne, UC Berkeley Vision Science Program
- 2013 – present PhD supervisor, Adeola Harewood, UC Berkeley Vision Science Program
- 2013 – present PhD supervisor, Sahar Yousef, UC Berkeley Vision Science Program
- 2010 – 2015 PhD supervisor, Elise Piazza, UC Berkeley Vision Science Program (co-mentor with Marty Banks)
- 2009 – 2013 PhD supervisor, Rachel Denison, UC Berkeley Neuroscience Program
- 2009 – 2013 PhD supervisor, Caterina Gratton, UC Berkeley Neuroscience Program (co-mentor with Mark D’Esposito)
- 2007 – 2012 PhD supervisor, David Bressler, UC Berkeley Vision Science Program
- 2006 – 2010 PhD supervisor, Ariel Rokem, UC Berkeley Neuroscience Program
- 2008, 2010 Mentor in Pierce College/UC Berkeley Partnership in Neuroscience (Amir Dori and Ebonnie Widjaja)
- 2007 - present Mentor in National Eye Institute T35 Summer Research Training Program for Optometry students (Han Duong, Rachel Kaneta, Shradha Sanghvi, Betty Wang, Karen Wong)
- 2006 – present Mentor in UC Berkeley Undergraduate Research Apprentice Program (Julia Alcaraz, Carissa Alforque, Jnana Aditya Challa, Kimberly Chan, Andrew Chang, Hong-Chun Chao, David Garg, Vanessa Hoffman, Anokhi Kastia, Jonathon Kelvey, Matthew Koh, Anthony LaBarbera, Kailin Li, Liyang Li, Abizer Lokhandwala, Andrew Lu, Jessica McElroy, Julia McKnight, Ashray Manepalli, Sen Ninan, Matthew Peters, Natalie Pierson, Tomer Rotstein, Maxwell Schram, Sabrina Shen, Akber Sheikh, Jacob Sheynin, Andrew Shibata, Sharanya Thiagarajan, Jonathan Toomim, Joanna Tung, Christopher Vasilas, Leo Zhang)

2006 Mentor in UC Berkeley Summer Bioengineering Research Program  
(Clare Gollnick)

### Professional Service

2017 – present Director, Neuroscience Graduate Program  
2017 – present Equity Advisor, Neuroscience Graduate Program  
2017 Faculty Search Committee, School of Optometry  
2017 Interview Committee, Senior Assistant Dean / Chief Operating Officer  
position, School of Optometry  
2017 Session Chair, International Conference on Cognitive and Behavioral  
Psychology  
2016 – present Admissions Committee member, Vision Science Graduate Program  
2016 – present Equity Advisor, School of Optometry and Vision Science Graduate Program  
2016 – present Head Graduate Advisor, Vision Science Graduate Program  
2016 – present Member of Committee for the Protection of Human Subjects (UC Berkeley’s  
Institutional Review Board)  
2016 – present Chair, Advising Committee, Neuroscience Graduate Program  
2016 – present Strategic Planning Committee, School of Optometry  
2015 – present Faculty Club Board of Directors member, UC Berkeley  
2014 – 2016 Oxyopia Seminar Series Committee member, Vision Science Graduate  
Program  
2014 – 2015 Faculty Search Committee, School of Optometry  
2013 Admissions Committee, Neuroscience Graduate Program  
2013 Session Chair, Society for Neuroscience conference  
2012 – present Chair, Committee on Graduating with Honors, School of Optometry  
2012 – present Curriculum Committee member, Neuroscience Graduate Program  
2012 – present Faculty Sponsor, Regents’ and Chancellor’s Scholars, UC Berkeley  
2012 – present Vision Science Executive Committee member, UC Berkeley  
2012 – present Vision Science Graduate Advisory Committee member, UC Berkeley  
2012 – 2014 Chair, Oxyopia Seminar Series Committee, Vision Science Graduate Program  
2011 – present Junior Faculty Development Committee member, School of Optometry  
2011 – 2014 Academic Advisor, Neuroscience Graduate Program  
2011 – 2014 Admissions Committee member, School of Optometry  
2011 – 2014 Member of Committee for the Protection of Human Subjects  
2011 Team Leader, Working Group on How Students Learn, Graduate Student  
Instructor Teaching & Resource Center, UC Berkeley  
2010 Chair and Organizer, minisymposium entitled “The Role of Acetylcholine in  
Cortical Processing and Plasticity”, Society for Neuroscience  
Conference  
2009 – 2011 Chair of the Faculty of the School of Optometry, UC Berkeley  
2009 – 2011 Administration Committee member, School of Optometry  
2009 – 2011 Academic Advisory Committee member, School of Optometry  
2008 – 2011 Admissions Committee member, Vision Science Graduate Program  
2008 *ad hoc* Merit Review Committee member, School of Optometry  
2007 – 2011 Curriculum Committee member, School of Optometry  
2007 – 2012 member of Committee on Graduating with Honors, School of Optometry  
2007 – 2010 President/Representative, San Francisco Bay Area Society for Neuroscience  
Chapter

- 2007 – 2016 Faculty Advisor for Graduate Student Instructor Affairs, Vision Science Graduate Program
- 2007 – present Optometry Student Fellowships and Awards Advisory Committee member, UC Berkeley
- 2007 – 2009 Academic Advisor, Neuroscience Graduate Program
- 2007 Co-presenter, tutorial entitled “The Pharmacology of Perception”, 11<sup>th</sup> annual meeting of the Association for the Scientific Study of Consciousness
- 2007 Session Chair, Society for Neuroscience conference
- 2007 Admissions Committee member, Neuroscience Graduate Program
- 2006 - 2009 Secretary of the Faculty of the School of Optometry, UC Berkeley
- 2006 Admissions Committee member, Vision Science Graduate Program

Thesis committee member:

- Bioengineering – Gary Lee, Storm Slivkoff, Andrew Vargas, An Vu
- Molecular and Cell Biology – Thomas Russell, Hyesoo Youn
- Neuroscience – Elena Allen, Matthew Baggott, Natalia Bilenko, Daniel Bliss, Emily Cooper, Courtney Gallen, Michael Goard, Caterina Gratton, Sarah Hillenbrand, Christina Karns, Alina Liberman, Elizabeth Lorenc, Melissa Newton, Sara Popham, Katarina Slama, Daniel Toker, Bradley Voytek
- Psychology – Bryan Alvarez, Matthew Cain, Allison Connell, Amy Finn, Jason Fischer, Francesca Fortenbaugh, Anna Kosovicheva, Ayelet Landau, Taraz Lee, Allison Leib, Michael Souza, Santani Teng, Joyce Yuan
- Vision Science – Julia Cox, Taekjun Kim, Peiyi Ko, Michael Oliver, Weston Pack

Thesis committee external member:

- Matthew Caywood (Neuroscience, University of California, San Francisco), James Chadick (Neuroscience, University of California, San Francisco), Elizabeth McDevitt (University of California, Riverside)

Qualifying exam committee member:

- Bioengineering – Omar Al-Hashimi, David Kim, Kenneth Kay, Naomi Kort, Gary Lee, Storm Slivkoff, Andrew Vargas, An Vu, Tianjiao Zhang
- Electrical Engineering/Computer Science – Pierre Garrigues
- Molecular and Cell Biology – Hyesoo Youn
- Neuroscience – Jenna Adams, Elena Allen, Daniel Bliss, Franklin Caval-Holme, Emily Cooper, Adam Eichenbaum, Courtney Gallen, Sarah Hillenbrand, Samuel Israel, Amy LeMessurier, John Long, Sara Popham, Christopher Rodgers, Katarina Slama, Daniel Toker
- Psychology – Samy Abdel-Ghaffar, Bryan Alvarez, Matthew Cain, Allison Connell, Jason Fischer, Francesca Fortenbaugh, Anna Kosovicheva, Ayelet Landau, Taraz Lee, Allison Leib, Vinitha Rangarajan, Justin Riddle, Michael Souza, Santani Teng, Jason Vytlacil, Joyce Yuan
- Vision Science – Amanda Alvarez, David Bressler, Wesley Chaney, Brian Cheung, Sangita Dandekar, Taekjun Kim, Chetan Nandakumar, Michael Oliver, Shuang Song, Baladitya Yellapragada

Qualifying exam committee chair:

- Neuroscience – Natalia Bilenko, Alina Liberman, Elizabeth Lorenc, Sara Popham
- Psychology – Ye Xia

Vision Science – Julia Cox, Vasha Dutell, Timothy Erlenmeyer, Christina Gambacorta, James Gao, Angelica Godinez, Mayur Mudigonda, Weston Pack, Dylan Paiton, Elizabeth Rislove, Dustin Stansbury

### Invited Talks

- 2017 Berkeley Summer Course in Mining and Modeling of Neuroscience Data, University of California, Berkeley  
Center for Hearing Research Annual Hearing Symposium, University of California, Irvine  
International Symposium honoring Michael Stryker: Forty Years of Visual Cortex, University of California, San Francisco
- 2016 Colloquium, Smith-Kettlewell Eye Research Institute, San Francisco, CA
- 2015 Bernstein Center for Computational Neuroscience, Charité – Universitätsmedizin, Berlin, Germany  
Department of Psychology, University of California, Riverside  
Department of Psychology, Vrije Universiteit, Amsterdam, the Netherlands  
Exploring the Mind Series, Center for Mind & Brain, University of California, Davis  
Kosmos Club, UC Berkeley  
Neuroscience Seminar Series, Integrative Biology and Neuroscience, Florida Atlantic University, Boca Raton, FL  
“Perceptual dysfunction in neuropsychiatric disorders – translational approaches”, Symposium, Joint Meeting of the European Brain and Behaviour Society and the European Behavioural Pharmacology Society, Verona, Italy
- 2014 Vision, Imaging Science, and Technology Activities (VISTA) Group, Stanford University
- 2013 “Brain science for game-makers: design principles of successful brain change” workshop, Entertainment Software and Cognitive Neurotherapeutics Society, conference, University of Southern California  
Data Science Lecture series, Panel Discussion, UC Berkeley  
Department of Psychology, University of Durham, England
- 2012 Bay Area Neuroscience Gathering, UC Berkeley (Keynote Speaker)  
Department of Psychology, University of Minnesota, Minneapolis, MN  
“Harnessing cortical plasticity for therapeutic purposes”, Panel Discussion, annual meeting of the American College of Neuropsychopharmacology, Hollywood, FL
- 2011 California Cognitive Science Conference, UC Berkeley  
Cal Science & Engineering Festival, UC Berkeley  
Institute of Neuroscience, University of Oregon, Eugene, OR  
Palo Alto Veterans Administration, Palo Alto, CA  
Plasticity of Neural Systems session, Entertainment Software and Cognitive Neurotherapeutics Society conference, UC San Francisco  
“Regulating access to consciousness: cortical mechanisms of attention”, Symposium, International Conference on Cognitive Neuroscience, Mallorca, Spain  
Research in Vision Science Group, School of Optometry, University of Montreal, Canada  
School of Psychology, Bangor University, Wales  
Third International Workshop on Visual Attention, Allahabad, India

- 2010 Department of Psychological and Brain Sciences, Johns Hopkins University, Baltimore, MD  
 Human Vision and Electronic Imaging session, Society for Imaging Science and Technology conference, San Jose, CA  
 Institute of Neuroscience, Newcastle University, England  
 Presidential Symposium, annual meeting of the Society for Psychophysiological Research, Portland, OR  
 Science@Cal Lecture Series, UC Berkeley  
 Townsend Center Working Group in the Philosophy of Mind, UC Berkeley  
 Vision Colloquium Series, Department of Psychology, Boston University, Boston, MA
- 2009 Cognitive Neuroscience Seminar, University of California, San Francisco  
 Department of Psychology, University of California, San Diego  
 National Youth Leadership Forum, UC Berkeley  
 Progress in Systems Biology Symposium, Ottawa Institute of Systems Biology, University of Ottawa, Canada
- 2008 Biology Fellows Program Summer Research Seminar, UC Berkeley  
 Henry H. Wheeler Jr. Brain Imaging Center Research Day, UC Berkeley  
 National Youth Leadership Forum, UC Berkeley  
 Vision Science retreat, UC Berkeley
- 2007 Henry H. Wheeler Jr. Brain Imaging Center Research Day, UC Berkeley  
 Pierce College, Woodland Hills, CA  
 Vision, Imaging Science, and Technology Activities (VISTA) Group, Stanford University  
 Vision Science retreat, UC Berkeley
- 2006 Behavioral Neurology seminar, University of California, San Francisco  
 Human Vision and Electronic Imaging session, Society for Imaging Science and Technology conference, San Jose, CA  
 Vision Science retreat, UC Berkeley
- 2005 Center for Mind and Brain, University of California, Davis  
 Colloquium, Smith-Kettlewell Eye Research Institute, San Francisco, CA  
 Department of Psychology, University of Michigan  
 Helen Wills Neuroscience Institute retreat, UC Berkeley  
 Interdisciplinary Forum on Cognitive Neuroscience and Neuroimaging, University of California, San Francisco  
 Oxyopia seminar series, School of Optometry, UC Berkeley
- 2004 Center for Molecular and Behavioral Neuroscience, Rutgers University, Newark, NJ  
 Helen Wills Neuroscience Institute retreat, UC Berkeley  
 Keck Center for Integrative Neuroscience, Department of Physiology, University of California, San Francisco
- 2002 Institute Colloquium, Max Planck Institute for Biological Cybernetics, Tübingen, Germany
- 2001 Colloquium, Smith-Kettlewell Eye Research Institute, San Francisco, CA
- 2000 Brain Science Institute Forum, RIKEN Institute, Wako-shi, Japan  
 Communications Research Laboratory, Kansai Advanced Research Center, Kobe, Japan  
 Department of Neurophysiology, Osaka University Medical School, Japan  
 Laboratory for Neural Circuits, RIKEN Institute, Nagoya, Japan

## Reviews

Associate Editor, *Frontiers in Human Neuroscience*  
Review Editor, *eLife*, *Frontiers in Systems Neuroscience*

Journals: *Attention, Perception, & Psychophysics*, *Behavioural Brain Research*, *Biological Psychology*, *Brain Research*, *Brain Structure and Function*, *Brain Topography*, *Cerebral Cortex*, *Consciousness and Cognition*, *Current Biology*, *European Journal of Neuroscience*, *Frontiers in Biological Sciences*, *Frontiers in Human Neuroscience*, *Frontiers in Neuroanatomy*, *Frontiers in Neuroscience*, *Investigative Ophthalmology & Vision Science*, *Journal of Cognitive Neuroscience*, *Journal of Neurophysiology*, *Journal of Neuroscience*, *Journal of Physiology – Paris*, *Journal of Vision*, *Journal of Visualized Experiments*, *Nature Neuroscience*, *Neuroimage*, *Neuron*, *Neuropsychologia*, *Neuropsychology*, *Neuroreport*, *Neuroscience*, *Neuroscience Letters*, *Optometry and Vision Science*, *PLoS Biology*, *PLoS ONE*, *Proceedings of the National Academy of Sciences USA*, *Psychological Science*, *Psychonomic Bulletin & Review*, *Science Advances*, *Trends in Cognitive Sciences*, *Vision Research*, *Visual Cognition*

## Granting agencies:

Ad hoc reviewer, Cognition and Perception (CP) study section  
Ad hoc reviewer, Mechanisms of Sensory, Perceptual, and Cognitive Processes (SPC) study section

Agence Nationale de la Recherche (French National Research Agency)

European Research Council

France-Berkeley Fund

Israeli Science Foundation

National Eye Institute Special Emphasis Panel (ZEY1 VSN 03, K99 Career Development Awards)

National Eye Institute Special Emphasis Panel (ZEY1 VSN 08, Loan Repayment Program, Clinical (L30) and Pediatric (L40) applications)

National Institutes of Health Special Emphasis Panel (ZRG1 PSE-P 55, “Accelerating the Pace of Drug Abuse Research Using Existing Data”)

National Science Foundation (Cognitive Neuroscience Program)

Summer Undergraduate Research Fellows program (UC Berkeley)

Conference papers: 25<sup>th</sup> Annual Conference on Neural Information Processing Systems (NIPS)

## Media Coverage

<http://motherboard.vice.com/read/drugs-designed-to-improve-brain-function-could-enhance-healthy-brains> (Rokem and Silver, 2013)

<https://columbian.gwu.edu/recovering-after-stroke-unlocking-brain's-secret-strategy> (Sheremata and Silver, 2015)

## Science Daily:

<http://www.sciencedaily.com/releases/2010/03/100310175130.htm> (Yoon et al., 2010)

<http://www.sciencedaily.com/releases/2010/09/100916121326.htm> (Rokem and Silver, 2010)



Science Today radio program (broadcast nationally on CBS radio):  
<http://www.ucop.edu/sciencetoday/article/24468> (Rokem and Silver, 2010)  
<http://www.ucop.edu/sciencetoday/article/24626> (Rokem et al., 2010)  
<http://www.ucop.edu/sciencetoday/article/29825> (Piazza et al., 2013)

<http://online.wsj.com/article/SB10001424053111904279004576524321377942288.html>  
(McDevitt et al., 2014)

## **Publications**

Silver MA, Yang ZW, Ganguli R, Nimgaonkar VL (1994) An inhibitory effect of psychoactive drugs on a human neuroblastoma cell line. *Biological Psychiatry* 35:824-826.

Silver MA, Stryker MP (1999) Synaptic density in geniculocortical afferents remains constant after monocular deprivation in the cat. *Journal of Neuroscience* 19:10829-10842.

Silver MA, Stryker MP (2000) A method for measuring colocalization of presynaptic markers with anatomically labeled axons using double label immunofluorescence and confocal microscopy. *Journal of Neuroscience Methods* 94:205-215.

Silver MA, Stryker MP (2000) Distributions of synaptic vesicle proteins and GAD65 in deprived and nondeprived ocular dominance columns in layer IV of kitten primary visual cortex are unaffected by monocular deprivation. *Journal of Comparative Neurology* 422:652-664.

Silver MA, Stryker MP (2001) TrkB-like immunoreactivity is present on geniculocortical afferents in layer IV of kitten primary visual cortex. *Journal of Comparative Neurology* 436:391-398.

Silver MA, Fagiolini M, Gillespie DC, Howe CL, Frank MG, Issa NP, Antonini A, Stryker MP (2001) Infusion of nerve growth factor (NGF) into kitten visual cortex increases immunoreactivity for NGF, NGF receptors, and choline acetyltransferase in basal forebrain without affecting ocular dominance plasticity or column development. *Neuroscience* 108:569-585.

Silver MA, Logothetis NK (2004) Grouping and segmentation in binocular rivalry. *Vision Research* 44:1675-1692.

Silver MA, Ress D, Heeger DJ (2005) Topographic maps of visual spatial attention in human parietal cortex. *Journal of Neurophysiology* 94:1358-1371. Selected as Faculty of 1000 Biology "Must Read" article: <http://www.fl1000biology.com/article/15817643/evaluation>

Silver MA, Ress D, Heeger DJ (2007) Neural correlates of sustained spatial attention in human early visual cortex. *Journal of Neurophysiology* 97:229-237.

Silver MA, Logothetis NK (2007) Temporal frequency and contrast tagging bias the type of competition in interocular switch rivalry. *Vision Research* 47:532-543.

Silver MA, Shenhav A, D'Esposito M (2008) Cholinergic enhancement reduces spatial spread of visual responses in human early visual cortex. *Neuron* 60:904-914.

Lauritzen TZ, D'Esposito M, Heeger DJ, Silver MA (2009) Top-down flow of visual spatial attention signals from parietal to occipital cortex. *Journal of Vision* 9(13):18:1-14.

Rokem A, Silver MA (2009) A model of encoding and decoding in V1 and MT accounts for motion perception anisotropies in the human visual system. *Brain Research* 1299:3-16.

Silver MA, Kastner S (2009) Topographic maps in human frontal and parietal cortex. *Trends in Cognitive Sciences* 13:488-495.

Yoon JH, Rokem AS, Silver MA, Minzenberg MJ, Ursu S, Ragland JD, Carter CS (2009) Diminished orientation-specific surround suppression of visual processing in schizophrenia. *Schizophrenia Bulletin* 35:1078-1084.

Bressler DW, Silver MA (2010) Spatial attention improves reliability of fMRI retinotopic mapping signals in occipital and parietal cortex. *Neuroimage* 53:526-533.

Rokem A, Landau AN, Garg D, Prinzmetal W, Silver MA (2010) Cholinergic enhancement increases the effects of voluntary attention but does not affect involuntary attention. *Neuropsychopharmacology* 35:2538-2544.

Rokem A, Silver MA (2010) Cholinergic enhancement augments magnitude and specificity of visual perceptual learning in healthy humans. *Current Biology* 20:1723-1728.

Yoon JH, Maddock RJ, Rokem A, Silver MA, Minzenberg MJ, Ragland JD, Carter CS (2010) GABA concentration is reduced in visual cortex in schizophrenia and correlates with orientation-specific surround suppression. *Journal of Neuroscience* 30:3777-3781.

Denison RN, Piazza E, Silver MA (2011) Predictive context influences perceptual selection during binocular rivalry. *Frontiers in Human Neuroscience* 5:166.

Rokem A, Yoon JH, Ooms RE, Maddock RJ, Minzenberg MJ, Silver MA (2011) Broader visual orientation tuning in patients with schizophrenia. *Frontiers in Human Neuroscience* 5:127.

Denison RN, Silver MA (2012) Distinct contributions of the magnocellular and parvocellular visual streams to perceptual selection. *Journal of Cognitive Neuroscience* 24:246-259.

Fortenbaugh FC, Sanghvi S, Silver MA, Robertson LC (2012) Exploring the edges of visual space: the influence of visual boundaries on peripheral localization. *Journal of Vision* 12(2):19:1-18.

Kosovicheva AA, Sheremata SL, Rokem A, Landau AN, Silver MA (2012) Cholinergic enhancement reduces orientation-specific surround suppression but not visual crowding. *Frontiers in Behavioral Neuroscience* 6:61.

Rokem A, Landau AN, Prinzmetal W, Wallace DL, Silver MA, D'Esposito M (2012) Modulation of inhibition of return by the dopamine D2 receptor agonist bromocriptine depends on individual DAT1 genotype. *Cerebral Cortex* 22:1133-1138.

Bressler DW, Fortenbaugh FC, Robertson LC, Silver MA (2013) Visual spatial attention enhances the amplitude of positive and negative fMRI responses to visual stimulation in an eccentricity-dependent manner. *Vision Research* 85:104-112.

Gratton C, Sreenivasan KK, Silver MA, D'Esposito M (2013) Attention selectively modifies the representation of individual faces in the human brain. *Journal of Neuroscience* 33:6979-6989.

Piazza EA, Sweeny TD, Wessel D, Silver MA, Whitney D (2013) Humans use summary statistics to perceive auditory sequences. *Psychological Science* 24:1389-1397.

Rokem A, Silver MA (2013) The benefits of cholinergic enhancement during perceptual learning are long-lasting. *Frontiers in Computational Neuroscience* 7:66.

Yoon JH, Sheremata S, Rokem A, Silver MA (2013) Windows to the soul: vision science as a tool for studying biological mechanisms of information processing deficits in schizophrenia. *Frontiers in Psychology* 4:681.

Denison RN, Vu AT, Yacoub E, Feinberg DA, Silver MA (2014) Functional mapping of the magnocellular and parvocellular subdivisions of human LGN. *Neuroimage*, 102:358-369.

Hutchinson JB, Uncapher MR, Weiner KS, Bressler DW, Silver MA, Preston AR, Wagner AD (2014) Functional heterogeneity in posterior parietal cortex across attention and episodic memory retrieval. *Cerebral Cortex* 24:49-66.

McDevitt EA, Rokem A, Silver MA, Mednick SC (2014) Sex differences in sleep-dependent perceptual learning. *Vision Research* 99:172-179.

Piazza EA, Silver MA (2014) Persistent hemispheric differences in the perceptual selection of spatial frequencies. *Journal of Cognitive Neuroscience* 26:2021-2027.

Fortenbaugh FC, Silver MA, Robertson LC (2015) Individual differences in visual field shape modulate the effects of attention on the lower visual field advantage in crowding. *Journal of Vision* 15(2):19:1-15.

Fortenbaugh FC, Van Vleet TM, Silver MA, Robertson LC (2015) Spatial distortions in localization and midline estimation in hemianopia and normal vision. *Vision Research* 111:1-12.

Sheremata SL, Silver MA (2015) Hemisphere-dependent attentional modulation of human parietal visual field representations. *Journal of Neuroscience* 35:508-517.

Denison RN, Sheynin J, Silver MA (2016) Perceptual suppression of predicted natural images. *Journal of Vision* 16(13):6:1-15.

Chung STL, Li RW, Silver MA, Levi DM (2017) Donepezil does not enhance perceptual learning in adults with amblyopia: a pilot study. *Frontiers in Neuroscience* 11:448.

Gratton C, Yousef S, Aarts E, Wallace DL, D'Esposito M, Silver MA (2017) Cholinergic, but not dopaminergic or noradrenergic, enhancement sharpens visual spatial perception in humans. *Journal of Neuroscience* 37:4405-4415.

Piazza EA, Silver MA (2017) Relative spatial frequency processing drives hemispheric asymmetry in conscious awareness. *Frontiers in Psychology* 8:559.

Ahmadi M, McDevitt EA, Silver MA, Mednick S (submitted) Perceptual learning induces changes in early and late visual evoked potentials.

Harewood Smith A, Challa JA, Silver MA (submitted) Neither cholinergic nor dopaminergic enhancement improve spatial working memory precision in humans.

Piazza EA, Denison RN, Silver MA (submitted) Recent crossmodal statistical learning influences conscious awareness.

Theis JM, Batten CG, Silver MA (submitted) Baseline visual anomalies in athletes with and without prior concussion.

### **Book Chapter**

Bressler DW, Denison RN, Silver MA (2013) “High-level modulations of binocular rivalry: Effects of stimulus configuration, spatial and temporal context, and observer state”, pp. 253-280. In *The Constitution of Visual Consciousness: Lessons from Binocular Rivalry*, edited by S.M. Miller. Amsterdam, the Netherlands: John Benjamins Publishing Company.

### **Conference Proceedings**

Silver MA (2006) “Modeling the time course of attention signals in human primary visual cortex”, in Human Vision and Electronic Imaging XI, edited by B.E. Rogowitz, T.N. Pappas, and S.J. Daly, *Proceedings of SPIE*, Volume 6057, pp. 605714-1 to 605714-8 (invited paper).

Silver MA, Landau AN, Lauritzen TZ, Prinzmetal W, Robertson LC (2010) “Isolating human brain functional connectivity associated with a specific cognitive process”, in Human Vision and Electronic Imaging XV, edited by B.E. Rogowitz and T.N. Pappas, *Proceedings of SPIE*, Volume 7527, pp. 75270B-1 to 75270B-9 (invited paper).

### **Conference Abstracts**

Silver MA, Kind PC, Stryker MP, Hockfield S (1995) The monoclonal antibody Cat-305 labels some geniculocortical afferents in areas 17 and 18 of 40 day old kitten visual cortex. *Society for Neuroscience Abstracts* 21:395.

Silver MA, Radeke MJ, Feinstein SC, Stryker MP (1996) TrkB-like immunoreactivity is not evident on geniculocortical afferents in layer IV of kitten visual cortex by visual image inspection, but it is revealed by quantitative object-based image analysis. *Society for Neuroscience Abstracts* 22:1479.

Silver MA, Stryker MP (1997) Synaptic density in geniculocortical afferents remains constant following monocular deprivation in the cat. *Society for Neuroscience Abstracts* 23:1664.

Silver MA, Stryker MP (1998) Synaptic vesicle protein levels remain equal in deprived and nondeprived ocular dominance columns in layer IV of kitten visual cortex after monocular deprivation (MD). Presented at the Forum of European Neuroscience (Abstract 112.19) and published in *European Journal of Neuroscience* 10 (Supplement 10):281.

Silver MA, Stryker MP (1999) GAD65 immunoreactivity levels in deprived and nondeprived ocular dominance columns remain equal following monocular deprivation in kitten. *Society for Neuroscience Abstracts* 25:1315.

Silver MA, Fagiolini M, Gillespie DC, Howe CL, Stryker MP (2000) Local infusion of NGF into kitten primary visual cortex results in increases in NGF-, TrkA-, p75-, and ChAT-like immunoreactivity in basal forebrain neurons but has no effect on ocular dominance plasticity. *Society for Neuroscience Abstracts* 26:208.1

Silver MA, Leopold DA, Logothetis NK (2001) Grouping and segmentation in binocular rivalry. Presented at the 24<sup>th</sup> annual European Conference on Visual Perception and published in *Perception* 30 (Supplement):76.

Silver MA, Leopold DA, Logothetis NK (2001) The effects of global perturbations on perceptual dominance during binocular rivalry between interocularly switched stimuli. *Society for Neuroscience Abstracts* 27:950.18.

Silver MA, Ress D, Heeger DJ (2003) Sustained attention-related activity in primary visual cortex. Presented at the 2<sup>nd</sup> annual Vision Sciences Society conference and published in *Journal of Vision* 3(9):179.

Silver MA, Ress D, Heeger DJ (2003) Neural correlates of sustained attention in parietal and primary visual cortex. *Society of Neuroscience Abstracts* 873.5

Silver MA, Ress D, Heeger DJ (2004) Retinotopic maps of visual spatial attention in human parietal cortex. Presented at the 11<sup>th</sup> annual Cognitive Neuroscience Society conference.

Silver MA, Shenhav A, Heeger DJ, D'Esposito M (2004) Cholinergic enhancement of top-down visual spatial attention in humans. *Society for Neuroscience Abstracts* 480.2

Silver MA, Shenhav A, Heeger DJ, D'Esposito M (2005) Cholinergic enhancement increases signal-to-noise ratio of visual responses in human visual cortex. *Society for Neuroscience Abstracts* 821.5.

Silver MA, Shenhav A, D'Esposito M (2006) Cholinergic enhancement decreases spatial spread of visual responses in human primary visual cortex. *Society for Neuroscience Abstracts* 545.18.

Lauritzen TZ, D'Esposito M, Heeger DJ, Silver MA (2007) Functional networks underlying top-down visual spatial attention in the human brain. *Society for Neuroscience Abstracts* 423.9.

Lauritzen TZ, Shenhav A, D'Esposito M, Silver MA (2007) fMRI coherency analysis reveals feedforward progression of visual responses in human early visual cortex. Presented at the Optical Society of America Fall Vision Meeting and published in *Journal of Vision* 7(15):14.

Rokem A, Sanghvi S, Silver MA (2007) Motion adaptation bandwidth anisotropies in the human visual system. Presented at the Optical Society of America Fall Vision Meeting and published in *Journal of Vision* 7(15):101.

Shenhav A, D'Esposito M, Silver MA (2007) Attentional modulation of center and surround responses in human early visual cortex. *Society for Neuroscience Abstracts* 177.5.

Silver MA (2007) Combined sensory and attention topographic mapping of human visual cortical areas with fMRI. *Society for Neuroscience Abstracts* 231.7.

Silver MA, Logothetis NK (2007) Temporal frequency and contrast tagging bias the type of competition in interocular switch rivalry. Presented at the 6<sup>th</sup> annual Vision Sciences Society conference and published in *Journal of Vision* 7(9):58.

Silver MA, Shenhav A, D'Esposito M (2007) Sustained attention decreases spatial spread of visual responses in human early visual cortex. Presented at the 14<sup>th</sup> annual Cognitive Neuroscience Society conference.

Bressler D, Silver MA (2008) The effects of spatial attention and population receptive field size estimation on fMRI topographic mapping signals. Presented at the 7<sup>th</sup> annual Vision Sciences Society conference and published in *Journal of Vision* 8(6):803.

Hutchinson JB, Uncapher MR, Bressler DW, Silver MA, Wagner AD (2008) Does episodic retrieval engage parietal attention mechanisms? Relating memory to topographic maps of visuo-spatial attention and reflexive orienting. *Society for Neuroscience Abstracts* 714.11.

Rokem A, Sanghvi S, Silver MA (2008) A model of V1-to-MT connectivity accounts for motion perception anisotropies in the human visual system. Presented at the 7<sup>th</sup> annual Vision Sciences Society conference and published in *Journal of Vision* 8(6):1030.

Rokem A, Silver MA (2008) Cholinergic enhancement augments perceptual learning in the human visual system. *Society for Neuroscience Abstracts* 588.14.

Silver MA, Yoon JH, Rokem A, Minzenberg M, Carter CS (2008) Reduced orientation-specific surround suppression in schizophrenia. *Society for Neuroscience Abstracts* 811.12.

Bressler DW, Silver MA (2009) Visual spatial attention improves fMRI response reliability by decreasing the amplitude of endogenous slow oscillations in visual cortex. *Society for Neuroscience Abstracts* 804.8.

Denison RN, Silver MA (2009) Stimulus factors governing perceptual selection during binocular rivalry. *Society for Neuroscience Abstracts* 852.5.

Landau AN, Prinzmetal W, Robertson LC, Silver MA (2009) Neural circuits mediating voluntary and involuntary attention: a functional MRI coherency study. *Society for Neuroscience Abstracts* 701.5.

Lu AT, Bressler DW, Silver MA (2009) Low-level perceptual selection is more susceptible to volitional control than high-level selection in binocular rivalry. *Society for Neuroscience Abstracts* 876.5.

Prinzmetal W, Landau AN, Rokem A, Silver MA (2009) Two distinct systems for spatial attention: Evidence from trait impulsivity and neuropharmacology. Presented at the 50<sup>th</sup> annual meeting of the Psychonomic Society.

Rokem A, Garg D, Landau A, Prinzmetal W, Silver MA (2009) Effects of cholinergic enhancement on attention and learning in the human visual system. Presented at the 15<sup>th</sup> annual Cognitive Science Association for Interdisciplinary Learning conference.

Rokem AS, Garg D, Kelvey J, Landau A, Prinzmetal W, Silver MA (2009) Effects of cholinergic enhancement on voluntary and involuntary visuospatial attention in humans. *Society for Neuroscience Abstracts* 188.6.

Rokem A, Silver MA (2009) Cholinergic enhancement in healthy humans increases magnitude and specificity of perceptual learning. Presented at the 32<sup>nd</sup> annual European Conference on Visual Perception and published in *Perception* 38 (Supplement):108.

Bressler DW, Silver MA (2010) Spatial attention enhances perception by suppression of activity in portions of visual cortex that represent unattended locations. *Society for Neuroscience Abstracts* 173.5.

Denison RN, Hillenbrand S, Silver MA (2010) Separate contributions of magno- and parvocellular streams to perceptual selection during binocular rivalry. Presented at the 8<sup>th</sup> annual Vision Sciences Society conference and published in *Journal of Vision* 10(7):355.

Kosovicheva AA, Landau AN, Silver MA (2010) Interactions of sustained spatial attention and surround suppression: an EEG study. *Society for Neuroscience Abstracts* 399.17.

Prinzmetal W, Rokem A, Landau AN, Wallace DL, Silver MA, D'Esposito M (2010) The D2 dopamine receptor agonist bromocriptine enhances voluntary but not involuntary spatial attention in humans. Presented at the 8<sup>th</sup> annual Vision Sciences Society conference and published in *Journal of Vision* 10(7):155.

Rokem AS, Ooms RE, Yoon JH, Minzenberg MJ, Carter CS, Silver MA (2010) Broader tuning for visual stimulus orientation in patients with schizophrenia: a psychophysical study. *Society for Neuroscience Abstracts* 570.14.

Rokem A, Silver MA (2010) Cholinergic enhancement augments the magnitude and specificity of perceptual learning in the human visual system: a pharmacological fMRI study. Presented at the 8<sup>th</sup> annual Vision Sciences Society conference and published in *Journal of Vision* 10(7):1101.

Silver MA, Maddock RJ, Rokem A, Yoon JH (2010) Gamma-aminobutyric acid concentration is reduced in visual cortex in schizophrenia and correlates with orientation-specific surround suppression. Presented at the 8<sup>th</sup> annual Vision Sciences Society conference and published in *Journal of Vision* 10(7):908.

Bressler DW, Silver MA (2011) Manipulating contrast of multistable stimuli dissociates selection and maintenance of perceptual dominance in binocular rivalry. Presented at the 9<sup>th</sup> annual Vision Sciences Society conference and published in *Journal of Vision* 11(11):319.

Connolly JD, Cavina-Pratesi C, Silver MA, Bartolo MJ, Thiele A (2011) Neural correlates of intended, executed, and suppressed saccade and pointing movements in human posterior parietal and motor cortex. *Society for Neuroscience Abstracts* 852.11.

Denison RN, Piazza E, Silver MA (2011) Predictive context biases perceptual selection during binocular rivalry. Presented at the Computational and Systems Neuroscience (COSYNE) conference and available at <http://precedings.nature.com/documents/5816/version/1>

Fortenbaugh FC, Sanghvi S, Silver MA, Robertson LC (2011) Visual boundaries influence the direction of biases in peripheral localization. Presented at the 9<sup>th</sup> annual Vision Sciences Society conference and published in *Journal of Vision* 11(11):1148.

Gratton C, Sreenivasan KK, Silver MA, D'Esposito M (2011) Effects of feature-based attention on voxel tuning curves for individual faces. *Society for Neuroscience Abstracts* 289.03.

McDevitt EA, Rokem A, Silver MA, Mednick SC (2011) Men need a nap to show perceptual learning but women do not. Presented at the 25<sup>th</sup> annual Meeting of the Associated Professional Sleep Societies and published in *Sleep* 34 (Supplement):A78.

Piazza E, Silver MA (2011) The time course of hemispheric asymmetries in perceptual selection of spatial frequency information. Presented at the 9<sup>th</sup> annual Vision Sciences Society conference and published in *Journal of Vision* 11(11):307.

Prinzmetal W, Rokem A, Silver MA (2011) What stimulus attributes are enhanced by attention? Presented at the 9<sup>th</sup> annual Vision Science Society conference and published in *Journal of Vision* 11(11):122.

Rokem A, Silver MA, McDevitt EA, Mednick SA (2011) The effects of naps on the magnitude and specificity of perceptual learning of motion direction discrimination. Presented at the 9<sup>th</sup> annual Vision Sciences Society conference and published in *Journal of Vision* 11(11):1000.

Sheremata SL, Silver MA (2011) Population receptive field mapping of responses to visual motion in the human intraparietal sulcus. *Society for Neuroscience Abstracts* 695.01.

Silver MA, Bressler DW (2011) Behavioral performance on a target detection task is correlated with the amount of attentional suppression of slow endogenous fluctuations in fMRI signals. Presented at the 11<sup>th</sup> annual International Conference on Cognitive Neuroscience (ICON XI) and published in *Frontiers in Human Neuroscience*.

Silver MA, Kosovicheva AA, Landau AN (2011) ERP correlates of orientation-specific surround suppression. Presented at the 9<sup>th</sup> annual Vision Sciences Society conference and published in *Journal of Vision* 11(11):1168.

Denison RN, Vu A, Feinberg DA, Yacoub E, Silver MA (2012) Functional mapping of the magnocellular and parvocellular subdivisions of human LGN. *Society for Neuroscience Abstracts* 880.21.



Piazza EA, Denison RN, Schram M, Silver MA (2012) Implicit multisensory statistical learning influences visual perceptual selection. Presented at the 10<sup>th</sup> annual Vision Sciences Society conference and published in *Journal of Vision* 12(9):1025.

Rokem A, Silver MA (2012) Cholinergic enhancement of perceptual learning in the human visual system. Presented at the 10<sup>th</sup> annual Vision Sciences Society conference and published in *Journal of Vision* 12(9):1402.

Rokem A, Silver MA (2012) Cholinergic enhancement increases information content of stimulus representations in human visual cortex. Presented at the *Cell Symposium on Neuromodulatory Mechanisms*.

Sheremata SL, Silver MA (2012) Attentional shifts underlie hemispheric asymmetries in topographic parietal cortex. Presented at the 10<sup>th</sup> annual Vision Sciences Society conference and published in *Journal of Vision* 12(9):656.

Silver MA (2012) Long-lasting enhancement of visual perceptual learning in healthy humans by the cholinesterase inhibitor donepezil. Presented at the 51<sup>st</sup> annual meeting of the American College of Neuropsychopharmacology and published in *Neuropsychopharmacology* 38 (Suppl 1):S63.

Yousef SM, Sheremata SL, Kaneta RK, Silver MA (2012) Cholinergic enhancement improves visual short-term memory performance. Presented at the 18<sup>th</sup> annual conference of the Cognitive Science Association for Interdisciplinary Learning.

Albert RA, Sheremata SL, Silver MA, Robertson LC (2013) The role of parietal cortex in feature binding in visual search. Presented at the 11<sup>th</sup> annual Vision Sciences Society conference and published in *Journal of Vision* 13(9):158.

Denison RN, Schram M, Sheynin J, Silver MA (2013) Visual statistical learning guides perceptual selection. Presented at the 11<sup>th</sup> annual Vision Sciences Society conference and published in *Journal of Vision* 13(9):1102.

Denison RN, Vu A, Yacoub E, Feinberg DA, Silver MA (2013) Mapping magnocellular and parvocellular subdivisions of human LGN at high spatial resolution with 3T and 7T fMRI. *Society for Neuroscience Abstracts* 310.01.

Fortenbaugh FC, Silver MA, Robertson LC (2013) Redefining the metric of visual space: Visual field boundaries influence attentional resolution and crowding performance. Presented at the 11<sup>th</sup> annual Vision Sciences Society conference and published in *Journal of Vision* 13(9):577.

Peters M, McDevitt EA, Sheremata SL, Mednick SC, Silver MA (2013) Cholinergic enhancement of single session perceptual learning is location specific. Presented at the 20<sup>th</sup> annual Cognitive Neuroscience Society conference.

Piazza EA, Silver MA (2013) Persistent hemispheric differences in the perceptual selection of spatial frequencies. *Society for Neuroscience Abstracts* 760.02.

Piazza EA, Sweeny TD, Wessel D, Silver MA, Whitney D (2013) Auditory ensemble coding: an efficient mechanism for perceiving tone sequences. Presented at the Society for Music Perception and Cognition conference.

Sheremata SL, Alvarez BD, Zertuche LE, Silver MA, Robertson LC (2013) Visuotopic mapping of the parietal cortex distinguishes areas involved in synesthetic feature binding. Presented at the 11<sup>th</sup> annual Vision Sciences Society conference and published in *Journal of Vision* 13(9):1253.

Sheremata SL, Silver MA (2013) Covert spatial attention results in bilateral visual field representations in right, but not left, visuotopic parietal cortex in humans. *Society for Neuroscience Abstracts* 793.13.

Yang E, Silver MA, Levi DM (2013) Impaired mechanisms of suppression in amblyopia. Presented at the 11<sup>th</sup> annual Vision Sciences Society conference and published in *Journal of Vision* 13(9):44.

Denison RN, Sheynin J, Silver MA (2014) Statistical learning facilitates the identification of targets in perceptual competition with learned images. Presented at the 12<sup>th</sup> annual Vision Sciences Society conference and published in *Journal of Vision* 14(10):1244.

Huh CYL, Yang E, Silver MA, Levi DM (2014) Surround suppression in amblyopic central vision. Presented at the 12<sup>th</sup> annual Vision Sciences Society conference and published in *Journal of Vision* 14(10):1415.

Piazza E, Denison R, Sweeny T, Sheynin J, Silver M, Whitney D (2014) The optimal time scale of statistical summary in human auditory perception. *Society for Neuroscience Abstracts* 488.11.

Silver MA, Fortenbaugh FC, Robertson LC (2014) Redefining the metric of visual space: the influence of visual field boundaries and attention on crowding performance. *Society for Neuroscience Abstracts* 491.03.

Piazza EA, Wong KY, Silver MA (2015) Contextual processing modulates hemispheric differences in visual perceptual selection. Presented at the 22<sup>th</sup> annual Cognitive Neuroscience Society conference.

Silver MA, Gratton C, Yousef S, Aarts E, Wallace D, D'Esposito M (2015) Cholinergic, but not dopaminergic or noradrenergic, enhancement sharpens behavioral visual spatial tuning. *Society for Neuroscience Abstracts* 747.08.

Ahmadi M, McDevitt EA, Silver MA, Mednick SC (2016) Neural correlates of sleep-dependent consolidation of visual perceptual learning: an ERP study. *Society for Neuroscience Abstracts* 450.16.

Byrne KNH, Yang E, Li L, Levi DM, Silver MA (2016) Reduced binocular summation of fMRI responses to visual stimuli in ventral extrastriate cortex in anisometric amblyopia is related to visual cortical GABA concentration. *Society for Neuroscience Abstracts* 48.01.

Eichenbaum A, Yousef SM, Gallen C, Pool ES, Chen AJ-W, Silver MA, D'Esposito M (2016) Effects of attention state regulation training on resting-state functional connectivity. *Society for Neuroscience Abstracts* 88.19.

Harewood AN, Robertson LC, Fortenbaugh FC, Silver MA (2016) Visual field shape influences critical spacing in visual crowding. Presented at the 14<sup>th</sup> annual Vision Sciences Society conference and published in *Journal of Vision* 16(12):235.

McDevitt EA, Ahmadi M, Silver MA, Mednick SC (2016) Modulating acetylcholine during consolidation of sleep-dependent perceptual learning. Presented at the 14<sup>th</sup> annual Vision Sciences Society conference and published in *Journal of Vision* 16(12):550.

Sheremata SL, Silver MA (2016) Handedness, hemispheric asymmetries, and parietal spatial attention maps. Presented at the 22<sup>nd</sup> annual Organization for Human Brain Mapping conference.

Byrne KN, Peters MW, McDevitt EA, Sheremata SL, Mednick SC, Silver MA (2017) The effects of cholinergic enhancement and consolidation duration on perceptual learning of texture discrimination. Presented at the 15<sup>th</sup> annual Vision Sciences Society conference.

Chung STL, Li RW, Silver MA, Levi DM (2017) Combining the cholinesterase inhibitor donepezil with perceptual learning in adults with amblyopia. Presented at the 15<sup>th</sup> annual Vision Sciences Society conference.

Egert D, Silver MA, Wolfson P, Andries J, Feduccia A, Ciuca D (2017) Physiological correlates of anxiety associated with a life-threatening illness in subjects undergoing MDMA-assisted psychotherapy. Presented at the Psychedelic Science conference.

Harewood Smith AN, Challa JA, Silver MA (2017) Neither cholinergic nor dopaminergic enhancement improves spatial working memory precision in humans. To be presented at the 47<sup>th</sup> annual meeting of the Society for Neuroscience.

Mukerji A, Byrne KN, Yang E, Li L, Levi DM, Silver MA (2017) Influence of visual cortical GABA concentration on perceptual suppression and binocular summation in amblyopia. Presented at the 15<sup>th</sup> annual Vision Sciences Society conference.

Yousef SM, Chen AJ-W, Rhezaii O, Loya F, Binder D, Silver MA (2017) Sustained attention and working memory are improved by attention regulation training with guided experiential skill application. Presented at the 24<sup>th</sup> annual Cognitive Neuroscience Society conference.