

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

7/2018 – present 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)

7/2011 – 6/2018 Associate Professor of Optometry and Vision Science and Neuroscience, University of California, Berkeley

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

- 2019 – 2021 Anonymous gift, “An integrated multi-institution investigation into novel therapeutic uses of psilocybin and underlying brain mechanisms (with Josh Woolley and Boris Heifets), \$1,500,000 total award, \$350,000 to UC Berkeley
- 2019 Seed Grant for Brain Imaging Research, Institute of Cognitive and Brain Sciences, University of California, Berkeley, \$6500
- 2017 – 2018 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, 2018)
- 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 - 2016)
- Co-instructor, VS260C, Introduction to Visual Neuroscience (Vision Science, Psychology, and Computer Science graduate students, 2018 – present)
- Co-instructor, Opt10, Vision in a Changing Environment (freshman seminar; 2006 - present)
- Co-instructor, Neurosc290, Student Research Presentation Seminar (Neuroscience graduate students; 2008, 2012, 2013, 2017 - present)
- Guest Lecturer, Psych214, Functional Magnetic Resonance Imaging Methods (Psychology and Neuroscience graduate students; 2006 - 2015)
- Guest Lecturer, CogSci 98/198, Berkeley Review of CogSci Articles (Cognitive Science undergraduate students; 2012, 2013, 2016)

Mentoring

- 2019 – present PhD supervisor, Joel Bowen, UC Berkeley Vision Science Program
- 2018 – present postdoctoral supervisor, Devavrat Vartak
- 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 – 2019 PhD supervisor, Kelly Byrne, UC Berkeley Vision Science Program
- 2014 – 2017 postdoctoral supervisor, Adrien Chopin (co-mentor with Dennis Levi)
- 2013 – 2014 postdoctoral supervisor, You Lim (Carey) Huh (co-mentor with Dennis Levi)
- 2013 – 2018 PhD supervisor, Sahar Yousef, UC Berkeley Vision Science Program
- 2013 – 2017 PhD supervisor, Adeola Harewood, UC Berkeley Vision Science Program
- 2012 – 2015 postdoctoral supervisor, Eunice Yang (co-mentor with Dennis Levi)
- 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
- 2010 – 2013 postdoctoral supervisor, Summer Sheremata
- 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, Debbie Lieu, Shradha Sanghvi, Betty Wang, Karen Wong, Yujia Zhang)
- 2006 – present Mentor in UC Berkeley Undergraduate Research Apprentice Program (Ahmad Ahmadzada, Julia Alcaraz, Carissa Alforque, Jnana Aditya Challa, Kimberly Chan, Andrew Chang, Hong-Chun Chao, David Garg, Olivia Goodman, Vanessa Hoffman, Anokhi Kastia, Jonathon Kelvey, Matthew Koh, Anthony LaBarbera, Kailin Li, Liyang Li, Abizer Lokhandwala, Andrew Lu, Jessica McElroy, Julia McKnight, Ashray Manepalli, Dorsa Moslehi, Sen Ninan, Matthew Peters, Natalie Pierson, Asha Raghu, Tomer Rotstein, Maxwell Schram, Sabrina Shen, Samuel Shu, Akber Sheikh, Jacob Sheynin, Andrew Shibata, Anikait Singh, Sharanya Thiagarajan, Jonathan Toomim, Kathy Tong, Joanna Tung, Christopher Vasilas, Iris Vold, Frank Wang, Leo Zhang)
- 2006 – 2009 Postdoctoral supervisor, Thomas Lauritzen
- 2006 Mentor in UC Berkeley Summer Bioengineering Research Program (Clare Gollnick)

Professional Service

- 2018 – 2019 Chair, Faculty Search Committee, School of Optometry
- 2018 Co-organizer, International Workshop on Perceptual Learning, Moorea, Tahiti
- 2017 – present Chair, Admissions Committee, Neuroscience Graduate Program
- 2017 – present Director, Neuroscience Graduate Program
- 2017 – present Equity Advisor, Helen Wills Neuroscience Institute
- 2017 – present Co-Director, Software Development Module, National Eye Institute Core Grant, Vision Science Graduate Program
- 2017 – present Executive Committee, Helen Wills Neuroscience Institute
- 2017 – present Strategic Planning Steering Committee, School of Optometry
- 2017 Faculty Search Committee, School of Optometry
- 2017 Interview Committee, Senior Assistant Dean / Chief Operating Officer position, School of Optometry
- 2017 Interview Committee, Assistant Dean of Student Affairs position, School of Optometry
- 2017 Session Chair, International Conference on Cognitive and Behavioral Psychology
- 2016 – present Admissions Committee, 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 – 2019 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 – 2018 Faculty Club Board of Directors, UC Berkeley
- 2014 – 2016 Oxyopia Seminar Series Committee, 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, Neuroscience Graduate Program
 2012 – present Faculty Sponsor, Regents' and Chancellor's Scholars, UC Berkeley
 2012 – present Vision Science Executive Committee, UC Berkeley
 2012 – present Vision Science Graduate Advisory Committee, UC Berkeley
 2012 – 2014 Chair, Oxyopia Seminar Series Committee, Vision Science Graduate Program
 2011 – present Junior Faculty Development Committee, School of Optometry
 2011 – 2014 Academic Advisor, Neuroscience Graduate Program
 2011 – 2014 Admissions Committee, School of Optometry
 2011 – 2014 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, School of Optometry
 2009 – 2011 Academic Advisory Committee, School of Optometry
 2008 – 2011 Admissions Committee, Vision Science Graduate Program
 2008 *ad hoc* Merit Review Committee, School of Optometry
 2007 – 2011 Curriculum Committee, School of Optometry
 2007 – 2012 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, UC
 Berkeley
 2007 – 2009 Academic Advisor, Neuroscience Graduate Program
 2007 Co-presenter, tutorial entitled "The Pharmacology of Perception", 11th annual
 meeting of the Association for the Scientific Study of Consciousness
 2007 Session Chair, Society for Neuroscience conference
 2007 Admissions Committee, Neuroscience Graduate Program
 2006 – 2009 Secretary of the Faculty of the School of Optometry, UC Berkeley
 2006 Admissions Committee, 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, Carson McNeil, Melissa Newton, Sara Popham,
 Katarina Slama, Daniel Toker, Bradley Voytek

Philosophy – Grayson Abid

Psychology – Bryan Alvarez, Matthew Cain, Allison Connell, Amy Finn, Jason Fischer,
 Francesca Fortenbaugh, Anna Kosovicheva, Ayelet Landau, Taraz Lee, Allison Leib,
 Enitan Marcelle, Vinitha Rangarajan, Michael Souza, Santani Teng, Joyce Yuan,
 Tianjiao Zhang

Vision Science – Avigael Aizenman, Teresa Cañas Bajo, 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, Carson McNeil, Christopher Rodgers, Katarina Slama, Daniel Toker

Philosophy – Grayson Abid

Psychology – Samy Abdel-Ghaffar, Bryan Alvarez, Matthew Cain, Zhimin Chen, Allison Connell, Jason Fischer, Francesca Fortenbaugh, Susan Hao, Anna Kosovicheva, Ayelet Landau, Taraz Lee, Allison Leib, Vinitha Rangarajan, Justin Riddle, Michael Souza, Santani Teng, Jonathan Tsay, Willa Voorhies, Jason Vytlačil, Joyce Yuan

Vision Science – Amanda Alvarez, David Bressler, Wesley Chaney, Brian Cheung, Sangita Dandekar, Taekjun Kim, April Myers, Chetan Nandakumar, Michael Oliver, Shuang Song, Baladitya Yellapragada

Qualifying exam committee chair:

Neuroscience – Natalia Bilenko, Xue Gong, Alina Liberman, Elizabeth Lorenc, Jacob Miller, Sara Popham

Psychology – Ye Xia

Vision Science – Avigael Aizenman, Teresa Cañas Bajo, Albert Chin, Julia Cox, Vasha Dutell, Timothy Erlenmeyer, Christina Gambacorta, James Gao, Benno Giammarinaro, Angelica Godinez, Mayur Mudigonda, Weston Pack, Dylan Paiton, Elizabeth Rislove, Steven Shepard, Lauren Spano, Dustin Stansbury, Michele Winter

Invited Talks

- 2019 Annual Interdisciplinary Conference, Teton Village, Wyoming
The Neural Basis of Attention: Festschrift in Honor of Bob Rafal, University of California, Berkeley
- 2018 Berkeley Summer Course in Mining and Modeling of Neuroscience Data, University of California, Berkeley
Sixth International Workshop on Perceptual Learning, Moorea, Tahiti
Cognitive Neuroscience seminar series, Department of Psychology, University of California, Berkeley
- 2017 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
- 2014 “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
 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
- 2009 Vision Colloquium Series, Department of Psychology, Boston University, Boston, MA
 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

- 2007 National Youth Leadership Forum, UC Berkeley
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
- 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
- 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
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
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*, *Current Opinion in Psychology*, *eLife*, *eNeuro*, *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 Psychopharmacology*, *Journal of Vision*, *Journal of Visualized Experiments*, *Nature Communications*, *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)

Deutsche Forschungsgemeinschaft (German Research Foundation)
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)
Netherlands Organisation for Scientific Research
Summer Undergraduate Research Fellows program (UC Berkeley)

Conference papers: 25th 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)

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)
<https://www.sciencedaily.com/releases/2015/02/150218123739.htm> (Sheremata and Silver, 2015)

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.

Harewood Smith A, Challa JA, Silver MA (2017) Neither cholinergic nor dopaminergic enhancement improve spatial working memory precision in humans. *Frontiers in Neural Circuits* 11:94.

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