

MATTHEW R. JOHNSON

Department of Psychology • Center for Brain, Biology, and Behavior (CB3)
Room B78 East Stadium • University of Nebraska–Lincoln • Lincoln, NE 68588

Phone: 402-472-3606 • Skype: matt_r_johnson

Web: <http://matthewrjohnson.net>

Email: matthew.r.johnson@unl.edu

EDUCATION & WORK

Assistant Professor, Psychology
University of Nebraska–Lincoln, Lincoln, NE
August 2015–

Postdoctoral Associate, Psychology
Yale University, New Haven, CT
September 2013–July 2015

Assistant Professor, Psychology
University of Nottingham, Malaysia Campus, Semenyih, Selangor, Malaysia
September 2011–August 2013

Graduate education: Ph.D., Neuroscience
Yale University, New Haven, CT
Dissertation title: “Component processes, top-down modulation, and interactions between perceptual and reflective processing”
June 2005–September 2011
Master of Philosophy (M.Phil.) conferred December 2008

Research Assistant
Olin Neuropsychiatry Research Center at Hartford Hospital, Hartford, CT
June 2003–June 2005

Undergraduate education: B.A., Cognitive Science and English
Yale University, New Haven, CT
September 1999–May 2003

JOURNAL ARTICLES & BOOK CHAPTERS

Williams JM, Rao P, Samal A, **Johnson MR**. Deep learning versus traditional multivariate pattern analysis for EEG data (working title). *In preparation*.

Johnson MR, Williams JM, Rao P, Samal A. Deep learning in human neuroscience: A tutorial and a toolbox. *In preparation*.

Lim PC, Ward EJ, Vickery TJ, **Johnson MR**. Drift in fMRI pattern representations during the delay interval predicts performance in a visual working memory task. *In preparation*.

Higgins JA, **Johnson MR**, Johnson MK. An inhibition-of-return-like effect in working memory is delayed in aging. *Under revision*.

Camos V, **Johnson MR**, Loaiza V, Portrat S, Souza A, Vergauwe E. *In press*. What is attentional refreshing in working memory? *Annals of the New York Academy of Sciences*.

Vu AT, Phillips JS, Kay K, Phillips ME, **Johnson MR**, Shinkareva SV, Tubridy S, Millin R, Grossman M, Gureckis T, Bhattacharyya R, Yacoub E. 2016. Using precise word timing information improves decoding accuracy in a multiband-accelerated multimodal reading experiment. *Cognitive Neuropsychology* 33: 265–275.

Johnson MR, McCarthy G, Muller KA, Brudner SN, Johnson MK. 2015. Electrophysiological correlates of refreshing: event-related potentials associated with directing reflective attention to face, scene, or word representations. *Journal of Cognitive Neuroscience* 27: 1823–1839.

Johnson MR. 2015. Model systems of thought: A neuroscience perspective on cognitive frameworks. In S Haque & E Sheppard (Eds.), *Studies in contemporary psychology: A collection of critical essays*, pp. 151–162. Bern: Peter Lang.

Johnson MR, Johnson MK. 2014. Decoding individual natural scene representations during perception and imagery. *Frontiers in Human Neuroscience* 8: article 59.

Ebner NC, **Johnson MR**, Rieckmann A, Durbin KA, Johnson MK, Fischer H. 2013. Processing own-age vs. other-age faces: Neuro-behavioral correlates and effects of emotion. *NeuroImage* 78: 363–71.

Assaf M, Hyatt CJ, Wong CG, **Johnson MR**, Schultz RT, Hendler T, Pearlson GD. 2013. Mentalization and motivation neural function during social interactions in autism spectrum disorders. *NeuroImage: Clinical* 3: 321–31.

Johnson MR, Higgins JA, Norman KA, Sederberg PB, Smith TA, Johnson MK. 2013. Foraging for thought: An inhibition of return-like effect resulting from directing attention within working memory. *Psychological Science* 24: 1104–12.

Hyatt CJ, Assaf M, Muska CE, Rosen RI, Thomas AD, **Johnson MR**, Hylton JL, Andrews MM, Reynolds BA, Krystal JH, Potenza MN, Pearlson GD. 2012. Reward-related dorsal striatal activity differences between former and current cocaine dependent individuals during an interactive competitive game. *PLoS ONE* 7: e34917.

Ebner NC, Gluth S, **Johnson MR**, Raye CL, Mitchell KJ, Johnson MK. 2011. Medial prefrontal cortex activity when thinking about others depends on their age. *Neurocase* 17: 260–9.

Mitchell KJ, **Johnson MR**, Higgins JA, Johnson MK. 2010. Age differences in brain activity during perceptual vs reflective attention. *NeuroReport* 21: 293–7.

Johnson MR, Johnson MK. 2009. Top-down enhancement and suppression of activity in category-selective extrastriate cortex from an act of reflective attention. *Journal of Cognitive Neuroscience* 21: 2320–7.

Johnson MR, Johnson MK. Toward characterizing the neural correlates of component processes of cognition. 2009. In F Roesler, C Ranganath, B Roeder, RH Kluwe (Eds.), *Neuroimaging of human memory: Linking cognitive processes to neural systems*, pp. 169–94. New York: Oxford University Press.

Assaf M, Kahn I, Pearlson GD, **Johnson MR**, Yeshurun Y, Calhoun VD, Hendler, T. 2009. Brain activity dissociates mentalization from motivation during an interpersonal competitive game. *Brain Imaging and Behavior* 3: 24–37.

Shamosh NA, DeYoung CG, Green AE, Reis DL, **Johnson MR**, Conway ARA, Engle RW, Braver TS, Gray JR. 2008. Individual differences in delay discounting: relation to intelligence, working memory, and anterior prefrontal cortex. *Psychological Science* 19: 904–11.

Johnson MR, Mitchell KJ, Raye CL, D’Esposito M, Johnson MK. 2007. A brief thought can modulate activity in extrastriate visual areas: top-down effects of refreshing just-seen visual stimuli. *NeuroImage* 37: 290–9.

Raye CL, Johnson MK, Mitchell KJ, Greene EJ, **Johnson MR**. 2007. Refreshing: a minimal executive function. *Cortex* 43: 135–45.

Johnson MR, Morris NA, Astur RS, Calhoun VD, Mathalon DH, Kiehl KA, Pearlson GD. 2006. An fMRI study of working memory abnormalities in schizophrenia. *Biological Psychiatry* 60: 11–21.

Most SB, Chun MM, **Johnson MR**, Kiehl KA. 2006. Attentional modulation of the amygdala varies with personality. *NeuroImage* 31: 934–44.

INVITED TALKS

Johnson MR. Title TBD. University of Delaware. March 2018.

Johnson MR. Effects of reflective attention on perceptual memory. *The Crossroads of Attention in Working Memory: Consolidation, Refreshing, and Removal*. June/July 2017. Ovronnaz, Switzerland.

Johnson MR. Theory and definition: Refreshing. *The Crossroads of Attention in Working Memory: Consolidation, Refreshing, and Removal*. June/July 2017. Ovronnaz, Switzerland.

Johnson MR. Where (and when) reflection meets perception. University of Nevada, Reno. February 2017.

Johnson MR. Interaction and integration between reflective and perceptual processes in the brain. Nebraska Neuroscience Network CANDO series. October 2016.

Johnson MR. Temporal dynamics of simple cognitive processes: Implications for aging and psychiatric disorders. NeuroFair 2013. Universiti Putra Malaysia.

Johnson MR. Interactions between perceptual and reflective processing. Psychology Research Symposium 2013. Sunway University.

Johnson MR. Examining the relationship between perceptual and reflective attention using component cognitive processes. NeuroMalaysia Symposium 2012.

Johnson MR. Behavioral and neuroimaging comparisons of reflective and perceptual attention. Malaysian Psychology Conference 2012.

Johnson MR. Breaking down executive function: Studies of component cognitive processes. International Neuroscience Symposium 2012.

CONFERENCE PRESENTATIONS: SHORT TALKS

Sun C, Ahn CR, Bae J, **Johnson MR.** Monitoring changes in gait adaptation to identify construction workers' risk preparedness after multiple exposures to a hazard. Construction Research Congress 2018.

Johnson MR, Mitchell KJ, Johnson MK. Subjective vividness ratings of pictures predict exemplar-specific similarity between encoding and recall activity patterns. Society for Neuroscience 2015.

Poh WL, Price JM, **Johnson MR.** Refreshing across languages among multi-linguals: Accessing active information in the reflective process between two different languages. Malaysian Psychology Conference 2013.

Lim PC, **Johnson MR,** Sidhu SK, Sheppard EB. Individual differences in drivers' hazard perception. Malaysian Psychology Conference 2013.

Ebner NC, **Johnson MR,** Rieckmann A, Johnson MK, Fischer H. Neural correlates of processing own-age versus other-age emotional faces. International Congress of Psychology 2012.

Johnson MR, Higgins JA, Norman KA, Sederberg PB, Johnson MK. Foraging for thought: an inhibition of return-like effect resulting from directing attention within working memory. Malaysian Psychology Conference 2011.

Johnson MR, Higgins JA, Norman KA, Sederberg PB, Johnson MK. An inhibition of return (IOR) effect resulting from directing attention within working memory. Vision Sciences Society 2011.

Johnson MR, Johnson MK. Decoding individual natural scene representations during perception and imagery. Vision Sciences Society 2010.

Assaf M, **Johnson MR**, Schultz RT, Sahl RA, Calhoun VD, Hendler T, Pearlson GD. Abnormal brain activation during implicit mentalization in autism spectrum disorders. Society of Biological Psychiatry 2007, Symposium Presentation.

CONFERENCE PRESENTATIONS: POSTERS

Lim PC, Ward EJ, Vickery TJ, **Johnson MR**. Drift in fMRI pattern representations during the delay interval predicts performance in a visual working memory task. Vision Sciences Society 2018.

Zosky JE, **Johnson MR**, Dodd MD. Does implicit learning of ordered stimuli influence perceptual recognition speeds in temporal order judgement? Psychonomics 2017.

Lim PC, **Johnson MR**. EEG investigations of visual statistical learning for faces, scenes, and objects. Psychonomics 2017.

Zosky JE, **Johnson MR**, Dodd MD. Did you see that? Examining whether statistical learning can elicit category-specific EEG activity in the absence of visual stimuli. Vision Sciences Society 2017.

Williams JM, Samal A, **Johnson MR**. Deep learning techniques for decoding EEG signatures of viewing or refreshing face, scene, and word stimuli. Cognitive Neuroscience Society 2017.

Vu A, Phillips J, Kay K, Phillips ME, **Johnson MR**, Shinkareva SV, Millin R, Grossman M, Bhattacharyya R, Yacoub E. Improving decoding accuracy using word timing information in a multiband accelerated multi-modal reading experiment. Organization for Human Brain Mapping 2015.

Phillips ME, Phillips J, Tubridy SM, Vu AT, **Johnson MR**, Shinkareva SV, Millin R, Yacoub E, Gureckis T, Grossman M, Bhattacharyya R. A neurosemantic behavioral feature model predicts conceptual representation in the brain. Cognitive Neuroscience Society 2015.

Sidhu SK, Lim PC, Sheppard EB, **Johnson MR**. Individual differences in multiple object tracking, visual short-term memory, and spatial reasoning. Malaysian Psychology Conference 2013.

Ebner NC, **Johnson MR**, Rieckmann A, Durbin KA, Johnson MK, Fischer H. Processing own-age vs. other-age faces: Neuro-behavioral correlates and effects of emotion. Mechanisms of Motivation, Cognition, and Aging Interactions Conference 2013.

Lai W, **Johnson MR**. Inhibition of return-like effects in a word-based reflective attention task: Comparisons between participant groups in Malaysia and the United States. Malaysian Psychology Conference 2012.

Poh WL, **Johnson MR**. Effects of variable timing on representation availability in a mental attention task. Malaysian Psychology Conference 2012.

Lin T, Fischer H, **Johnson MR**, Rieckmann A, Ebner NC. Neuro-behavioral analysis of processing own-age vs. other-age faces. North Central Florida Chapter of the Society for Neuroscience 2012.

Higgins JA, **Johnson MR**, Johnson MK. An inhibition-of-return-like effect in reflective attention in older adults. Psychonomics 2011.

Johnson MR, Johnson MK. Enhancement and suppression in reflective attention: separate processes, or different manifestations of one process? Society for Neuroscience 2010.

Ebner NC, **Johnson MR**, Gluth S, Raye CL, Johnson MK. Neural activity associated with evaluating others similar and dissimilar in age. Dallas Aging and Cognition Conference 2010.

Johnson MR, McCarthy G, Muller KA, Brudner SN, Johnson MK. Electrophysiological correlates of refreshing: event-related potentials associated with directing reflective attention to face, scene, or word representations. Society for Neuroscience 2009.

Ebner NC, Gluth S, **Johnson MR**, Krueger JK, Raye CL, Johnson MK. Medial prefrontal cortex activity when evaluating others depends on their age. Social & Affective Neuroscience Society 2009.

Johnson MR, Johnson MK. Pattern analysis of category-selective extrastriate cortical activity during perception and imagery of scenes. Cognitive Neuroscience Society 2009.

Johnson MR, Johnson MK. Assessing individual differences in top-down modulation of extrastriate cortex activity via self-report and behavioral measures of visual imagery and cognitive control. Society for Neuroscience 2008.

Johnson MR, Johnson MK. Common or distinct networks for perceptual and reflective selection? Evidence from viewing and refreshing faces and scenes. Cognitive Neuroscience Society 2008.

Book GA, Thomas AD, **Johnson MR**, Hylton JL, Andrews MM, Assaf M, Pearlson GD. Reward processing in social competitive task in subjects with familial history of alcoholism. International Conference on Applications of Neuroimaging to Alcoholism 2008.

Johnson MR, Tubridy SM, Johnson MK. Small variations in delay between perceiving a stimulus and accessing its representation affect neural activity and long-term memory. Society for Neuroscience 2007.

Johnson MR, Raye CL, D'Esposito M, Mitchell KJ, Johnson MK. Refreshing faces and scenes: assessing functional connectivity among brain regions during a single thought. Cognitive Neuroscience Society 2007.

Shipman SL, **Johnson MR**, Assaf M, Maxwell C, Greten-Harrison BL, Bailey K, Astur RS. Uncertainty during fear conditioning: observations of BOLD activity and implications for anxiety disorders. Cognitive Neuroscience Society 2007.

Assaf M, **Johnson MR**, Schultz RT, Hendler T, Sahl RA, Calhoun VD, Pearlson GD. Neural correlates of implicit mentalizing in autism spectrum disorders: a functional MRI study. International Meeting for Autism Research 2007.

Shipman SL, **Johnson MR**, Assaf M, Maxwell C, Greten-Harrison BL, Astur RS. Amygdala response during uncertainty in delayed fear conditioning. Society for Neuroscience 2006.

Johnson MR, Mitchell KJ, Raye CL, Johnson MK. Activity modulation in perceptual regions from a minimal reflective act: FFA and PPA activity associated with refreshing faces and places. Cognitive Neuroscience Society 2006.

Touryan SR, Mitchell KJ, Cunningham WA, Raye CL, **Johnson MR**, Farb N, Johnson MK. An fMRI study of motivational focus and memory for emotional words. Cognitive Neuroscience Society 2006.

Skelly LR, **Johnson MR**, Lloyd D, Kiehl KA. A contextual bias for amygdala activation in response to emotional and neutral faces. Cognitive Neuroscience Society 2006.

Most SB, Chun MM, **Johnson MR**, Kiehl KA. Attentional modulation of the amygdala varies with personality. Psychonomics 2005.

Johnson MR, Assaf M, Kahn I, Hendler T, Pearlson GD. Sex differences in a social-emotional theory of mind task: an fMRI study. Sex and Gene Expression 2005.

Johnson MR, Morris NA, Astur RS, Calhoun VD, Kiehl KA, Pearlson GD. Schizophrenia and working memory: a closer look at fMRI of the dorsolateral prefrontal cortex during a working memory task. Cognitive Neuroscience Society 2005.

Assaf M, **Johnson MR**, Kahn I, Hendler T, Pearlson GD. Mentalization of a human opponent versus a computer opponent in a social competitive game: an fMRI study. Cognitive Neuroscience Society 2005.

Giuliani NR, Groth KM, **Johnson MR**, Gelernter J, Covault J, Pearlson GD. CB1 receptor genotype mediates working memory performance and fMRI activation in schizophrenia. International Congress on Schizophrenia Research 2004.

Assaf M, **Johnson MR**, Kahn I, Yeshurun Y, Hendler T, Pearlson GD. Mind games, emotions and decision making: a functional MRI study. Cognitive Neuroscience Society 2004.

GRANTS / FUNDING

NSF/EPSCoR RII Track 2 FEC: “Neural networks underlying the integration of knowledge and perception.” PI of sub-contract within larger proposal. \$6,000,000 overall budget; \$1,187,503 sub-contract budget. 2016–2020.

UNL Layman Award: “Profiling individual risk perception from continuous behavioral measurement in the construction workplace.” Co-I. \$10,000. 2017–2018.

Center for Brain, Biology and Behavior (CB3) Seed Grant: “Individual differences in sentence level emotion processing.” Co-I. \$6,000. 2017.

NVIDIA GPU Grant: “Deep learning with human neuroimaging data at the University of Nebraska-Lincoln.” PI. \$1,200. 2017.

Center for Brain, Biology and Behavior (CB3) Seed Grant: “Multivariate pattern and connectivity correlates of learning for complex audiovisual information.” PI. \$5,513. 2016.

Center for Brain, Biology and Behavior (CB3) Seed Grant: “Exploring brain activity during motor imagery and action observation of balance tasks in older adults: movement toward a non-therapeutic approach to reduce falling risk and fear of falling.” Co-I. \$12,400. 2016.

UNL Research Council Faculty Seed Grant: “Structurally constrained cortical models of visual short-term memory.” PI. \$9,828. 2016.

UNMC Internal Pump-Priming Fund, 2012–2013.

NIH (NIA) Predoctoral NRSA, 2010–2011.

NSF Graduate Research Fellowship, 2007–2010.

AWARDS

2011–12 Chancellor Award for Teaching, University of Nottingham, Malaysia Campus

PROFESSIONAL AFFILIATIONS, MEMBERSHIPS, COMMITTEES

Distinction and Scholarship Committee, College of Arts and Sciences, University of Nebraska-Lincoln (2017–).

Department of Psychology Executive Committee, University of Nebraska-Lincoln (2016–2017).

Research Development Fellows Program, University of Nebraska–Lincoln (2016).

Vision Sciences Society (2009–present).

Society for Neuroscience (2007–present).

Cognitive Neuroscience Society (2004–present).

Interdepartmental Neuroscience Program Executive Committee, Yale University (2007–2008).

TEACHING EXPERIENCE

University of Nebraska–Lincoln (2015–)

- Instructor, PSYC463: Perception
- Leader of independent-study computer programming seminar

University of Nottingham, Malaysia Campus (2011–2013; student evaluations available)

- Lecturer and course designer, C83PFP: Programming for Psychologists
- Lecturer, C81STM: Statistical Methods 1
- Lecturer, C82MHC: Practical Methods in Psychology and Cognitive Neuroscience
- Lecturer, C81BIO: Introduction to Cognitive Neuroscience and Biological Psychology 1
- Lecturer, F60P02: Introduction to Psychology 2
- Lecturer, C82COG: Cognitive Psychology 2

Yale University (2006–2007; student evaluations available)

- Teaching fellow, CGSC110a: Intro to Cognitive Science
- Teaching fellow, CGSC201a: Brain and Thought

Kaplan, Inc., New Haven and West Hartford, CT (2001–2009)

- Taught numerous classes and did one-on-one tutoring in test preparation for PSAT; SAT; SAT subject tests (Writing, Mathematics, Chemistry); GRE General Test; and LSAT.
- Wrote and edited new test material for Kaplan practice tests and lessons.

Guest lectures (various)

- Introduction to Cognitive Neuroscience, Yale University (July 2011)
“Neuroimaging and cognitive neuroscience”
- Neuroscience research summer program, Boston Leadership Institute (July 2014)
“‘Brain reading’ with fMRI and EEG”

STUDENTS AND TRAINEES SUPERVISED

Cheng Lim, University of Nebraska-Lincoln, 2016–

- Postdoctoral supervisor

Johanna Shattuck, University of Nebraska-Lincoln, 2016–

- Co-supervisor for PhD, dissertation committee member

Jake Williams, University of Nebraska-Lincoln, 2016–

- Co-supervisor for master's degree and PhD, dissertation committee member

Evan Lintz, University of Nebraska-Lincoln, 2017–

- Primary PhD supervisor

Lauren Bandel, University of Nebraska–Lincoln, 2017–

- Co-supervisor during full-time research assistantship

Aaron Halvorsen, University of Nebraska-Lincoln, 2016–

- Supervisor for undergraduate volunteer research, including UCARE and senior honors thesis

Zach Martin, University of Nebraska-Lincoln, 2017–

- Supervisor for undergraduate volunteer research, including UCARE

Arianna Dye, University of Nebraska-Lincoln, 2017–

- Supervisor for post-baccalaureate research

Greg DeGirolamo, University of Nebraska–Lincoln, 2016–2018

- Dissertation committee member

Rafay Ali Khan, University of Nebraska–Lincoln, 2015–2017

- Supervisor during full-time research assistantship

Gennadiy Gurariy, University of Nevada, Reno, 2017

- Dissertation committee member

Maya Samal, Duke University / University of Nebraska–Lincoln, 2017

- Supervisor for summer undergraduate research

Abby Adams, Tanisha Talib, University of Nebraska-Lincoln, 2016–2017

- Supervisor for undergraduate volunteer research

Aasia Fortier, University of Nebraska-Lincoln, 2016

- Supervisor for undergraduate senior honors thesis

Shauna Kister, University of Nebraska-Lincoln, 2016

- Supervisor during part-time internship

Wei Lin Poh, University of Nottingham, Malaysia Campus, 2012–2016

- Primary PhD supervisor, 2012–2013
- Collaborator and secondary supervisor, 2013–2016

Rebecca Connelly, Yale University, 2014–2015

- Co-supervisor (along with Marcia Johnson) for undergraduate volunteer research

Christina Ramsay, Yale University, 2014

- Secondary supervision for summer research assistantship (primary supervisor: Marcia Johnson)

Hon Jiun Wong, University of Nottingham, Malaysia Campus, 2013–2014

- Co-supervisor for undergraduate final year project

Shumetha Kaur Sidhu and Rafay Ali Khan, University of Nottingham, Malaysia Campus, 2013

- Supervisor for undergraduate summer research internships

Chia Wei Chan and Carol Jeya Kumar, University of Nottingham, Malaysia Campus, 2012–2013

- Supervisor for undergraduate final year projects

Weijean Lai, University of Nottingham, Malaysia Campus, 2012

- Supervisor for undergraduate summer research internship

Samuel N. Brudner, Yale University, 2009

- Co-supervisor (along with Marcia Johnson) for undergraduate summer research fellowship