

January, 2025

Cindy Lustig

Curriculum Vitae

Business Address

4016 East Hall, Psychology
University of Michigan
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Education

Bachelor of Arts (1996): Psychology, Case Western Reserve University
Master of Arts (1996): Psychology, Case Western Reserve University
Thesis: Effects of Stimulus Luminance on Span of Apprehension in Young and Elderly Adults.
Advisor: Grover C. Gilmore
Doctorate of Philosophy (2001): Psychology, Duke University
Dissertation: Interference in implicit memory. Advisor: Lynn Hasher
Postdoctoral fellow (2001-2004): Psychology, Washington University.
Primary advisor: Randy L. Buckner

Academic Positions

Assistant Professor, Psychology, University of Michigan (2004-2010)
Associate Professor, Psychology, University of Michigan (2010 –2016)
Professor, Psychology, University of Michigan (2016-present)
Associate Chair for Student Academic Affairs, Psychology (2017-2018)
Chair, Cognition & Cognitive Neuroscience Area of Psychology (2019-2020)
Director, Honors, Advanced Master's Degree, and STAR Scholars programs (2020-current)
Associate Chair for Undergraduate Studies, Psychology (2022-2024)
Chair, Cognition & Cognitive Neuroscience Area of Psychology (2024-current)

Honors and Awards

Phi Beta Kappa, 1995
James Dysart Magee Award in Psychology, 1995-1996
J.B. Duke Fellow
National Science Foundation Graduate Fellow
National Research Service Award Predoctoral Fellow
Richard and Mildred Poletsky Education Award, 2002
National Institute on Aging Summer Institute on Aging Research, 2003
Research Career Development Award, University of Michigan Claude M. Pepper Institute, 2006-2008
APA Division 20 Springer Early Career Achievement Award, 2007
Election to Memory Disorders Research Society, 2007
Chronicle of Higher Education "Scholar to Watch", 2009
Henry Russel Award, University of Michigan, 2010
Elected to APS Fellow status, 2011
APA Distinguished Scientific Award for Early Career Contribution to Psychology, 2011
Stanford University Top 2% Scientists, 2021
Carol Hollenshead Inspire Award, 2022

Editorial Service

Aging, Neuropsychology & Cognition: 2010-2012 Co-Editor in Chief

NeuroImage:

2010-2011 Handling Editor, Cognitive Neuroscience

2011-2023 Senior Editor, Cognitive Neuroscience

Psychology & Aging: 2012-2024, Associate Editor

Current Opinion in Behavioral Sciences: 2014-2025, co-founding Editor in Chief (with Trevor Robbins)

Imaging Neuroscience: 2023-current, co-founding Senior Editor

Annals of The New York Academy of Sciences Year in Cognitive Neuroscience: 2024-current; editorial board.

Editorial Boards (past): *Journal of Experimental Psychology: General*; *Psychology & Aging*; *European Journal of Neuroscience*

National Committees

Cognitive Neuroscience Society Young Investigator Award Committee, member: 2015

Cognitive Neuroscience Society Young Investigator Award Committee, Chair: 2016-2021

Cognitive Neuroscience Society Young Investigator Award Committee, Outgoing Chair (advisory role): 2021-2023

Cognitive Neuroscience Society DEI Committee, Chair: 2021-2023

Grant Reviews

Alzheimer's Association; American Federation of Aging Research; National Science Foundation; University of Michigan Office of the Vice President of Research Faculty Grants; National Institute of Health

FUNDING

The Thalamus in Parkinson's Disease: Parkinson's Foundation Research Center for Excellence. 07/19-06/23 (co-I). Parkinson's Foundation

Cholinergic genetic effects on health and cognition in older adults: Longitudinal analysis. 6/30-2016 – 6/30-2017. (PI) Michigan Center for Demography on Aging (sub of NIH F036616). Direct costs \$13,586.

[18F]flubatine: a Novel Biomarker of Cholinergic $\alpha 4 \beta 2$ Nicotinic Receptors and Cognition in Parkinson's Disease 12/20/2013 – 12/31/2016. (Co-I). Total direct costs \$304477. Michael J. Fox Foundation.

Choline Transporter Capacity Limits Motivated Behavior In Mice, Rats, & Humans. 5/1/2010-7/29/2016 (Co-PI). Total direct costs \$1,952,132; subcontract direct costs \$45,486. National Institutes of Health.

A Theory-Informed Intervention to Reduce Hip Fracture. 09/1/09 – 8/31/2011. Total direct costs \$50,000. Pilot Grant (PI: Lustig) through Michigan Geriatrics Center.
\$20,000 MICH-R
\$30,000 University of Michigan Geriatrics Center (PI: Jeffrey Halter)

Acetylcholine, cortex, and control. 9/01/07 – 02/28/11. Direct costs \$249,993. National Science Foundation. (PI: Lustig)

Memory training: Strategies underlying success and transfer. 09/15/07 – 08/31/09. Direct costs \$41,000. National Institute on Aging. (PI: Lustig)

Memory training: Can it be improved for adults of greater age and lower education? 5/1/07 – 10/31/07. Total \$5,725 from UM Office of Vice President of Research. (PI: Lustig)

Research Career Development Award 10/06 – 10/07. (Renewed for 2008). University of Michigan Claude M. Pepper Institute. 25% of PI salary to support time to devote to aging research. (PI on Development Award: Lustig; PI on Center Grant: Alexander)

Brain mechanisms of compensation in older adults. University of Michigan. 10/04 – 10/05. (PI: Lustig). Total \$15,000. This combined award provides funding for a research assistant to coordinate the recruitment and testing of older adult participants for fmri studies.
\$10,000 UM Office of Vice President for Research
\$2,500 College of Literature, Science, & Arts
\$2,500 Department of Psychology

Implicit memory, interference, and aging. 02/08/01 – 04/23/01. NIH 1F31MH012946-01. Total \$11,260. National Research Service Award pre-doctoral fellowship.

PUBLICATIONS

***denotes student author**

Journal Articles

Lustig, C., & Hasher, L. (2001). Implicit memory is not immune to interference. *Psychological Bulletin*, 127, 618-628.

Lustig, C., & Hasher, L. (2001). Implicit memory is vulnerable to proactive interference. *Psychological Science*, 12 408-412.

Lustig, C., Hasher, L., & Tonev, S.T. (2001). Inhibitory control over the present and the past. *European Journal of Cognitive Psychology*, 13, 107-122.

- Lustig, C., May, C.P., & Hasher, L. (2001). Working memory span and the role of proactive interference. *Journal of Experimental Psychology: General*, 130, 199-207.
- Lustig, C., & Meck, W.H. (2001). Paying attention to time as one gets older. *Psychological Science*, 12, 478-484.
- Lustig, C., & Hasher, L. (2002). Working memory span: The effect of prior learning. *American Journal of Psychology*, 115, 89-101.
- Petrella, J.F., Lustig, C., Bucher, L., Jha, A.P., & Doraiswamy, P.M. (2002). Prefrontal activation patterns in subjects at risk for Alzheimer's disease. *American Journal of Geriatric Psychiatry*, 10, 112-113.
- Lustig, C., Snyder, A.Z., Bhakta, M*, O'Brien, K.C*, McAvoy, M., Raichle, M.E., Morris, J.C., & Buckner, R.L. (2003). Functional deactivations: Change with age and dementia of the Alzheimer type. *Proceedings of the National Academy of Sciences USA*, 14504-14509.
- Lustig, C., & Buckner, R.L. (2004). Preserved neural correlates of priming in old age and dementia. *Neuron*, 42, 865-875.
- Lustig, C., Konkel, A.*, & Jacoby, L.L. (2004). Which route to recovery? Controlled retrieval and accessibility bias in retroactive interference. *Psychological Science*, 15, 729-735.
- Lustig, C., Matell, M.S., & Meck, W.H. (2005). Not "just" a coincidence: Frontal-striatal interactions in working memory and interval timing. *Memory*, 13, 441-448.
- Lustig, C., & Meck, W.H. (2005). Chronic treatment with haloperidol induces working memory deficits in feedback effects of interval timing. *Brain and Cognition*, 58, 9-16.
- Petrella, J., Townsend, B.A., Jha, A.P., Ziajko, L.A., Slavin, M.J., Lustig, C., Hart, S.J., Doraiswamy, P.M. (2005). Increasing memory load modulates regional brain activity in older adults as measured by fMRI. *Journal of Neuropsychiatry and Clinical Neurosciences*, 17, 75-83.
- Reuter-Lorenz, P.A., & Lustig, C. (2005). Brain aging: Reorganizing discoveries about the aging mind. *Current Opinion in Neurobiology*, 15, 245-251.
- Lustig, C., Hasher, L., & Tonev, S.T. (2006). Distraction as a determinant of processing speed. *Psychonomic Bulletin and Review*, 13, 619-625.
- Velanova, K., Lustig, C., Jacoby, L.L., & Buckner, R.L. (2007). Evidence for frontally-mediated controlled processing differences in older adults. *Cerebral Cortex*, 17, 1033-1046. (KV and CL share lead authorship on this paper.)
- Bissig, D*, & Lustig, C. (2007). Who benefits from memory training? *Psychological Science*, 18, 720-726.
- Persson, J., Lustig, C., Nelson, J.K., & Reuter-Lorenz, P.A. (2007). Age differences in deactivation: A link to cognitive control? *Journal of Cognitive Neuroscience*, 19, 1021-1032.
- Andrews-Hanna, Snyder, A.Z., Vincent, J.L., Lustig, C., Head, D., & Buckner, R.L. (2007). Disruption of large-scale brain systems in advanced aging. *Neuron*, 56, 924-935.

- Jonides, J., Lewis, R.L., Nee, D*, Lustig, C., Berman, M.G.*, & Moore, K.S.* (2008). The mind and brain of short-term memory. *Annual Review of Psychology*, 59, 193-224.
- Demeter, E.*, Sarter, M., & Lustig, C. (2008). Rats and humans paying attention: Cross-species task development for translational research. *Neuropsychology*, 22, 787-799. NIHMSID #73822
- Lustig, C., & Flegal, K.* (2008). Targeting latent function: Encouraging effective encoding for successful memory training and transfer. *Psychology & Aging*, 23, 754-764. PMCID: PMC2785716
- Nuechterlein, K.H., Luck, S.J., Lustig, C., & Sarter, M. (2009). CNTRICS final task selection: control of attention. *Schizophrenia Bulletin*, 35, 182-196. NIHMSID#81907
- Hirst, W., Phelps, E.A., Buckner, R.L., Budson, A.E., Gabrieli, J.D.E., Johnson, M.K., Lustig, C., Lyle, K.B., Mather, M., Mitchell, K.J., Meksin, R., Ochsner, K.N., Schacter, D., Simons, J.S., & Vaidya, C.J. (2009). The long-term retention of the terrorist attack of September 11: Flashbulb memories, memories for flashbulb events, and the factors that influence their retention. *Journal of Experimental Psychology: General*, 138, 161-176.
- Lustig, C., Shah, P., Seidler, R., & Reuter-Lorenz, P.A.. (2009). Aging, training, and the brain: A review and future directions. *Neuropsychology Review*, 19, 504-522.
- Demeter, E*, Hernandez-Garcia, L., Sarter, M., & Lustig, C. (2011). Challenges to attention: A continuous arterial spin labeling (ASL) study of the effects of distraction on sustained attention. *NeuroImage*, 54, 1518-1529.
- St. Peters, M., Demeter, E., Lustig, C., Bruno, J.P., & Sarter, M. (2011). Enhanced control of attention by stimulating mesolimbic-cortico-petal cholinergic circuitry. *Journal of Neuroscience*, 31, 9760-9771.
- Lustig, C., & Meck, W.H. (2011). Modality differences in timing and temporal memory throughout the lifespan. *Brain & Cognition*, 77, 298-303.
- Luck, S., Ford, J.M., Sarter, M., & Lustig, C. (2012). CNTRICS final biomarker selection: control of attention. *Schizophrenia Bulletin*, 38, 53-61.
- Sarter, M., Lustig, C., & Taylor, S.F. (2012). Cholinergic contributions to the cognitive symptoms of schizophrenia and the viability of cholinergic treatments. *Neuropharmacology*, 62, 1544-1553.
- Lustig, C., Kozak, R., Sarter, M., Young, J.W., Robbins, T.W. (2013). CNTRICS final animal model task selection: Control of attention. *Neuroscience and Biobehavioral Reviews*, 37, 2099-2110. DOI: 10.1016/j.neubiorev.2012.05.009
- Ossher, L*, Flegal, K.E*, & Lustig, C. (2013). Everyday memory errors in older adults. *Aging, Neuropsychology, and Cognition*, 20, 220-242. <http://dx.doi.org/10.1080/13825585.2012.690365>

- Craig, K.*, Berman, M*., Jonides, J., & Lustig, C. (2013). Escaping the recent past: Which stimulus dimensions influence proactive interference? *Memory & Cognition*. doi 10.3758/s13421-012-0287-0.
- Demeter, E*., Guthrie, S.K., Taylor, S.F., Sarter, M., & Lustig, C. (2013). Increased distractor vulnerability but preserved vigilance in patients with schizophrenia: Evidence from a translational sustained attention task. *Schizophrenia Research*, 144, 135-141.
- Howe, W.M.*, Berry, A.S.*, Francois, J., Gilmour, G., Carp, J.M.*, Lustig, C., & Sarter, M. (2013). Prefrontal cholinergic mechanisms instigating shifts from monitoring for cues to cue-guided performance: Converging electrochemical and fMRI evidence from rats and humans. *The Journal of Neuroscience*, 33, 8742-8752.
- Berry, A.S.*, Li, Xu*, Lin, Z.*, & Lustig, C. (2014) Shared and distinct factors driving attention and temporal processing across modalities. *Acta Psychologica*, 147, 42-50.
<http://dx.doi.org/10.1016/j.actpsy.2013.07.020>
- Berry, A.S.*, Demeter, E.*, Sabhapathy, S.*, English, B.A., Blakely, R.D., Sarter, M., & Lustig, C. (2014). Disposed to distraction: Genetic variation in the cholinergic system influences distractibility but not time-on-task effects. *Journal of Cognitive Neuroscience*, 9, 1981-1991. DOI: 10.1162/jocn_a_00607
- Sarter, M., Lustig, C., Howe, W.M.*, Gritton, H., & Berry, A.S.* (2014). Deterministic functions of cortical acetylcholine. *European Journal of Neuroscience*, 39, 1912-1920. DOI: 10.1111/ejn.12515
- Sarter, M., Albin, R.L., Kucinski, A., & Lustig, C. (2014). Where attention falls: Increased risk of falls from the converging impact of cortical cholinergic and midbrain dopamine loss on striatal function. *Experimental Neurology*. 257, 120-129. DOI: 10.1016/j.expneurol.2014.04.032
- Berry, A.S.*, Blakely, R.D., Sarter, M., & Lustig, C. (2015). Cholinergic capacity mediates prefrontal engagement during challenges to attention: Evidence from imaging genetics. *NeuroImage*, 108, 386-395. doi:10.1016/j.neuroimage.2014.12.036
- Hirst, W., Phelps, E.A., Meksin, R., Vaidya, C., Johnson, M.K., Mitchell, K.J., Buckner, R.L., Budson, A., Gabrieli, J.D.E., Lustig, C., Mather, M., Ochsner, K.M., Schacter, D., Simons, J.S., Lyle, K.B., & Olsson, A. (2015). A ten-year followup of a study of memory for the attack of September 11, 2001: Flashbulb memories and memories for flashbulb events. *Journal of Experimental Psychology: General*, 144, 604-623.
- Kucinski, A., Albin, R.L., Lustig, C., Sarter, M. (2015). Modeling fall propensity in Parkinson's disease: extensive striatal dopamine loss-associated freezing of gait. *Behavioural Brain Research*, 282, 155-164. doi:10.1016/j.bbr.2015.01.012
- Lustig, C., & Jantz, T.* (2015). Questions of age differences in interference control: When and how, not if? *Brain Research*, 1612, 59-69. DOI: 10.1016/j.brainres.2014.10.024
- Flegal, K.*, & Lustig, C. (2016). You can go your own way: Effectiveness of participant-driven versus experimenter-driven processing strategies in memory training and transfer, *Aging, Neuropsychology, and Cognition*, 4, 389-417. DOI: 10.1080/13825585.2015.1108386

- Lustig, C., & Sarter, M. (2016). Attention and the cholinergic system: Relevance to schizophrenia. *Current Topics in Behavioral Neurosciences*, 28, 327-362..
- Sarter, M., Lustig, C., Berry, A.S., *Gritton, H.*, Howe, W.H.*, & Parikh, V. (2016). What do phasic cholinergic signals do? *Neurobiology of Learning and Memory*, 130, 135-141. DOI: 10.1016/j.nlm.2016.02.008
- Turgeon, M., Lustig, C., & Meck, W.H. (2016). Cognitive aging and time perception: Roles of Bayesian optimization and degeneracy. *Frontiers in Aging Neuroscience*, 6. <http://dx.doi.org/10.3389/fnagi.2016.00102>
- Sarter, M., Lustig, C., Blakely, R.D., & Cherian, A. (2016). Cholinergic genetics of visual attention: human and mouse choline transporter capacity variants influence distractibility. *Journal of Physiology: Paris*. doi: 10.1016/j.jphysparis.2016.07.001
- Kim, K.*, Mueller, M., Bohnen, N., Sarter, M., & Lustig, C. (2017). Thalamic cholinergic innervation makes a specific bottom-up contribution to signal detection: Evidence from patients with Parkinson's Disease with defined cholinergic losses. *NeuroImage*. 149, 295-304. <http://dx.doi.org/10.1016/j.neuroimage.2017.02.006>
- Berry, A.S.*, Sarter, M., & Lustig, C. (2017). Distinct frontoparietal networks underlying attentional effort and cognitive control. *Journal of Cognitive Neuroscience*, 29, 1212-1225. DOI: 10.1162/jocn_a_01112
- Xie, B.*, Larson, J.L., Gonzalez, R., Pressler, S.J., Lustig, C., & Arslanian-Engoren, C. (2017). Components and indicators of frailty measures: A literature review. *The Journal of Frailty & Aging*, 6, 76-82.
- Kim, K.*, Mueller, M., Bohnen, N., Sarter, M., & Lustig, C. (2019). Cortical cholinergic integrity predicts the ability to resist distraction: Evidence from patients with Parkinson's disease. *NeuroImage*. 190, 107-117.
- Kim, K.*, Mueller, M., Bohnen, N., Sarter, M., & Lustig, C. (2019). Compensatory dopaminergic-cholinergic interactions in conflict processing: Evidence from patients with Parkinson's Disease. *NeuroImage*, 190, 94-106.
- Kucinski, A., Lustig, C., & Sarter, M. (2018). Addiction vulnerability trait impacts complex movement control: Evidence from sign-trackers. *Behavioral Brain Research*, 350, 139-148. DOI: 10.1016/j.bbr.2018.04.045
- Sarter, M., & Lustig, C. (2019). Cholinergic double duty: Cue detection and attentional control. *Current Opinion in Psychology*, 29, 102-107.
- Xie, W., Berry, A.*, Lustig, C., Deldin, P., & Zhang, W. (2019). Poor sleep quality and compromised visual working memory capacity. *Journal of the International Neuropsychological Society*, 25, 583-594..
- Sarter, M., & Lustig, C. (2020). Forebrain cholinergic signaling: Wired and phasic, not tonic, and causing behavior. *Journal of Neuroscience*, 40, 712-719.
- Jang, H.*, Lin, Z.*, and Lustig, C. (2020). Losing money and motivation: Effects of loss incentive on

motivation and metacognition in younger and older adults. *Frontiers in Psychology*, 11, 1489.

- Albin, R.L., Mueller, M.T.M., Bohnen, N.I., Spino, C., Sarter, M., Koeppe, R.A., SZpara, A., Kim, K., Lustig, C., & Dauer, W.T. (2021). $\alpha 4\beta 2$ nicotinic cholinergic receptor target engagement in Parkinson disease gait-balance disorders. *Annals of Neurology*, 90, 130-142. <https://doi.org/10.1002/ana.26102>
- Posillico, C.*, Stilwell, S.*, Quigley, J.*, Carr, C.*, Chadwick, S.*, Lustig, C., & Shah, P. (2021). Extending the reach of the STARS (Students Tackling Advanced Research). *Teaching of Psychology*, <https://doi.org/10.1177%2F00986283211056021>
- Albin, R.L., van der Zee, S., van Laar, T., Sarter, M., Lustig, C., Mueller, M.T.M., & Bohnen, N. (2022). Cholinergic systems, attentional-motor integration, and cognitive control. *Progress in Brain Research*, 269, 345-371. DOI: 10.1016/bs.pbr.2022.01.011
- Jang, H.*, Lewis, R., & Lustig, C. (2022). Opposite reactions to loss incentive by young and older adults: Insights from diffusion modeling. *Psychology and Aging*, 37, 469-486. <https://psycnet.apa.org/doi/10.1037/pag0000689>
- Simmons, A.*, McGatlin, K.*, & Lustig, C. (2022). How well do online, self-administered measures correspond to in-lab assessments? A preliminary examination of three measures in healthy older adults. *Neuropsychology*, <https://doi.org/10.1037/neu0000819>
- Lustig, C., & Bohnen, N. I. (2024). The middle managers: Thalamic and cholinergic contributions to coordinating top-down and bottom-up processing. *Current Opinion in Behavioral Sciences*, 58, 101406. <https://doi.org/10.1016/j.cobeha.2024.101406>
- Shanbhag, N. M., Padmanabhan, J. L., Zhang, Z., Harel, B. T., Jia, H., Kangarloo, T., Yin, W., Dowling, A. V., Laurenza, A., Khudyakov, P., Galinsky, K., Latzman, R. D., Simuni, T., Weintraub, D., Horak, F. B., Lustig, C., Maruff, P., & Simen, A. A. (2025). An acetylcholine M₁ receptor–positive allosteric modulator (TAK-071) in Parkinson Disease with cognitive impairment: A Phase 2 Randomized Clinical Trial. *JAMA Neurol*. Published online January 06, 2025. doi:10.1001/jamaneurol.2024.4519

Preprints

- Lin, Z.*, Berry, A.S.*, & Lustig, C. (preprint). *Don't pay attention! Paradoxical effects of monetary incentives on attentional performance in older adults*. <https://psyarxiv.com/2abw3/>

Reviews, commentaries, and special issue editorial overviews

- Lustig, C. (2008). Making mirrors: sensorimotor experience directs activation of the mirror system (Commentary on Catmur et al.) *European Journal of Neuroscience*, 28, 1207.
- Lustig, C., & Meck, W.H. (2009). Review of “The overflowing brain: Information load and the limits of working memory”. *New England Journal of Medicine*, 306, 1469.

- Lustig, C., (2011). The neuroscience of time and number: Untying the Gordian knot. *Frontiers in Integrative Neuroscience*, 5:47. doi: 10.3389/fnint.2011.00047
- Raz, N., & Lustig, C. (2014). Genetic variants and cognitive aging: Destiny or a nudge? (Introduction to special issue on cognitive genetics). *Psychology & Aging*, 29, 359-362. DOI: 10.1037/a0036893
- Eichenbaum, H., & Lustig, C. (2015). Cognitive control: Diversity of domains, parallels in mechanism. *Current Opinion in Behavioral Sciences*, 1, iv-vii. doi:10.1016/j.cobeha.2014.12.004
- Lustig, C., & Droit-Volet, S. (2017). The times of our lives. (Introduction to Volume 1 of the special issue of Timing and Development Across the Lifespan). *Timing and Time Perception*, 5, 1-4. DOI: 10.1163/22134468-00002084
- Droit-Volet, S., & Lustig, C. (2017). Time as a window on development ((Introduction to Volume 2 of the special issue of Timing and Development Across the Lifespan). *Timing and Time Perception*, 5, 123-127.
- Campbell, K., Lustig, C., & Hasher, L. (2020). Aging and inhibition: Introduction to the special issue. *Psychology & Aging* 35, 605-613.
- Smith, S., Bergmann, T. O., Forstmann, B., Dagher, A., Keilholz, S., Kennedy, K., Kotz, S. A., Lustig, C., Pike, B., Tittgemeyer, M., Woolrich, M., Yeo, B. T. T., Bijsterbosch, J., Boonstra, T., Chakravarty, M., Chambers, C., Chang, C., Christian, B., Dalal, S. S., Ding, N., Duarte, A., Fan, A. P., Gramfort, A., Hartwigsen, G., Jabbi, M., Kochunov, P., Krämer, U., Lindquist, M., Mangin, J.-F., Murphy, K., Polimeni, J., Robinson, E., Rosenberg, M., Sadaghiani, S., Seghier, M., Shih, Y.-Y. I., Thielscher, A., Uddin, L. Q., Van De Ville, D., Vanduffel, W., Yan, C.-G., & Yendiki, A. (2023). Imaging Neuroscience opening editorial. *Imaging Neuroscience*, 1, 1-14.
- Stine-Morrow, E. A. L., West, R., Cheng, S.-T., Abrams, L., Gerstorf, D., Hooker, K., Kunzmann, U., & Lustig, C. (in press). Introduction to the special section on advancing theory-driven research in the psychological science of adult development and aging. *Psychology and Aging*.

Book chapters and encyclopedia articles

- Hasher, L., Tonev, S.T., Lustig, C., & Zacks, R. (2001). Inhibitory control, environmental support, and self initiated processing in aging. In M. Naveh-Benjamin, M. Moscovitch, and R.L. Roediger, III, (Eds.), *Perspectives on Human Memory and Cognitive Aging: Essays in Honour of Fergus Craik*. (pp. 286-297). East Sussex, UK: Psychology Press.
- Lustig, C., & Hasher, L. (2001). Interference. In G. Maddox (Ed.), *Encyclopedia of Aging*, 3rd edition (pp. 533-535). New York: Springer-Verlag.

- Lustig, C. (2003). Grandfather's clock: Attention and interval timing in older adults. In W.H. Meck (Ed.). *Functional and neural mechanisms of interval timing*. Boca Raton, FL: CRC Press.
- Buckner, R.L., Head D., & Lustig, C. (2006). Brain aging. In F.I.M. Craik and E. Bialystock (Eds.). *Lifespan cognition: Mechanisms of change*. (pp. 27 – 42). New York: Oxford University Press.
- Hasher, L., Lustig, C., & Zacks, R. (2006). Inhibitory mechanisms and the control of attention. In A. Conway, C. Jarrold, M. Kane, A. Miyake, & J. Towse (Eds.) *Variation in Working Memory*. New York: Oxford University Press.
- Lustig, C., & Hasher, L. (2006). Interference. In G. Maddox (Ed.), *Encyclopedia of Aging, 4th edition*. New York: Springer-Verlag.
- Lustig, C., Hasher, L., & Zacks, R. (2007). Inhibitory deficit theory: Recent developments in a “new view”. In D. S. Gorfein and C. M. MacLeod (Eds.), *The place of inhibition in cognition*. Washington, DC: American Psychological Association.
- Sarter, M., & Lustig, C. (2007). Attention and learning and memory. In L. Squire, (Ed.) *New Encyclopedia of Neuroscience*. Elsevier, Oxford, UK.
- Lustig, C., & Flegal, K.* (2008). Age differences in memory: Demands on control and association. In A.S. Benjamin, B. Etnyre, and T.A. Polk (Eds.), *Human Learning*. (pp. 137-152). Elsevier, Oxford, UK.
- Lustig, C., Berman, M.*, Nee, D.E.*, Lewis, R.L., Moore, K.S.* & Jonides, J. (2009). Psychological and neural mechanisms of short-term memory. In G.G. Bernston and J.T. Caccioppo (Eds). *Handbook of Neuroscience for the Behavioral Sciences*. (pp. 567-585). John Wiley & Sons, Hoboken, NJ.
- Lustig, C., & Reuter-Lorenz, P.A. (2012). Training working memory: Insights from neuroimaging. In R.G. Alloway and T. Alloway (Eds.) *Working memory: The Connected Intelligence*. (pp 287-298). Psychology Press.
- Lustig, C., & Lin Z.* (2015). Memory: Behavioral and neural bases. In K.L. Schaie and S.L. Willis (Eds). *Handbook of Psychology of Aging* (pp. 147-165). Academic Press.
- Reuter-Lorenz, P.A., & Lustig, C. (2016). Working memory and executive functions in the aging brain. In R. Cabeza, L. Nyberg, and D.C. Park (Eds.). *Cognitive Neuroscience of Aging: Linking Cognitive and Cerebral Aging, 2nd Edition*. (p. 235–258). Oxford University Press.
- Lustig, C., & Sarter, M. (2016). Attention and the cholinergic system: Relevance to schizophrenia. In T.W. Robbins and B.J. Sahakian (Eds.) *Current Topics in Behavioral Neurosciences: Translational Neuropsychopharmacology*.
- Lustig, C., & Jang, H.* (2020). From perception to action: Bottom-up and top-down influences on age differences in attention. In (A. Gutchess and A. Thomas, Eds.) *Handbook of Cognitive Aging*. (pp. 161-178). Cambridge University Press.

INVITED TALKS

Ups and downs of neural recruitment in healthy aging and early dementia. (April, 2003). Symposium on Neuroscience, Aging, and Cognition. Cognitive Neuroscience Society, New York.

Event-related fMRI correlates of recognition memory in old age and early dementia. (April, 2004). Cognitive Aging Conference. Atlanta, GA.

fMRI of memory in aging and dementia. (October, 2004). Michigan State University. Lansing, Michigan.

fMRI of controlled memory processing (and compensation?) in older adults. (February, 2005). University of Michigan, University of Toronto.

Rising to the challenge: fMRI of young and old adults' response to demands for controlled processing. (September, 2005). University of Michigan.

When the going gets tough, older adult brains get going...a little late? (October, 2005). University of Michigan.

Rising to the Challenge: Successful brain activation and memory training in older adults. (March, 2006). Michigan Difference Seminars, Naples & Fort Lauderdale, Florida.

Frontal-parietal activations (and deactivations) in old age and dementia. (March, 2006). Eighth Conference on the Neurobiology of Learning and Memory, Irvine, California.

Codgers, control, and compensation: Insights from functional brain imaging. (May, 2006). Invited talk at the Seventy-Eighth Annual Meeting of the Midwestern Psychological Association, Chicago, Illinois.

Aging and the back end. (November, 2006). University of Illinois.

Aging brains: A shift to the back end? (January, 2007). Claude M. Pepper Center, University of Michigan.

When the going gets tough, older brains get going...but they might be a little late. (April, 2007). Geriatrics Research Symposium, University of Michigan.

Shifting the balance: Brain and behavioral responses to cognitive control demands from age 9 to 97. (March, 2008). Biopsychology Forum, University of Michigan.

Neuroimaging-guided training in aging and Alzheimer's disease: Building on remaining function. (March, 2008). 18th Annual Rotman Research Institute Conference: Neuroimaging in Dementia, Toronto, Canada.

The rise and fall of cognitive control: Lifespan development. (April, 2008). Co-organizer (with Denise Head) of this symposium at the Cognitive Neuroscience Society Meeting, San Francisco, CA.

Not all training programs work as well as Martha's. (May, 2008). 50th Year Aging and Development Training Grant Celebration. Washington University, St. Louis, MO.

Age-related changes in the biology of learning and memory. (May, 2008). Co-organizer (with Geoff Murphy) of this workshop at the Nathan Shock Center, Ann Arbor, MI.

Goals in the golden ages: Lifespan changes in cognitive control. (June, 2008). TENNET: Annual Meeting of Theoretical and Experimental Neuropsychology. Waterloo, Canada.

Strategies matter (and ability does, too). Individual differences in memory training and transfer. (September, 2008). Memory Disorders Research Society. St. Louis, MO.

Goals in the golden ages: Lifespan changes in cognitive control. (October, 2008). Developmental Brown Bag, University of Michigan.

Memory training in older adults: Building on remaining function. (October, 2008). LIFE Program. Berlin, Germany.

Targeting latent function: Individual differences in memory training and transfer. (May, 2009). Association for Psychological Science. San Francisco, CA.

Memory training: Encoding and individual differences. (January, 2010). Dallas Aging & Cognition Conference. Dallas, TX.

Aging & Alzheimer's disease. (January, 2010). University of Michigan School of Social work. Ann Arbor, MI.

Making a course your own: Applying learning & memory research in the classroom. LSA Teaching Panel, University of Michigan, Ann Arbor, MI.

Control of attention. Sarter, M., & Lustig, C. (April, 2011). CNTRICS II Fourth Meeting: Selecting Translational Animal Model Paradigms. Dulles, VA.

When seniors know better than scientists: Individual differences in memory training and transfer. (October, 2011). Margret M. and Paul B. Baltes International Conference on Aging, Detroit, MI.

Integrative neuroscience of attention: Acetylcholine, cortex, and control. (2012). National University of Singapore (separate talks for Psychology Department and Duke-NUS Graduate Medical School), February 2012; University of Chicago, March 2012; University of Michigan LIFE program March 2012; McLean Hospital June 2012; Washington University in St. Louis November 2012.

A random walk through college and cognition. (February, 2012). Part of "Random Walks through Science" talk series; National University of Singapore University Town Residential College.

Getting your paper published...or at least giving it a fighting chance. (February, 2012). National University of Singapore.

Remembering and predicting emotional responses to 9/11. (September, 2012). Developmental brownbag, University of Michigan; Memory Disorders Research Society Meeting, Davis, California.

Timing within and across modality, age, and area of inquiry. (October, 2012). TIMELY Workshop Temporal Processing Within and Across Senses. University of Tübingen, Germany.

- Integrative neuroscience of attention: Using multiple species and imaging methods to understand how the brain controls attention.* (October 2012). Invited keynote at CIMAT XIV Reunion de Neuroimagen. Guanajuato, Mexico.
- Timing across the lifespan: Influences of attention, memory, and motivation.* (October, 2013). TIMELY Workshop: Development of timing and time perception: A lifespan perspective. Granada, Spain.
- The nature of memory.* (January, 2014). Seattle Study Club. Phoenix, Arizona.
- Keeping distraction out and moving focus in: Rodent, patient, and genetic studies of attention.* (April, 2014). Center for Vital Longevity, Dallas, TX.
- More than a modulator: Translational evidence for regionally- and temporally-specific cholinergic contributions to attentional control.* (April, 2015). University of Texas, Austin, TX.
- Attention and acetylcholine: Integrating research across methods and species.* (May, 2015). LIFE Academy, University of Michigan, Ann Arbor, MI.
- Connecting the (cholinergic) dots: Translational studies of acetylcholine, attention, and cognitive control.* (November, 2015). Clinical Brownbag, University of Michigan, Ann Arbor, MI.
- Cross-species studies of attention: Connecting the cholinergic dots.* (November, 2015). Duke University, Durham, NC.
- Cholinergic-cognitive pathways: Differential contributions to fall risk?* (September, 2016). Udall Research Symposium, University of Michigan.
- Exercise and your brain.* (October, 2016). Presented at both Exercise & Recreational Sports staff development meeting and for the Exercise as Medicine speaker series, University of Michigan.
- Attention's ups and downs: Cross-species evidence for the role of acetylcholine.* (October, 2016). Michigan State University.
- Cognitive training in older adults: Time for a personalized medicine approach?* (January 29, 2017). Dallas Aging & Cognition Conference, Center for Vital Longevity, Dallas, TX.
- Pushing beyond the PPI: Regional Homogeneity and dynamic functional connectivity analyses.* (March 3, 2017). BrainHack Global – A2. Ann Arbor, MI.
- Getting your paper published...or at least giving it a fighting chance.* (March 8, 2017). The Life Course: Evolutionary and Ontogenetic Dynamics. University of Michigan.
- Time management for graduate students.* (May, 2017) University of Michigan.
- Attention and effort: Not just for Lynn's mentees!* (November, 2017). Symposium in honor of Lynn Hasher. Toronto, Canada.
- The neural correlates of attentional effort: What happens in the CRUNCH?* (November, 2017). Washington University in St. Louis, St. Louis, MO..

Writing goals and realities. (May, 2018). Diversity summer writing workshop, University of Michigan

Attentional effort: Connected to the CRUNCH? (February, 2018). Biopsychology Colloquium, University of Michigan.

Walking and turning in the scanner...and in one's mind. (February, 2018). Udall Parkinson's Disease Research Update, University of Michigan

From top-down to "bottoms-up": Converging approaches to understand the neural systems involved in attention and cognitive control. (March, 2018). Cognitive Neuroscience Society Meeting, Boston, MA. (Part of invited symposium *From cage to clinic: Integrative neuroscience to understand and improve cognition and emotional function in healthy and clinical populations* that I organized: Other presenters were Liz Phelps, Damien Fair, and Tim Bussey)/

Cognitive Neuroscience. (May, 2018). Mini Med School, University of Michigan.

Aging and episodic memory: What do we know and where do we go? (May, 2018) Cognitive Aging Conference, Atlanta, GA.

Attention and motivation: Interactions in brain and behavior. (October, 2018). San Diego State University.

Should we pay attention? Interactions between control, motivation, and task constraints. (March, 2020). Northeastern University.

Publishing and promoting your work: An editor's perspective. (July, 2020). Duke-National University of Singapore (virtual talk).

When it doesn't pay to pay attention. (August, 2020). Rotman Research Center, Canada. (virtual talk).

When is working memory worth it? (February, 2022). University of Wisconsin-Milwaukee (virtual talk).

When is working memory worth it? (April, 2022). Cognitive Aging Conference, Atlanta, GA.

Writing an effective diversity statement. (April, 2022). Cognitive Neuroscience Society, San Francisco, CA.

Attention's balancing act: Stability and flexibility. (May, 2022). Michigan Neuroscience Institute monthly seminar. University of Michigan, Ann Arbor, MI.

When is working memory worth it? (May, 2022). Center for Vital Longevity Science Symposium, Dallas, TX.

Living like an academic athlete. (May, 2022). Psychology Diversity Committee Summer Writing Workshop. Ann Arbor, MI.

Getting your paper published...or at least giving it a fighting chance. (June, 2022). Combined Program in Education & Psychology Diversity Writing Group. University of Michigan, Ann Arbor, MI.

Scholarship, Transferrable Skills, Academics & Research. (September, 2022). Carol Hollenshead Award Lightning Talk. CEW++, University of Michigan, Ann Arbor, MI.

Getting your paper published...or at least giving it a fighting chance. (January, 2023). T32 Retreat. Washington University in St. Louis, St. Louis, MO.

How do we (and our brains) respond to challenging situations? (January, 2023). Keynote speaker, T32 Retreat. Washington University in St. Louis, St. Louis, MO.

Paradoxical effects of incentive in older adults. (August, 2023). APA Division 20 Symposium. Washington, DC.

Getting engaged: Effects of motivation (and maybe more) on young and older adults' working memory. (March, 2024). University of Dallas Center for Vital Longevity Science Luncheon Series. Dallas, TX.

Getting engaged: Effects of motivation (and maybe more) on young and older adults' working memory. (September, 2024). University of Illinois Urbana-Champaign. Urbana, IL.