Curriculum Vitae

Cheryl A. Olman
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Minneapolis, MN 55455
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Education

Ph.D., University of Minnesota, Graduate Program in Neuroscience 2003

Dissertation Title: "Natural Image Coding in Early Visual Areas: Functional Magnetic Resonance Imaging and Psychophysical Studies of the Human Visual System"
Ph.D. Advisors: Daniel J. Kersten and Kamil Ugurbil

B.S., Michigan State University, Physics 1995

Academic Appointments

University of Minnesota, Twin Cities 2013-present
Professor, Department of Psychology

University of Minnesota, Twin Cities 2012-2023
Associate Professor, Department of Psychology

University of Minnesota, Twin Cities 2005-2012
Assistant Professor, Departments of Psychology and Radiology

New York University, Center for Neural Science June, 2004-August, 2005
Postdoctoral Fellow

University of Minnesota, Center for Magnetic Resonance Research January, 2004-May, 2004
Research Associate

Academic Administrative Appointments

Department of Psychology, University of Minnesota January 2023-present
Area Director, Cognitive and Brain program
Department of Psychology, University of Minnesota June 2022-Dec 2023
Associate Chair for Research and Public Engagement

Other Professional Positions

3M Company, Fiber Optics Laboratory Research Physicist	1996-1999
PhotoControl, Lens Development Department Research Physicist	1995-1996

Current Membership in Professional Organizations

Vision Sciences Society	2000-
International Society of Magnetic Resonance in Medicine	2000-

HONORS AND RECOGNITION

University of Minnesota

Arthur "Red" Motley Exemplary Teaching Award, College of Liberal Arts. Student-nominated; award includes $5,000 for career advancement.	2011
Horace T. Morse-University of Minnesota Alumni Association Award for Outstanding Contributions to Undergraduate Education. Department-nominated. Award includes $15,000 and membership in the Academy of Distinguished Teachers.	2019
University of Minnesota President's Award for Outstanding Service. Colleague-nominated; $1,000 stipend.	2021
Career Readiness Teaching Award, University of Minnesota College of Liberal Arts. Colleague-nominated; award includes $2,500 for career advancement.	2022

Honors Awarded to Student/Trainee

Scholar Award, from the Achievement Rewards for College Scholars Foundation awarded to Joseph Emerson	2021
Interdisciplinary Dissertation Fellowship, from the University of Minnesota, awarded to Karen Navarro	2021-2022
Graduate Research Fellowship, from the National Science Foundation, awarded to Michael-Paul Schallmo	2011
Doctoral Dissertation Fellowship, from the University of Minnesota, awarded to Michael-Paul Schallmo	2014-2015

RESEARCH, SCHOLARSHIP, AND CREATIVE WORK

Grants, Contracts, Awards from External Sources

Active

Flexible normalization in ferret V1: computational modeling and 2-photon imaging
08/01/2021-06/30/2026
Role: PI (12% effort)
Funding agency: NIH NINDS

$2.3M total award, Year 1 direct costs: $313,906

Perceptual mechanisms of visual hallucinations and illusions in psychosis
07/01/2017-06/30/2023
Role: co-I (10% effort)
Funding agency: NIH NIMH
$2.4M total award, Year 1 direct costs: $414,595

Pending

None

Completed

Inquiry Immersion as a Process for Retaining Diverse Students in Science
7/1/2023-12/31/2023
Role: PI
Funding agency: Engaged Scholarship Consortium
Total award: $4,887

Neurons, vessels and voxels: multi-modal imaging of layer-specific signals
09/16/2016-06/30/2022
Role: PI (15% effort)
Funding agency: NIH NINDS
$5M total award, Year 1 direct costs: $847,498

Complex pitch perception in complex environments
04/01/2017-03/31/2022
Role: Co-Investigator (8% effort)
PI: Oxenham
Funding agency: NIH NIDCD (R01 DC005216)
$2.3M total award, Year 1 direct costs: $300,000

Neural disconnection and errant visual perception in psychotic psychopathology
09/01/2016-07/31/2022
Role: Co-Investigator (10% effort)
PI: Sponheim, Minneapolis VAMC
Funding Agency: NIH NIHM (U01 MH108150)
$5.3M total award, Year 1 direct costs: $800,000

Representation of visual features in mental images of complex scenes
2/1/2014-1/31/2019
Role: Consultant
PI: Thomas Naselaris, Assistant Professor, Medical College of South Carolina
Funding Agency: NIH NEI (R01 EY023384)
$250,000/year direct costs

Depth-dependent fMRI: feasibility and utility
02/01/2016-01/31/2019
Role: PI (25% effort)
Funding Agency: NIH NINDS (R21 NS075525)

$418,000 total award, Year 1 direct costs: $150,000

Frontoparietal priority maps as biomarkers of mTBI
09/30/2014-09/29/2018
Role: PI (8% effort)
Funding Agency: CDMRP Vision Research Program, Hypothesis Development Program
$250,000 total award

Quantitative Modeling of Visual Perception Endophenotypes in Schizophrenia
10/01/2014-9/30/2018
Role: Co-investigator (10% effort)
PI: Scott Sponheim, Associate Professor, Minneapolis VA and U of M Dept of Psychiatry
Funding Agency: VA Merit grant
$1.3M total award

NMR Imaging and Spectroscopy
6/01/2013 – 5/31/2018
Role: Key Personnel (5% effort)
PI: Kamil Ugurbil, Director, Center for Magnetic Resonance Research
Funding Agency: NIH NIBIB (P41 EB015894)
$1.3M/year total costs

Neuro-optometry therapy in TBI
02/01/2016-06/30/2018
Role: Co-Investigator (2% effort)
PIs: Sarah Rockswold, HCMC; Christophe Lenglet, CMRR
Funding Agency: Spinal Cord Injury and Traumatic Brain Injury Fund, Minnesota State Office of Higher Education
$125,000 total costs

Core Grant for Vision Research
9/01/2011 – 8/31/2017
Role: Director, Neuroimaging Module
PI: Eric Newman, Professor, Department of Neuroscience
Funding Agency: NIH NEI (P30 EY011374)
$2,000,000 total direct costs

Functional MRS of Inhibitory Neural Processes
4/01/2014 – 3/31/2016
Role: Co-Investigator (8% effort)
PI: Silvia Mangia
Funding Agency: NIH NINDS (R03 NS082541)
$100,000 total direct costs

Localized fMRI of Heterogeneous Neural Activity
2/15/2012 – 1/31/2015
Role: PI
Funding Agency: NIH NINDS (R21 NS075525)
$275,000 total direct costs

EAGER: Separating BOLD nonlinearity from neuronal nonlinearity in human with achiasma

9/15/2012-8/31/2014
Role: Co-investigator
PI: Bosco Tjan, University of Southern California
Funding Agency: NSF (BCS-1255994)
$48,011 total costs; $7,200 sub-award to U of Minnesota for scanning

Object Perception: Mechanisms for Resolving Ambiguity
10/01/2009 – 9/30/2012
Role: PI
Multiple-PIs: Sheng He, Dan Kersten, Paul Schrater, Department of Psychology
Funding Agency: NIH NEI (R01 EY015621)
$290,000/year

Grants, Awards, Gifts, or Endowment Earnings from Internal Sources

Active

Building online, asynchronous interaction into PSY 3031: Introduction to Sensation and Perception
5/1/2024-9/1/2024
Role: PI
CLA UGE Course Redesign Grant

Uncovering the neural correlates of non-optic sight in blindness using fMRI
1/01/2022 – 6/30/2023
Role: PI
Co-I: Jesse Breedlove, postdoctoral trainee
Brain Imaging Project Grant, College of Liberal Arts
$14,740

A Neuroimaging Investigation of Perceptual Learning as a Treatment for Amblyopia
1/01/2021 – 12/31/2023
Role: PI
Co-I: Karen Navarro, Graduate Student
Brain Imaging Project Grant, College of Liberal Arts
$14,750

Investigating characteristics of foveal feedback using ultra high field fMRI
1/01/2021 – 12/31/2023
Role: PI
Co-I: Kim Weldon, Research Staff
Brain Imaging Project Grant, College of Liberal Arts
$14,200

Completed

Investigating characteristics of foveal feedback using ultra high field fMRI
1/01/2021 – 6/30/2022
Role: PI
Co-I: Kim Weldon, Research Staff
Grant in Aid of Research, Artistry, and Scholarship

$14,700

Attention and fMRI Symposium
6/02/2017 – 12/31/2019
Role: PI
Brain Imaging Grant, College of Liberal Arts LATIS
$10,000

Science Fair Mentoring
7/01/2016 – 6/30/2019
Role: PI
Joan Aldous Innovation Fund, College of Liberal Arts
$5,000

Virtual V1sion: a framework for sharing data and computational models
7/01/2014 – 6/30/2017
Role: PI
Brain Imaging Project Grant, College of Liberal Arts
$9,900

MRI Simulator
6/02/2016-6/02/2018
Role: PI
Academic Innovation Grant, College of Liberal Arts LATIS
$9,469.23

Sub-millimeter imaging of visual activity during naturalistic movies
7/01/2014-6/30/2018
Role: PI
Brain Imaging Project Grant, College of Liberal Arts
$7,200

Local Metabolic Costs of Inhibition
6/01/2007-12/01/2015
Role: PI
Neuroimaging Grant, Institute for Translational Neuroscience
$50,000

Contribution of inhibition to perceptual deficits in schizophrenia: an MRS study
6/01/2012-6/30/2014
Role: PI
Co-PI: Scott Sponheim
Brain Imaging Project Grant, College of Liberal Arts
$8,400

Imaging Bottom-Up vs. Top-Down Perceptual Effects in Schizophrenia
6/01/2010-6/30/2011
Role: PI
Co-PI: Scott Sponheim
Brain Imaging Project Grant, College of Liberal Arts
$7,200

Expanded Server and Storage Capacity for High-Field fMRI Research
2009
Role: PI
CLA Non-Instructional Instrumentation Grant
$11,000

Contextual Modulation of Early Visual Responses
6/01/2007-1/31/2009
Role: PI
Grant-In-Aid of Research and Scholarship #20886, Graduate School
$10,000

Publications

Key for authorship roles: [L]Lead, [*]Senior, or [C]Contributing author.
Key for graduate advisees: served as [†]primary advisor or [+]faculty mentor.

Refereed Journal Articles

Schallmo, M.-P., [+]Weldon, K. B., Kamath, R. S., Moser, H. R., Montoya, S. A., Killebrew, K. W., Demro, C., Grant, A. N., Marjanska, M. Sponheim, S. R., [*]Olman, C. A. (2023). The Psychosis Human Connectome Project: Design and rationale for studies of visual neurophysiology. *Neuroimage, 272,* 120060. https://doi.org/10.1016/j.neuroimage.2023.120060

[L*]Olman, C. A. (2023). "What does multiplexing mean for the fMRI signal?" *Frontiers in Human Neuroscience, 17, 1134811*. https://doi.org/10.3389/fnhum.2023.1134811

Reinke, M., Longenecker, J., Chowdhuryk L., Thai, M., Begnel, E., Horek, N., [C]Olman, C., Cullen, K, Klimes-Dougan, B. (2023). Behavioral Apophenia and Dimensions of Psychoticism in Adolescents with and without Mood Disorders, *Psychopathology,* 1-5. https://doi.org/10.1159/000529796

Dowdle, L., Vizioli, L., Moeller, S., Akçakaya, M., [C]Olman, C. A., Ghose, G., Yacoub, E., Uğurbil, K. (2023). Evaluating Increases in Sensitivity from NORDIC for Diverse fMRI Acquisition Strategies. *Neuroimage, 270,* 119949. https://doi.org/10.1016/j.neuroimage.2023.119949

[†]Pokorny, V. J., Schallmo, M.-P., Sponheim, S. R., [*]Olman, C. A. (2023). Weakened untuned gain control is associated with schizophrenia while atypical orientation-tuned suppression depends on visual acuity. *Journal of Vision, 23(2)*. https://doi.org/10.1167/jov.23.2.2

Demirel, O. B., Yaman, B., Dowdle, L., Moeller, S., Vizioli, L., Yacoub, E., Strupp, J., [C]Olman, C. A., Ugurbil, K., Akcakaya, M. (2021). 20-fold Accelerated 7T fMRI Using Referenceless Self-Supervised Deep Learning Reconstruction. *Annual International Conference IEEE Engineering in Medicine, Biology, and Society. 2021*:3765-3769. https://doi.org/10.1109/EMBC46164.2021.9631107.

[+]Pokorny, V. J., [+]Forsheim, V., Burton, P. C., Sponheim, S. R., [*]Olman, C. A. (2021). Aberrant Cortical Connectivity during Ambiguous Object Recognition is Associated with Schizophrenia. *Biological Psychiatry: Cognitive Neuroscience and Neuroimaging, 6(12)*:1193-1201. doi:10.1016/j.bpsc.2020.09.018.
Commentary: Bansal, S. (2021). Object Recognition in Psychosis: Altered Connectivity Between Levels of the Visual Perceptual Hierarchy. *Biological Psychiatry: Cognitive Neuroscience and Neuroimaging, 6(12)*:1122-1124. https://doi.org/10.1016/j.bpsc.2021.08.005

Demro, C., Mueller, B. A, Kent, J. S., Burton, P. C., [C]Olman, C. A., Schallmo, M.-P, Lim, K. O., Sponheim, S. R. (2021). The psychosis Human Connectome Project: An overview. *NeuroImage, 241,* 118439. https://doi.org/10.1016/j.neuroimage.2021.118439

Longenecker, J. M., Pokorny, V. J., Kang, S. S., [C]Olman, C. A., Sponheim, S. R. (2021). Self-reported perceptual aberrations in psychosis map to event-related potentials and semantic appraisals of objects. *Journal of Abnormal Psychology, 130*(7):785-796. https://doi.org/10.1037/abn0000697

Schallmo, M.-P., [+]Weldon, K. B., Burton, P. C., Sponheim, S. R., [*]Olman, C. A. (2021). Assessing methods for geometric distortion compensation in 7T gradient echo fMRI data. *Human Brain Mapping*, *42*(13):4205-4223. https://doi.org/10.1002/hbm.25540.

[+]Pokorny, V., Lano, T., Schallmo, M.-P., [C]Olman, C. A., Sponheim, S. R. (2021). Reduced Influence of Perceptual Context in Schizophrenia: Behavioral and Neurophysiological Evidence. *Psychological Medicine, 51*(5):786-794. doi:10.1017/S0033291719003751.

[†]Navarro, K. T., Sanchez, M. J., Engel, S. A., [*]Olman, C. A., [+]Weldon, K. B. (2021). Depth-dependent functional MRI responses to chromatic and achromatic stimuli throughout V1 and V2. *NeuroImage, 226*:117520. doi:10.1016/j.neuroimage.2020.117520.

[+]Weldon, K. B. and [*]Olman, C. A. (2021). Forging a path to mesoscopic imaging success with ultra-high field fMRI. *Philosophical Transactions B*. 376(1815):20200040. doi:10.1098/rstb.2020.0040.

[+]Grant, A. N., Metzger, G., Van de Moortele, P.-F., Adriany, G., [C]Olman, C. A., Zhang, L., Koopmeiners, J., Eryaman, Y., Koeritzer, K., Adams, M., Henry, T., Uğurbil, K. (2020). 10.5T MRI static field effects on human cognitive, vestibular, and physiological function. *Magnetic Resonance Imaging, 73:*163-176. doi:10.1016/j.mri.2020.08.004.

de Zwarte et al (2020). Intelligence, educational attainment and brain structure in those at familial high-risk for schizophrenia or bipolar disorder. *Human Brain Mapping, 43*(1):414-430. doi:10.1002/hbm.25206.

[+]Breedlove, J., St.-Yves, G., [C]Olman, C. A., Naselaris, T. (2020). Generative feedback explains distinct brain activity codes for seen and mental images. *Current Biology, S0960-9822*(20)30494-2. doi:10.1016/j.cub.2020.04.014.

Klein, S. D., [C]Olman, C. A., Sponheim, S. R. (2020). Perceptual Mechanisms of Visual Hallucinations and Illusions in Psychosis. *Journal of Psychiatry and Brain Science, 5*: e200020. doi:10.20900/jpbs.20200020.

Ugurbil, K., Auerbach, E. J., Moeller, S., Grant, A. N., Wu, X., Van de Moortele, P.-F., [C]Olman, C. A., DeLaBarre, L., Schillak, S. Radder, J., Lagore, R., Adriany, G. (2019). Brain imaging with improved acceleration and signal-to-noise ratio at 7 Tesla obtained with 64 channel receive array. *Magnetic Resonance in Medicine, 81*(1):495-509. doi:10.1002/mrm.27695

Allen, E. J., Burton, P. C., Mesik, J., [C]Olman, C. A., Oxenham, A. J. (2019). Cortical correlates of attention to auditory features. *Journal of Neuroscience, 39*(17):3292-3300. doi:10.1523/JNEUROSCI.0588-18.2019.

[L]Olman, C. A., Espensen-Sturges, T., Muscanto, I., Longenecker, J. M., Burton, P. C., Grant, A. N., Sponheim, S. R. (2019). Fragmented ambiguous objects: stimuli with stable low-level features for object recognition tasks. *PLoS One 14*(4):e0215306. doi:10.1371/journal.pone.0215306.

[L]Olman, C. A., Bao, P, Engel, S. A., Grant, A. N., Purington, C., Qiu, C., Schallmo, M.-P., Tjan, B. S. (2018). Hemifield columns co-opt ocular dominance column structure in human achiasma. *Neuroimage,* 164:59-66. PMC5481499. doi:10.1016/j.neuroimage.2016.12.063

Allen, E. J., Burton, P. C., [C]Olman, C. A., Oxenham, A. J. (2017). Representations of pitch and timbre variation in human auditory cortex. *Journal of Neuroscience 37*(5): 1284-1293. https://doi.org/10.1523/JNEUROSCI.2336-16.2016

[†]Schallmo, M.-P., Burton, P. C., Grant, A. N., *Olman, C. A. (2016). The effects of orientation and attention during surround suppression of small image features: A 7 Tesla fMRI study. *Journal of Vision 16*(10): 19. https://doi.org/10.1167/16.10.19

[†]Qiu, C., Kersten, D. J., [*]Olman, C. A. (2016). Responses in early visual areas to contour integration are context dependent. *Journal of Vision 16*(8): 19. https://doi.org/10.1167/16.8.19

[+]Mannion, D. J., Kersten, D. J., [*]Olman, C. A. (2015). Scene coherence can affect the local response to natural images in human V1. *European Journal of Neuroscience 42:*2895-2903. doi:10.1111/ejn.13082

[†]Schallmo, M.-P., Sponheim, S. R., *Olman, C. A., (2015). Reduced contextual effects on visual contrast perception in schizophrenia and bipolar affective disorder. *Psychological Medicine, 45*(16):3527-37. https://doi.org/10.1017/S0033291715001439

Naselaris, T. J., [C]Olman, C. A., Stansbury, D. E., Gallant, J. L., Ugurbil, K. (2015). A voxel-wise encoding model for early visual areas decodes mental images of remembered scenes. *NeuroImage*, 105:215-228. https://doi.org/10.1016/j.neuroimage.2014.10.018

Olman, C. A. (2015). What insights can fMRI offer into the structure and function of mid-tier visual areas? *Visual Neuroscience, 32* E015. doi:10.1017/S0952523815000127

[+]Mannion, D. J., Kersten, D. J., [*]Olman, C. A. (2014). Regions of mid-level human visual cortex sensitive to the global coherence of local image patches. *Journal of Cognitive Neuroscience 26*(8):1764-1774. https://doi.org/10.1162/jocn_a_00588

[†]Thompson, S. K., Engel, S. A., Olman, C. A. (2014). Larger neural responses produce BOLD signals that begin earlier in time. *Frontiers in Neuroscience 8*:159. doi: 10.3389/fnins.2014.00159.

[+]Seo, D., [C]Olman, C. A., Haut, K. M., Sinha, R., MacDonald, A. W., & Patrick, C. J. (2014). Neural Correlates of Preparatory and Regulatory Control Over Positive and Negative Emotion. *Social, Cognitive and Affective Neuroscience 9*(4):494-504, doi: 10.1093/scan/nst115.

[†]Qiu, C., Kersten, D. J., [C]Olman, C. A. (2013). Segmentation decreases the magnitude of the tilt illusion. *Journal of Vision 13*(13):19. https://doi.org/10.1167/13.13.19.

[+]Mannion, D. J., Kersten, D. J., [*]Olman, C. A. (2013). Consequences of polar form coherence for fMRI responses in human visual cortex. *NeuroImage*, *78*:152-158. https://doi.org/10.1016/j.neuroimage.2013.04.036.

[†]Schallmo M.-P., Sponheim S. R., [*]Olman C. A. (2013) Abnormal contextual modulation of visual contour detection in patients with schizophrenia. *PLoS ONE 8*(6): e68090. doi:10.1371/journal.pone.0068090.

White, T. J., Schmidt, M., Moeller, S., & [C]Olman, C. (2012). Evidence for intact local connectivity but disrupted regional function in the occipital lobe in children and adolescents with schizophrenia. *Human Brain Mapping 33*(8):1803-11. doi:10.1002/hbm.21321.

[L]Olman C. A., [+]Pickett, K. J., [†]Schallmo, M.-P., & Kimberley, T. J. (2012). Selective BOLD responses to individual finger movement measured with fMRI at 3T. *Human Brain Mapping, 33*(7):1594-606. doi:10.1002/hbm.21310.

[L]Olman, C. A., Harel, N., Feinberg, D., He, S., Zhang, P., Ugurbil, K., & Yacoub, E. (2012). Layer-specific fMRI reflects different neuronal computations at different depths in human V1. *PLoS ONE 7*(3):e32536. PMC3308958. doi: 10.1371/journal.pone.0032536.

[†]Schumacher, J. F., Quinn, C. F., & [*]Olman, C. A. (2011). An exploration of the spatial scale over which orientation-dependent surround effects affect contour detection. *Journal of Vision, 11*(8), 12. PMC3758228.

[†]Schumacher, J. F., [†]Thompson, S. K., & [*]Olman, C. A. (2011). Contrast response functions for single Gabor patches: ROI-based analysis over-represents low-contrast patches for GE BOLD. *Frontiers in Systems Neuroscience, 5*:19. PMC2904084.

[L]Olman, C. A. &Yacoub, E. (2011). High-field fMRI for human applications: an overview of spatial resolution and signal specificity. *Open NeuroImaging Journal 5*:74-89. PMC3245408.

[L]Olman C. A., Van de Moortele, P.-F., [†]Schumacher, J. F., Guy, J. R., Ugurbil, K., & Yacoub, E. (2010). Retinotopic mapping with spin echo BOLD at 7T. *Magnetic Resonance Imaging*, *28*(9), 1258-1269. PMC2963715.

[†]Schumacher, J. F. & [*]Olman, C. A. (2010). High-resolution BOLD fMRI measurements of local orientation-dependent contextual modulation show a mismatch between predicted V1 output and local BOLD response. *Vision Research, 50*(13), 1214-1224. PMC2904084. doi: 10.1016/j.visres.2010.04.005

Moeller, S., Yacoub, E., [C]Olman, C. A., Auerbach, E., Strupp, J., Harel, N., & Ugurbil, K. (2010). Multi-band multi-slice GE-EPI at 7 Tesla, with 16-fold acceleration using partial parallel imaging with application to high spatial and temporal whole-brain fMRI. *Magnetic Resonance in Medicine,*

3(5), 1144-1153. PMC2906244.

[L]Olman, C. A., Inati, S., & Davachi, L. (2009). Distortion and signal loss in medial temporal lobe. *PLoS One,* 4(12), e8160. PMC2780716.

Van de Moortele, P.-F., Auerbach, E., [C]Olman, C. A., Yacoub, E., Ugurbil, K., & Moeller, S. (2009). T1 weighted brain images at 7 Tesla unbiased for proton density, T2* contrast and RF coil receive B1 sensitivity with simultaneous vessel visualization. *NeuroImage, 46*(2), 432-446. PMC2700263.

Mangia, S., Giove, F., Tkáč, I., Logothetis, N. K., [C]Olman, C. A., Maraviglia, B., Di Salle, F., & Uğurbil, K. (2009). Metabolic and hemodynamic events after changes in neuronal activity: current hypotheses, theoretical predictions and in vivo NMR experimental findings. *Journal of Cerebral Blood Flow and Metabolism, 29*(3), 441-463. PMC2743443.

[L]Olman, C. A., Inati, S., & Heeger, D. J. (2007). The effect of large veins on spatial localization with GE BOLD at 3 T: displacement, not blurring. *NeuroImage, 34*, 1126-1135. doi: 10.1016/j.neuroimage.2006.08.045.

Murray, S. O., [C]Olman, C. A., & Kersten, D. J. (2006). Spatially specific fMRI repetition effects in human visual cortex. *J Neurophysiology, 95*, 2439-2445.

Olman, C. A. & Kersten, D. J. (2004). Classification objects, ideal observers & generative models. *Cognitive Science, 28*, 227-239.

[L]Olman, C. A., Schrater, P., Ugurbil, K., & Kersten, D. J. (2004). BOLD fMRI and psychophysical measurements of contrast response to broadband images. *Vision Research, 44*, 669-683. doi: 10.1016/j.visres.2003.10.022

Kim, D.-S., Ronen, I., Olman, C. A. , Kim, S.-G., Ugurbil, K., & Toth, L. J. (2004). Spatial relationship between neuronal activity and BOLD functional MRI. *Neuroimage, 21*(3), 876-885.

[L]Olman, C. A., Ronen, I., Ugurbil, K., & Kim, D.-S. (2003). Retinotopic mapping in cat visual cortex using high field functional magnetic resonance imaging. *Journal of Neuroscience Methods, 131*, 161-170.

[L](Olman) Vrieze, C. A. and Lundin, D. J. (1998), "Matching the Model: Plastic Light Fiber Extraction Targeted at SAE Specifications," SAE Technical Paper 980876, https://doi.org/10.4271/980876.

Patents and Intellectual Property

[L]Olman, C. A., Schroeder, K. M., & Lowe, R. H. (2004). Shallow depth back lit illuminated signage (US Patent No. 6821007).

[L](Olman) Vrieze, C. (2001). Method and apparatus for adjusting flux emitted from branched light guides (US Patent No. 20010036336A1).

Freier, David G. and [C](Olman) Vrieze, C. A. (2000). Articles with diffuse reflection of light from light fibers (US Patent No. 6123442A).

Non-refereed Journal Articles, Essays, or Book Chapters

Weldon, K., Burton, P. C., Grant, A. N., Yacoub E., Olman, C. A. (2019). "Defining region-specific masks for reliable depth-dependent analysis of fMRI data". BioRXiv https://doi.org/10.1101/557363

De Martino, F., Olman, C. A., Valente, G. (2015). "Information Decoding from fMRI Images." Ch. 23 in Uludag, K., Ugurbil, K. & Berlizer, L. (Eds.) fMRI: From Nuclear Spins to Brain Function. New York, NY: Springer US.

Pardo, J., Olman, C. A., Pardo, P. (2008). "Imaging and Psychiatry." Ch. 38 in Fatawi, S. H. & Clayton, P. (Eds.), Medical Basis of Psychiatry. Totowa, NJ: Humana Press Inc.

Walsh, L. C. & Olman, C. A. (2011). "Making sense of what neuroimaging has to say about ASD and writing." In Walsh, L. C. & Gerstle, V. (Eds.), Helping students with autism spectrum disorders succeed in the college composition classroom: assessment, accommodation and pedagogy.

Milwaukee, WI: Marquette University Press.

Open-source textbooks

https://pressbooks.umn.edu/neuroimaginginpsychology. Created Spring semester, 2023
https://pressbooks.umn.edu/fmribasicprinciples. Created Spring semester, 2021
https://pressbooks.umn.edu/sensationandperception. Created by students of PSY 3031 in Spring semester, 2020, and edited by subsequent classes.

Coverage in the media

Interview on Science Friday, September 29, 2023: How you see with your brain (not your eyes)
Podcast from Dialogue Minnesota: https://www.dialogueminnesota.com/episodes/2019/12/17/u-of-m-partners-with-st-paul-middle-school-to-promote-diversity-in-stem

Publications Submitted or in Progress

Skrypek, K., Burton, P. B., Davenport, N., Sponheim, S. R., Olman, C. A. (under review). Reading Speed, Visual Deficits, and Cerebral White Matter Integrity in Veterans with and without Mild Traumatic Brain Injury.
Klein, S., Pokorny, V., Rawls, E., Olman, C. A., Sponheim, S. R. (under revision). Altered use of context during visual perception in severe mental illness: Differentiation of tuned and untuned suppressive mechanisms.
Emerson, J., Navarro, K. T., Olman, C. A. (re-submission pending). Feedback to V1 strongly influences BOLD signal during contextual modulation: Evidence from laminar fMRI.
Pokorny, V., Teich, C., Klein, S., Sponheim, S. R., Olman, C. A., Wilson, S. (re-submission pending). Atypical Use of Visuospatial Context in Psychotic Psychopathology: a Meta-Analysis.
Pokorny, V., Weldon, K. B., Olman, C. A. (final draft). Surround suppression in broadband images is weakly tuned to scene statistics.
MP Schallmo, M.-P., Demro, C., Killebrew, K. W., Olman, C. A., Sponheim, S. R. (re-submission pending). Neurometabolic dysfunction in psychosis observed with 7 T MRS
Dowdle, L., Olman, C. A. (final stages of preparation). Long-scale noise correlations can serve as a gray matter marker.

Presentations, Posters, and Exhibits

Invited Presentations at Professional Meetings, Conferences, etc.

"Behavioral, Neuroimaging, and Computational Perspectives on Contrast Surround Suppression Effects in Primary Visual Cortex", SUNY Optometry, New York, NY, Feb. 23, 2023.
"High-resolution fMRI measurements of orientation-dependent suppression in primary visual cortex", RIKEN Collaborative Conference, Tokyo, Japan, Oct.31-Nov2, 2022.
"Multiplexed signals in V1: interpreting high-res/high-field fMRI data", Center for Integrative Neuroscience at the University of Nevada, Reno, October 7, 2022.
"Small, smaller, smallest: pushing the limits of spatial resolution", Brain Function Study Group, International Society for Magnetic Resonance in Medicine, July 12, 2021.
"pressbooks.umn.edu/classroompartners" at Community-Engaged Teaching Strategies during COVID-19, University of Minnesota, May 11, 2020.
"Whatever gives me lots of good signal" at the Layer fMRI "Dinner" – re-scheduled to an online venue from planned venue at the International Meeting for the Society for Magnetic Resonance in

Medicine, Sydney, Australia. May 7, 2020.
"Refining our methods for depth-dependent fMRI." University of Cambridge, United Kingdom, June 22, 2018.
"Does high-field, high-resolution fMRI offer any advantages for perception research?" University of Giessen, Germany, October 14, 2015.
"Functional MRI cannot single-handedly discover novel aspects of visual information encoding in the human brain." PRISM Conference, Leuven, Netherlands, October 6-8, 2015.
"Can we make useful inferences about neuronal responses from fMRI data?" MIND Research Network, Albuquerque, NM, March 20, 2015.
"Functional MRI cannot single-handedly discover novel aspects of visual information encoding in the human brain", Vision Symposium, University of Minnesota, April 10, 2015.
"Separating different contributions to the BOLD response", UMRAM, Bilkent University, Ankara, Turkey, October 25, 2013.
"Diversity in the Neural Code: Which Activity Are We Trying to Infer?", Minnesota High-field Workshop, U of M Center for Magnetic Resonance Research, Minneapolis, MN, October, 2011.
"Perception is relative: Behavioral, computational, and imaging studies of contextual modulation of low-level visual representations," Biology Department Colloquium Series, University of Wisconsin, Eau Claire, WI, September, 2011.
"Detailed measurements of early visual responses using fMRI at 7 Tesla," Section on Functional Imaging Methods, National Institute of Mental Health, Bethesda, MD, December, 2009.
"Neuroscience-related human applications at 7 Tesla," at the International Society for Magnetic Resonance in Medicine's 2008 High-Field Workshop, "What's Special about 7T+?", Rome, Italy, October, 2008.
"Careers in Neuroscience" (4-member panel), St. Olaf College, Northfield, MN, May 2007.
"Neuroimaging Ethics," 2-member panel discussion at the MacAlester Mid-Brains conference, MacAlester College, St Paul, MN, April, 2007.
"fMRI: Do We See What We Want to See?" Graduate Women in Science, chapter meeting, St. Paul, MN, March, 2006.

Abstracts (published in electronic or paper format that are archived or searchable)

Not updated after 2020, on the assumption that meaningful conference papers will eventually turn into publications, and a pattern of mentorship that sends to students to conferences is established.

Key for student presenters: served as [†]primary advisor or [+]faculty mentor.

[†]Navarro, K. T., Weldon, K. B., Sanchez, M. J., Tregillus, K. E. M., Olman, C. A. Structural Measures of Magno- and Parvocellular Projections in Visual Cortex Using Ultra-High Field fMRI. Society of Neuroscience 49th annual meeting. Chicago, Illinois, USA, October 22, 2019.
[†]Semaya, E. S., Weldon, K. B., Olman, C. A. Broadband Surround Suppression. Society of Neuroscience 49th annual meeting. Chicago, Illinois, USA, October 21, 2019.
[†]Navarro, K. T., Weldon, K. B., Sanchez, M. J., Tregillus, K. E. M., Engel, S. A., Olman, C. A. A Structural Exploration of Magno- and Parvocellular Projections in Visual Cortex with Ultra-High Field fMRI. 42nd edition of the European Conference on Visual Perception, Leuven, Belgium, August 27, 2019
Weldon, K. B., Sanchez, M. J., Burton, P.C., & Olman, C.A. Eye selectivity peaks in middle layers of human visual cortex: Evidence from 7T fMRI data. Poster session presented at: 25th Annual Organization for Human Brain Mapping Meeting. Rome, Italy, 9-13 June, 2019.
[†]Espensen-Sturges, T. D., Burton, P. C., Sponheim, S. R., & Olman, C. A. (2018). "Relationship between iterative visual processing deficits and psychotic symptoms". Vision Sciences Society, St Pete's Beach. FL. *Journal of Vision 18*:33.

Olman, C. A., Burton, P. C., Grant, A. N., Weldon, K., Yacoub, E. (2018). "An automated method for assessing the accuracy of cross-modal registration in high-field fMRI", *27th Annual Conference and Exhibition, International Society of Magnetic Resonance in Medicine*, June, 2018, Paris, France.

Weldon, K.B., Schallmo, M.-P. Burton, P. C., Grant, A. N. & Olman, C. A. (2017) Evidence of modulation of laminar profiles by contextual modulation in V1 using high-resolution fMRI. Electronic poster session presented at: *26th Annual International Society for Magnetic Resonance in Medicine Meeting*; 2017 22-27 April; Honolulu, HI, USA.

Olman, C. A., Kohn, A., Naselaris, T., Peirce, J., Schwartz, O. (2017). "Building a better model of V1". Vision Sciences Society, St Pete's Beach. FL. *Journal of Vision 17*:780.

Olman, C. A. (2016) "Virtual V1sion: a collaborative coding project" MODVIS, May 12-14, 2016, St Pete's Beach, FL.

Breedlove, J., St Yves, G., [C]Olman, C. A., Naselaris, T. N. (2015). "Imagery receptive fields." *Vision Sciences Society Annual Meeting*, May, 2015, St. Pete's Beach, FL. *Journal of Vision 16*:126.

[†]Espensen-Sturges, T., Hendrickson, T., Grant, A., Sponheim, S., & Olman, C. (2016). Visual Attention and Eye Movement Deficits in Patients with Traumatic Brain Injury. *Vision Sciences Society Annual Meeting*, May, 2015, St. Pete's Beach, FL. *Journal of Vision*, *16*(12), 1337-1337.

[†]Qiu, C., Kersten, D. J., [*]Olman, C. A. "Ellipses look like polygons after fast repeated presentation." *Vision Sciences Society Annual Meeting*, May, 2015, St. Pete's Beach, FL. *Journal of Vision 15*(12):529.

[†]Carpenter, Brent C., Kersten, D. J., [*]Olman, C. A. "Detection of unusual shadows is faster in scenes with weaker 3D cues." *Vision Sciences Society Annual Meeting*, May, 2015, St. Pete's Beach, FL. *Journal of Vision 15*(12):.

[†]Schallmo, M.-P., Sponheim, S. R., [*]Olman, C. A. "Reduced Contextual Effects on Contrast Perception in Schizophrenia and Bipolar Affective Disorder." *Vision Sciences Society Annual Meeting*, May, 2015, St. Pete's Beach, FL. *Journal of Vision 15*(12):553.

Hendrickson, T. J., Grant, A. N., [*]Olman, C. A. "Imaging resolution affects neural response property estimation." *Vision Sciences Society Annual Meeting*, May, 2015, St. Pete's Beach, FL. *Journal of Vision 15*(12):997.

Kang, S.-S., [†]Schallmo, M.-P., Van Meerten, N., [†]Qiu, C., [C]Olman, C. A., Sponheim, S. R. "Neural mechanisms of local and distant visual context modulation in schizophrenia." *15th International Conference on Schizophrenia Research,* March, 2015, Colorado Springs, CO. *Schizophrenia Bulletin 41,* S227-228.

Sponheim, S. R., [†]Schallmo, M.-P., [†]Qiu, C., [*]Olman, C. A. "A computational model of low and high level influences on visual perceptual abnormalities in schizophrenia." *15th International Conference on Schizophrenia Research,* March, 2015, Colorado Springs, CO. *Schizophrenia Bulletin 41,* S97.

[†]Qiu, C., Kersten, D. J., [*]Olman, C. A. "The effect of attention and dot coherence on fMRI responses to 3D structure-from-motion." *Vision Sciences Society Annual Meeting*, May, 2014, St. Pete's Beach, FL. *Journal of Vision 14*(10):296.

Olman, C. A., Bao, P., Engel, S. A., Grant, A. N., Purington, C., Qiu, C., Schallmo, M.-P., Tjan, B. "Do hemifield representations co-opt ocular dominance column structure in achiasma?" *Vision Sciences Society Annual Meeting*, May, 2014, St. Pete's Beach, FL. *Journal of Vision 14*(10):377.

[†]Schallmo, M-P., Brancel, S. R., Grant, A. N., [S]Olman, C.A.. "Localized BOLD fMRI Responses in V1 Reflect[SEP]a Task-Dependent Mixture of Luminance Contrast and Pattern Context during Iso-Orientation Surround Suppression ." *Vision Sciences Society Annual Meeting*, May, 2014, St. Pete's Beach, FL. *Journal of Vision 14*(10):216.

Naselaris T., [C]Olman, C., Stansbury, D., Gallant, J.L., Ugurbil, K. (2013) Decoding mental images of remembered scenes using a model of early visual processing. *Society for Neuroscience Annual Meeting*, November, 2013, San Diego, CA.

Mannion, D. J., Kerten, D. J., [C]Olman, C. A. "Reduced V1 activity to local image patches that are

inconsistent with the global scene interpretation" *ACNS-2013 Australasian Cognitive Neuroscience Society Conference*, November, 2013, Melbourne, Australia.

[†]Qiu, C., Kersten, D. J., [*]Olman, C. A. "Interregional connections across early visual areas in contour processing." *Vision Sciences Society Annual Meeting*, May, 2013, Naples, FL. *Journal of Vision 13*(9):1039.

[†]Schallmo, M-P., Qiu, C., Yacoub, E., [S]Olman, C.A.. "Examining the Laminar Profile of Surround Suppression in V1 using High Resolution fMRI at 7 Tesla." *Vision Sciences Society Annual Meeting*, May, 2013, Naples, FL. *Journal of Vision 13*(9):34.

[†]Qiu, C., Kersten, D. J., [*]Olman, C. A. "Segmentation effects on the tilt illusion: contrast and depth." *Vision Sciences Society Annual Meeting*, May, 2012, Naples, FL. *Journal of Vision 12*(9):1291.

[†]Mulligan, M.-K., Kersten, D. J., [*]Olman, C. A. "Perceptual modulation of V1 in the bistable translating diamond task is not retinotopically targeted." *Vision Sciences Society Annual Meeting*, May, 2012, Naples, FL. *Journal of Vision 12*(9):1292.

[†]Schallmo, M.-P., Sponheim, S. R., [*]Olman, C. A. "Orientation Tuning in Schizophrenia Measured Using Reverse Correlation Psychophysics." *Vision Sciences Society Annual Meeting*, May, 2012, Naples, FL. *Journal of Vision 12*(9):88.

Adriany, G., Waks, M., Tramm, B., Schillak, S., Yacoub, E., de Martino, F., Van de Moortele, P.-F., Naselaris, T., [C]Olman, C., Vaughan, T., Ugurbil, K., "An Open Faced 4 ch. Loop Transmit / 16 ch. Receive Array Coil for HiRes fMRI at 7 Tesla", *20th Annual Conference and Exhibition, International Society of Magnetic Resonance in Medicine*, May, 2012, Melbourne, Australia.

[†]Schallmo, M.-P., Marjanska, M., Sponheim, S. R., [*]Olman, C. A. "Schizophrenia affects contextual modulation during contour detection." *Society for Neuroscience Annual Meeting*, November, 2011, Washington, D.C.

[L]Olman, C. A. "Failures of inference: challenges for interpreting localized fMRI measurements of visual features." *Vision Sciences Society Annual Meeting*, May, 2011, Naples, FL. *Journal of Vision 11*(11):1199.

[†]Schallmo, M.-P., Sponheim, S. R., [L]Olman, C. A. "Contextual Modulation of Contour Detection is Altered in Schizophrenia." *Vision Sciences Society Annual Meeting*, May, 2011, Naples, FL. *Journal of Vision 11*(11):1050.

[L]Olman, C. A., Harel, N., Feinberg, D., Ugurbil, K., Yacoub, E. "Layer-specific fMRI provides evidence of neuronal computations in human primary visual cortex." *Society for Neuroscience Annual Meeting*, November, 2010, San Diego, CA.

[*]Olman, C. A., [†]Schumacher, J. F., [†]Thompson, S. K., "Non-linear BOLD response to low-contrast Gabor elements," *Vision Sciences Society Annual Meeting*, May, 2010, Naples, FL. Published in Journal of Vision 10(7):916.

[†]Schumacher, J. F., Quinn, C. F., [*]Olman, C. A., "Parameter exploration of contextually modulated collinear Gabor patches," *Vision Sciences Society Annual Meeting*, May, 2010, Naples, FL. Published in Journal of Vision 10(7):1158.

Pickett, K. P., [C]Olman, C. A., Schallmo, M.-P., Kimberley, T. J. "Cortical mapping during individuated finger movements." *Society for Neuroscience Annual Meeting*, October, 2009, Chicago, IL.

[C]Olman, C. A., Boyaci, H., Fang, F., Doerschner, K., "Receptive field properties of V1 neurons coding for luminance histogram skew," *Vision Sciences Society Annual Meeting*, May, 2009, Naples, FL.

[L]Olman, C. A., Moeller, S., [†]Schumacher, J. F., [†]Thompson, S. K., Auerbach, E. J., Ugurbil, K., Yacoub, E., "Investigating the whole brain with 1.5mm isotropic resolution and 1.5s TRs using highly accelerated high-field fMRI", *17th Annual Conference and Exhibition, International Society of Magnetic Resonance in Medicine*, April, 2009, Honolulu, Hawaii, USA.

Yacoub, E. Y., Ugurbil, K., Feinberg, D., [L]Olman, C. A., "Feasibility of detecting differential layer specific activations in humans using SE BOLD fMRI at 7 T," *17th Annual Conference and Exhibition, International Society of Magnetic Resonance in Medicine*, April, 2009, Honolulu, Hawaii, USA.

Moeller S, Auerbach E, [C]Olman CA, Yacoub E, Ugurbil K. "Unaliasing of multiband multislice EPI and

GRE imaging with GRAPPA," *17th Annual Conference and Exhibition, International Society of Magnetic Resonance in Medicine*, April, 2009, Honolulu, Hawaii, USA.

[†]Thompson, S. K., [†]Schumacher, J. F., [C]Olman, C. A., Engel, S. A., "Stronger functional MRI responses begin earlier in time," *Society for Neuroscience Annual Meeting*, November, 2008, Washington D.C.

[C]Olman, C. A., Boyaci, H., Fang, F., Doerschner, K. "V1 responses to different types of luminance histogram contrast" (poster presentation). *Vision Sciences Society Annual Meeting*, May, 2008, Naples, FL.

[†]Schumacher, J. S., *Olman, C.A., "7T Spin Echo Sequences Provide Improved Spatial Accuracy in BOLD fMRI Experiments," *Vision Sciences Society Annual Meeting*, May, 2008, Naples, FL.

[†]Thompson, S.K., Kersten, D. J., [C]Olman, C.A., "V1 BOLD response to image regions defined by 1st and 2nd order luminance contrast" (poster presentation). *Vision Sciences Society Annual Meeting*, May, 2008, Naples, FL.

[L]Olman, C. A., Van de Moortele, P.-F., Ugurbil, K., Yacoub, E. "Retinotopic mapping with 7 Tesla fMRI: improved resolution and decreased experiment duration "(oral presentation). *Society for Neuroscience Annual Meeting*, November, 2007, San Diego, CA.

[†]Schumacher, J. F., *Olman, C. A., "BOLD fMRI response to local neural inhibition," *Vision Sciences Society Annual Meeting*, May, 2007, Sarasota, FL.

[L]Olman, C. A., Inati, S., Heeger, D. J., "Spatial localization with 3T GE BOLD: dependence on experiment design and resolution" (oral presentation). *Vision Sciences Society Annual Meeting*, May, 2006, Sarasota, FL.

TEACHING

Scheduled Teaching

Current offerings

PSY 1925:	*Neuroimaging in Psychology*. Freshman seminar, offered bi-annually.	2022-
PSY 3031:	*Sensation and Perception*. Undergraduate level, offered annually.	2008-
GCC 3026:	*Stepping into the gap: understanding the barriers to diversity in STEM.* Undergraduate level, offered annually although COVID-19 and changes to state science standards have necessitated a hiatus; offered in pilot version as PSY 5960, Fall 2016; PSY 3996, Fall 2017.	2018-
PSY 5063:	*Introduction to fMRI* (undergraduate and graduate level, bi-annually)	2023-
PSY 5993:	*Functional Imaging of Visual Processes* (undergraduate and graduate level, annually)	2008-

Past offerings

PSY 5065:	*Functional Imaging: Hands-On Training*. Undergraduate and graduate level. Offered as PSY 8960 for graduate level only for several years, then for mixed audience for 2009-2021, then converted to online textbook and online MRI Simulator.	2007-2021
PSY 8960:	*Graphics for Vision Scientists* (graduate level). Offered once; well-received but other courses are more important.	2014
PSY 8960:	*fMRI: Biological Basis and Experimental Design* (graduate level). Replaced by PSY 5063, taught by colleagues.	2006-2008
BPHY 8147:	*Advanced Physics of MRI*	2005, 2006

Instructional Activity

University of Minnesota

Guest lecture, "Magnetic Resonance Imaging": 1 lab in NSC 5561 for ~24 graduate students	2005-
Guest lecture, "Human neuroimaging": 1 lecture in OUE 1830 for ~90 undergraduates	2022, 2023
Guest lecture, "Choosing a mentor": 1 lecture in NSC 8321 for ~18 graduate students	2018, 2019
Guest lecture, "Public Engagement": 1 lecture in NSC 8321 for ~18 graduate students	2018, 2019
Guest lecture, "Writing 1": 1 lecture in NSC 8321 ~for 18 graduate students	2014, 2015
Guest lecture, "Human Subjects": 1 lecture in NSC 8321 ~for 18 graduate students	2014, 2015
Guest lecture, "fMRI: physics and applications": 1 lecture in Law 6063 ~for 18 law students	2012, 2013

CURRICULUM DEVELOPMENT

Curriculum Development Activities

Functional Imaging: Hands-On Training (PSY 5065): created Matlab™-based software to simulate the image acquisition process and provide students with a tool that will let them manipulate pulse sequence parameters and inspect the effect on image quality without paying for scanner time. Secured internal grant to convert this tool to a web-hosted Python-based tool (*https://mrisim.psych.umn.edu*).	2016
Introduction to Sensation and Perception (PSY 3031): applied for and received $1,500 *Partnership for Affordable Content* grant to begin identifying open access resources to replace the textbook.	2015
Introduction to Sensation and Perception (PSY 3031): received $11,000 through the *Course Transformation Program* to transform the lecture-based class into a hybrid online/lab section format that allows hands-on demonstration and small-group interaction with the professors without decreasing the number of seats we are able to provide each semester.	2011

Faculty Development Activities regarding teaching

World readiness teaching cohort: monthly meetings; weekly assignments on integrating career/world readiness competencies into teaching	Spring 2024
"Transforming Your Syllabus", 4-hour workshop provided by The Institute for Diversity, Equity and Advocacy (IDEA), a unit of the Office for Equity and Diversity, and the Center for Teaching and Learning.	Fall 2014
"Lunch with a great teacher," Center for Teaching and Learning	Spring 2008

Collaborative Efforts and Activities

Advanced Physics of MRI, BPhy 8147 / Psy 8960. Instructor of record, one of 4 instructors. 2006, 2007

ADVISING AND MENTORING

Undergraduate Students Advised

Advisees

Laura Potter, Psychology Honors Thesis — Fall 2007
Kristen Isensee, Psychology Honors Thesis — Fall 2007
David Do, Psychology Honors Thesis — Fall 2009
Kori Skrypek, Psychology Honors Thesis — Fall 2021

Other Advising Activities

Directed research students participating in PSY 5993 are not listed individually, 5-10 students each year — 2008- present
Dorothea Tse, UROP — Summer 2023
David Do, UROP — Spring 2010

Graduate Student Activities

Advisees

Anh Pham, Ph.D. program, Department of Psychology — 2023-
Anmol Kaur, Ph.D. program, Department of Psychology — 2023-
Victor Pokorny, Ph.D. program, Department of Psychology — 2023-
Qi Chen, Ph.D. program, Department of Psychology — 2022-
Joseph Emerson, Ph.D. candidate, Graduate Program in Neuroscience — 2020-
Karen Navarro, Ph.D. candidate, Department of Psychology — 2018-2023
"Measurements of Malleable Visual Mechanisms Through High- resolution fMRI and Perceptual Learning"
Emily Semaya, M.S., Graduate Program in Neuroscience — 2018-2019
"Broadband Surround Suppression"
Victoria Espensen-Sturges, Ph.D., Department of Psychology — 2015-2017
"Local and Iterative Visual Processing Deficits in Schizophrenia"
Brent Carpenter, Ph.D. program, Department of Psychology — 2013-2015
Transferred to another laboratory to pursue different research interests
Cheng Qiu, Ph.D., Department of Psychology — 2011-2015
"Modulation by visual context beyond local features"
Michael-Paul Schallmo, Ph.D., Graduate Program in Neuroscience — 2010-2014
"Neural Mechanisms of Visual Context Processing in Healthy Adults and those with Schizophrenia"
Jennifer Frances Schumacher, Ph.D., Graduate Program in Neuroscience — 2006-2010
"Human neurophysiological mechanisms of contextual modulation in primary visual cortex"
Serena Kainoa Au Thompson, M.D./Ph.D., Graduate Program in Neuroscience — 2006-2009
"Temporal and spatial properties of the BOLD fMRI response to first and second order contrast in V1"

PhD Committees

Ziwei Liu, Ph.D. candidate, Department of Psychology	2023-
Samantha Montoya, Ph.D. candidate, Graduate Program in Neuroscience	2021-
Sam Klein, Ph.D., Department of Psychology	2023
Haleigh Mulholland, Ph.D., Graduate Program in Neuroscience	2023
Julia Longenecker, Ph.D. Program, Department of Psychology	2018
Emily Allen, Ph.D. Program, Department of Psychology	2018
Chiahao Lu, Ph.D. Program, Department of Kinesiology	2013
Shinho Jo, 1st Year Project, Ph.D. Program, Department of Psychology	2012
Chris Kallie, Ph.D. Program, Department of Psychology	2012
Anusha Mishra, Ph.D., Graduate Program in Neuroscience	2011
Rachel Force, Ph.D., Clinical Program, Department of Psychology	2010
Kristen Pickett, Ph.D., Department of Kinesiology	2010
Dongju Seo , Ph.D., Clinical Program, Department of Psychology	2007

POST DOC, RESIDENT, AND TRAINEE SUPERVISION/MENTORSHIP

Post-doctoral trainees supervised

Jessica Breedlove, Post-doctoral associate, Department of Psychology Primary supervisor	2020-present
Kimberly Weldon, Post-doctoral associate, Departments of Radiology, Psychology and then Psychiatry Primary supervisor	2016-2020
Damien Mannion, Post-doctoral associate, Department of Psychology Joint supervisor with Professor Daniel J. Kersten	2011-2013

MENTORING/CAREER ADVISING

Sara Knauz, Teaching post-doc, Department of Psychology, University of Minnesota Monthly reflections on pedagogy and feedback on teaching	2023-
Yoon-Gi Chung, Ph.D. candidate, Korea University Hosted extended data collection visit.	July-August 2012
Shuguang Kuai, post-doctoral fellow, University of Birmingham, UK Hosted extended data collection visit.	August 2011
Thomas Naselaris, post-doctoral fellow, University of California, Berkeley Hosted extended data collection visit.	June-Dec. 2011

SERVICE

Service to the Discipline

Editorships/Journal Reviewer Experience

Editorial Board, Frontiers of Human Neuroscience (2 hours/year)	2015-present
Associate Editor, Research Topic "What can fMRI tell us about the neural code", Frontiers of Human Neuroscience (20 hours/year)	2017-2018

Submission reviewer, Computational and Cognitive Neuroscience Conference (20 hours) 2018

Ad hoc reviewer for the following journals (30 hours/year):
Brain and Cognition, 2011
Cerebral Cortex, 2010, 2017
Current Biology, 2008, 2020
European Journal of Neuroscience, 2011, 2022
Frontiers in Human Neuroscience, 2010, 2016, 2018, 2019, 2021
Human Brain Mapping, 2011, 2014
Imaging Neuroscience, 2023
International Journal of Imaging Systems and Technology, 2008
Investigative Ophthalmology and Visual Science, 2014*, 2015*, 2016, 2017
Journal of Abnormal Psychology, 2017
Journal of Neurophysiology, 2007, 2010, 2012, 2014, 2016
Journal of Neuroscience, 2014, 2016, 2019, 2023
Journal of Psychopharmacology, 2017
Journal of Vision, 2011, 2012, 2014, 2015, 2017, 2018*, 2020, 2021
Journal of Visualized Experiments, 2011, 2014
Nature Neuroscience, 2011
Nature Communications, 2021
NeuroImage, 2009, 2010, 2011, 2012, 2016-2022
NeuroReport, 2009
Phenomics, 2022
PLoS ONE, 2010, 2011, 2012, 2015, 2016, 2017, 2019, 2022
PLoS Biology, 2020
Proceedings of the National Academy of Sciences, 2010, 2011, 2012
Progress in Neurobiology, 2020
Science, 2019
Science Advances, 2016
Scientific Reports, 2015
Translational Vision Science and Technology, 2023
Visual Cognition, 2023

* Received Outstanding Review award

Review panels for external funding agencies, foundations, etc.

NIH Neural Basis of Visual Perception Study Section member (120 hours/year)	2022-
NSF-GRFP panel (30 hours)	2022
NIH remote review, R13 proposal (5 hours)	2021
National Science Foundation, Cognitive Science Review Panel (6 hours/year)	2009, 2020
National Institutes of Health, SPC Study Section *ad hoc* member (40 hours/year)	2017, 2019
National Institutes of Health, BRAIN U01 special emphasis section (40 hours/year)	2018
Biotechnology and Biological Sciences Research Council (UK), grant reviewer (4 hours/year)	2016, 2018, 2022
Minnesota UMN/Mayo Partnership Grant review panel (16 hours/year)	2012, 2015
MS Research Australia, grant review (4 hours)	2012

Organization of Conferences, Workshops, Panels, Symposia

Depth-resolved fMRI Hands-on Workshop, satellite event for Biennial Minnesota Oct. 10-11, 2023

High-field Workshops, CMRR, University of Minnesota, Minneapolis, MN. 40 hours	
FMRI and Optical Imaging sessions, October 20, 2021, for the Biennial Minnesota High-field Workshops, Center for Magnetic Resonance Research, University of Minnesota, Minneapolis, MN. 80 hours.	October 20, 2021
Depth-resolved fMRI Hands-on Workshop, Funded by Brain Imaging Grant from College of Liberal Arts; satellite event for Biennial Minnesota High-field Workshops, CMRR, University of Minnesota, Minneapolis, MN. 60 hours	Nov. 12-13, 2019
Bridging Animal and Human Brain Research with fMRI. Satellite event for the Annual BRAIN Investigators' Conference, Washington, DC. 40 hours	April 11, 2019
fMRI: Hands-on Training, as part of the Biennial Minnesota High-field Workshops, CMRR, University of Minnesota, Minneapolis, MN. 60 hours/event	Oct. 9-10, 2013 Oct. 5-6, 2007 Oct. 9-10, 2005

Service to the University of Minnesota

Commitments requiring more than 20 hours/year are in italics

University-wide Service

Member, Office for Public Engagement Footprint Committee	2022
Member, Doctoral Dissertation Fellowship evaluation committee	2020-2022
Coordinator, STEM sub-group of campus-wide Precollege Network, coordinating youth-directed public engagement activities across campus	2020-present
Chair, Engagement Committee, Graduate Program in Neuroscience (40 hours/year)	*2018-2022*
Member, Steering Committee, Graduate Program in Neuroscience	2018-2022
Bell Museum: science advisor for Boston Scientific grant to develop experiential modules	2020
Bell Museum: Science advisor for Mysteries of Your Brain planetarium show	2019-2020
Bell Museum: Advisor and lab tour host for Brain Power summer camp	2018-2019
Member, Grand Challenges Course Proposal review committee	Spring 2020
Member, Institutional Review Board, Medical Committee (120 hours/year)	*2013-2016*
Member, Academic Health Center-Faculty Research Development grant review panel	Fall 2015
co-PI, "New infrastructure for campus-wide access to 3T MRI", successful application for funds through the Office of the Vice President for Research's *Infrastructure Investment Initiative*, securing $1.5 million to support the purchase of a 3 Tesla scanner.	April, 2011
Visual Neuroimaging Technician Search Committee, Chair	Fall 2011

Service to the College

Reviewer, Doctoral Dissertation Fellowship for CLA	2024
Representative on College of Liberal Arts Assembly	2017-2019 2012-2014
Parliamentarian, College of Liberal Arts Assembly	2013-2014
Member, Talle Family Scholarship award/review committee	Spring 2014
Member, Budget Advisory Committee, College of Liberal Arts Assembly	2012-2014
Chair, Neuroimaging Staff Position Search Committee	Spring 2008

Service to the Department

Chair, Public Engagement Committee, Department of Psychology (60 hours/year)	*2020-present*
Member, Graduate Admissions Committee, Department of Psychology	2023/2024
Associate Chair for Research and Public Engagement, Dept of Psychology (>80h/yr)	2022
Member, Curriculum Committee, Department of Psychology	2020-2022
	2008-2013
Member, PSY 1001 Evaluation Committee, Department of Psychology	2019-2020
Member, Executive Committee, Department of Psychology	2019-2021
	2014-2015
Psychology Department Liaison, Writing-Enriched Curriculum (40 hours/year)	*2013-2019*
Member, Diversity Committee, Department of Psychology	2017-2018
Member, Colloquium Committee, Department of Psychology	2013-2014
Member, Graduate Awards Committee, Department of Psychology	2012-2013
Web Committee, Psychology Department	2006-2007
NCC Operations Committee, Center for Magnetic Resonance Research	2007-2009
3T Operations Committee, Center for Magnetic Resonance Research (60 hours/year)	*2005-2009*

Public and External Service

Commitments requiring more than 20 hours/year are in italics

Classroom Partners. *Worked with University Honors Program and Center for Community Engaged Learning to create a system for placing University of Minnesota undergraduates in science classrooms to support middle-school science curriculum. 80 hours/year.* — *2018-*

Brain Zoo. Created https://sites.google.com/d.umn.edu/brain-zoo/home repository MRI scans of animal brains and corresponding STL files and infographics for education and outreach projects. Development involves international collaboration with researchers in South Africa and France. — 2018-

Dessa with the Minnesota Orchestra*, April 14-15, 2017. We spent November 2016 - February 2017 partnering with Dessa to produce a small-scale fMRI study of emotional attachment to support her performance with the Minnesota Orchestra. Corresponding TED talk is here. 40 hours/year.* — *2016-2017*

Murray Middle School, Mentoring and Tutoring:

- *Initiated a Science Fair mentoring program, connecting students with mentors from the University to work on Science Fair Projects. 40 hours/year.* — *2015-2016*
- Created "Picture yourself at the U" Day, bringing small groups of low-income 7th and 8th-graders to visit laboratories and learn about academic resources at the University of Minnesota. — 2014-2017
- *Pilot One-on-One Tutoring program: meeting with at-risk students for three, hour-long one-on-one tutoring sessions each week. 90 hours/year.* — *2013-2016*
- Science Fair Judge — 2014-2020

Twin Cities Regional Science Fair Judge, annually in February — 2014-

"Perception" presentation as part of a panel discussion "Understanding our Biases", Guardian *Ad Litem* training workshop, Minnesota State Judicial System. March 30, 2012. The GAL program provides volunteer advocates for children involved in litigation in the family court system. — 2012

"MRI: Neuroscience Applications," 3-hour lecture and demonstration as a part of BrainU, a summer teacher training program hosted by the Department of — 2009-2015

Neuroscience for middle- and high-school teachers from around the state. (each summer, 2009-2011, odd summers after that)	
Brain Awareness Week: spending a day at a local elementary school to lead neuroscience presentations in 4th and 5th grade classes (2006, 2008, 2011, 2012, 2014, 2015, 2016, 2017)	2006-2017
"Sven studies the brain": collaboration with Dr. Kimberley, Department of Physical Therapy, to create a Simply Science segment for Kare 11 on using fMRI to study the brain.	2007
Neuroscience Table at the State Fair, AHC booth in U of M building – 4h shift	2006, 2013
Dozens of tours of CMRR, for example: 5th grade class from Brainerd (April 2006, 2007), high school classes from around the city and state, undergraduate classes from UW Eau Claire (2006-2010), Macalester (November 2006, 2008), graduate program recruitment weeks for Neuroscience & Psychology (2006-present)	ongoing