

Joshua W. Brown, Ph.D.

Curriculum Vitae

Professor
Department of Psychological and Brain Sciences
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PROFESSIONAL EXPERIENCE

July 2017 – present: Professor of Psychological & Brain Sciences, Indiana University, Bloomington
Affiliated faculty, Program in Neuroscience
Affiliated faculty, Program in Cognitive Science

May 2020 – Dec. 2023: Director, Program in Neuroscience, Indiana University, Bloomington

July 2012 – June 2017: Associate Professor of Psychology, Indiana University, Bloomington

Dec. 2012 – July 2013: Visiting Scholar, Oxford University, United Kingdom

Aug. 2006 – June 2012: Assistant Professor of Psychology, Indiana University, Bloomington

March 2005 – July 2006: Research Scientist, Dept. of Psychology, Washington University in St. Louis

Sept. 2001-March 2005: Postdoctoral Fellow, Dept. of Psychology, Washington University in St. Louis

Sept. 2000 – Aug. 2001: Postdoctoral Fellow, Dept. of Psychology, Vanderbilt University

Aug. 1996 – Aug. 2001: Research Assistant, Dept. of Cognitive & Neural Systems, Boston University

EDUCATION

2001-2005 Postdoctoral fellowship in combined human fMRI and computational neural modeling

2000-2001 Postdoctoral fellowship in awake behaving monkey neurophysiology

1996-2000 Ph.D. Cognitive & Neural Systems, Boston University

1990-1996 B.S. Mechanical Engineering *summa cum laude*, Revelle College, University of California, San Diego

1994-1995 Rotary Foundation Ambassadorial Fellowship, Edinburgh, Scotland

PUBLICATIONS (h-index = 45; Google Scholar: <https://scholar.google.com/citations?user=rjYUjroAAAAJ>)

1. Jacobson K, Zipp J, Jones B, Case-Cook B, Schrieber M, **Brown JW** (submitted) Randomized Controlled Trial: Prayer for Pain and Anxiety in a Primary Care Setting.
2. Cheng H, Chafee M, **Brown JW** (submitted) Macaque dorsolateral prefrontal cortex as a state prediction machine. <https://doi.org/10.1101/2024.02.28.582611>
3. Phillips ML, Kobayashi LC, Chakraborty R, Kabudula C, Harezlak J, **Brown JW**, Ludema C, Tollman SM, Berkman LF, Rosenberg M (submitted) Number of children and mid- to later-life cognitive function and cognitive impairment in rural South Africa: Evidence from “Health and Aging in Africa: A Longitudinal Study of an INDEPTH Community in South Africa” (HAALSI).

4. Cheng H, **Brown JW** (submitted) Learning with augmented target information: An alternative theory of Feedback Alignment. arXiv 2304.01406
5. Alipour A, James TW, **Brown JW**, Tiganj Z (2025) Self-supervised learning of scale-invariant neural representations of space and time. *J. Comput. Neurosci.* <https://doi.org/10.1007/s10827-024-00891-1>
6. Cheng H, **Brown JW** (2025) Replay as a basis for backpropagation through time in the brain. *Neural Computation*. bioRxiv 23.529770
7. Herms EN, **Brown JW**, Wisner KM, Hetrick WP, Zald DH, Purcell JR (2025) Modeling Decision-Making in Schizophrenia: Associations Between Computationally Derived Risk Propensity and Self-Reported Risk Perception. *Schizophrenia Bull.* sbae144 <https://doi.org/10.1093/schbul/sbae144>
8. Cheng H, **Brown JW** (2024) deepGOLSA: Goal-directed planning with subgoal reduction models human brain activity. *NeurIPS 2024*. <https://doi.org/10.1101/2024.03.19.585826>
9. Modak P, Colon B, Need E, Fine J, Cheng H, Hulvershorn L, Finn P, **Brown JW** (2024) Temporal interference electrical neurostimulation at 20 Hz beat frequency leads to increased fMRI BOLD activation in orbitofrontal cortex in humans. *Brain Stimulation* 17:867-875. <https://doi.org/10.1101/2024.03.02.583125>
10. Romez C, Correia da Silva A, Corneliussen C, Cunha G, **Brown JW** (2024) Case Report of 11 Years of Severe Malabsorption, Muscular Atrophy, Seizures, and Immunodeficiency Resolved After Proximal Intercessory Prayer. *Advances in Mind-Body Medicine* 38(2):40-55.
11. **Brown JW** (2023) Transcranial electrical neurostimulation as a potential addiction treatment. *Inquiry* 60:1-6
12. Schaerer M, du Plessis C, Nguyen M, van Aert RCM, Tiokhin L, Lakens D, Clemente EG, Pfeiffer T, Dreber A, Johannesson M, Clark CJ, Uhlmann EL... **Brown JW** et al. (2023) On the trajectory of discrimination: A meta-analysis and forecasting survey capturing 44 years of field experiments on gender and hiring decisions. *Organizational Behavior and Human Decision Processes* 179:104280
13. Lundin NB, **Brown JW**, Johns BT, Jones MN, Purcell JR, Hetrick WP, O'Donnell BF, Todd PM (2023) Neural switch processes guide semantic and phonetic foraging in human memory *Proc. Natl Acad Sci.* 120(42): e2312462120.
14. **Brown JW**, Zarr NZ (2023) Foundations of human spatial problem solving. *Scientific Reports* 13(1):1485
15. Purcell JR, **Brown JW**, Tullar RL, Bloomer BF, Kim DJ, Moussa-Tooks AB, Dolan-Bennet K, Bangert B, Wisner KM, Lundin NB, O'Donnell BF, Hetrick WP (2023) Insular and striatal correlates of uncertain risky reward pursuit in schizophrenia. *Schizophrenia Bulletin* sbac206
16. Woo JH, Azab H, Jahn A, Hayden B, **Brown JW** (2022) neural and computational mechanisms of risky decision-making. *Cogn. Aff. Behav. Neurosci.* 22:952-68. <https://doi.org/10.1101/2021.10.13.464327>
17. Purcell JR, Herms EN, Morales J, Wisner KM, Hetrick WP, **Brown JW** (2022) A review of risky decision-making in psychosis-spectrum disorders. *Clin. Psychol. Rev.* 91:102112.
18. Alipour A, Beggs J, **Brown JW**, James T (2022) A computational examination of the two-streams hypothesis: which pathway needs a longer memory? *Cognitive Neurodynamics* <https://doi.org/10.1101/2020.09.30.321299>
19. Modak P, Hutslar C, Polk R, Atkinson E, Fisher L, Macy J, Chassin L, Presson C, Finn PR, **Brown JW** (2021) Neural bases of risky decisions involving nicotine vapor versus monetary reward. *NeuroImage: Clinical* 32:102869
20. Purcell J, Jahn A, Fine JM, **Brown JW** (2021) Neural correlates of visual attention during risky decision evidence integration. *NeuroImage* 234:117979
21. Romez C, Freedman K, Zaritzky D, **Brown JW** (2021) Case report of instantaneous resolution of juvenile macular degeneration blindness after proximal intercessory prayer. *Explore* 17(1)78-83.
22. Raymond D, Paneto A, Yoder K, O'Donnell B, **Brown JW**, Hetrick W, Newman S (2020) Does chronic cannabis use impact risky decision-making: an examination of fMRI activation and effective connectivity? *Front. Psychiatry* 11:599256.
23. Fine JM, Zarr N, **Brown JW** (2020) Computational neural mechanisms of goal-directed planning and problem solving. *Computational Brain and Behavior* 3:472-493.

24. Haines N, Rass O, Shin YW, Busemeyer JR, **Brown JW**, O'Donnell BF, Ahn WY (2019) Regret induces rapid learning from experience-based decisions: A model-based facial expression analysis approach. *bioRxiv* 560011.
25. Verbruggen, F., Aron, A. R., Band, G. P., Beste, C., Bissett, P. G., Brockett, A. T., ... **Brown JW** et al. (2019). A consensus guide to capturing the ability to inhibit actions and impulsive behaviors in the stop-signal task. *ELife*, 8, e46323. <https://doi.org/10.7554/eLife.46323>
26. Alexander WH, **Brown JW** (2019) The Role of the Anterior Cingulate Cortex in Prediction Error and Signaling Surprise. *Topics in Cogn. Sci.* 11(1):119-135.
27. Romez C, Zaritzky D, **Brown JW** (2019) Case Report of gastroparesis healing: 16 years of a chronic syndrome resolved after proximal intercessory prayer. *Complementary Therap Med.* 43:289-294.
28. Fukunaga R, Purcell J, **Brown JW** (2018) Discriminating formal representations of risk in anterior cingulate cortex and inferior frontal gyrus. *Frontiers in Neurosci* 12:553.
29. Alexander WH, **Brown JW** (2018) Frontal cortex function as derived from hierarchical predictive coding. *Scientific Reports* 8(1):3843.
30. Wong YJ, Owen J, Gabana N, **Brown JW**, McInnis S, Toth P, Gilman L (2018) Does Gratitude Writing Improve the Mental Health of Psychotherapy Clients? Evidence from a Randomized Controlled Study. *Psychotherapy Research* 28(2):192-202.
31. Alexander WH, **Brown JW**, Collins AGE, Hayden BY, Vassena E (2018) pFC in Control: Broadening the scope to identify mechanisms. *J. Cogn. Neurosci.* 30(8):1061-65.
32. **Brown JW**, Alexander WH (2017) Foraging value, risk avoidance, and multiple control signals: How the anterior cingulate cortex controls value-based decision-making. *J. Cogn. Neurosci.* 29(10):1656-73.
33. Forster SE, Finn PR, **Brown JW** (2017) Neural responses to negative outcomes predict success in community based substance use treatment. *Addiction.* 112(5):884-96.
34. **Brown JW** (2017) Cingulate cortex function in cognitive control. Chapter in *Wiley Handbook of Cognitive Control, 1st Edition*. Ed. Tobias Egner. John Wiley & Sons. Pp. 260-274.
35. Jahn A, Nee DE, Alexander W, **Brown JW** (2016) Distinct regions within medial prefrontal cortex process pain and cognition. *J. Neurosci.* 36(49):12385-12392.
36. Forster SE, Finn PR, **Brown JW** (2016) A preliminary study of longitudinal neuroadaptation associated with recovery from addiction. *Drug and Alcohol Dependence* 168:52-60.
37. Wittmann M, Kolling N, Akaishi R, Chau B, **Brown JW**, Nelissen N, Rushworth MFS (2016) Prospective decision making driven by reward memories with multiple time constants in anterior cingulate cortex. *Nature Communications* 7:12327.
38. Akaishi R, Kolling N, **Brown JW**, Rushworth M (2016) Neural mechanisms of credit assignment in a multi-cue environment. *J. Neurosci.* 36(4):1096-1112.
39. Kini P, McInnis S, Gabana N, Wong J, **Brown JW** (2016) The effects of gratitude expression on neural activity. *NeuroImage* 128:1-10.
40. Zarr N, **Brown JW** (2016) Hierarchical error representations in medial prefrontal cortex. *NeuroImage* 124:238-47.
41. Alexander WH, **Brown JW** (2015) Hierarchical error representation: A computational model of anterior cingulate and dorsolateral prefrontal cortex. *Neural Comput.* 27(11):2354-2410
42. Hulvershorn L, Hummer T, Overhage L, Fukunaga R, Finn P, Leibenluft E, Anand A, Wang Y, Dir A, Cyders M, **Brown JW** (2015) The Neural Basis for Risky Decision Making in Youth at High Risk for the Development of Substance Use Disorders. *Psychiatry Research: Neuroimaging* 33(2):102-111.
43. Alexander WH, Fukunaga R, Finn PR, **Brown JW** (2015) Reward salience and risk aversion underlies differential ACC activity in substance dependence. *NeuroImage: Clinical* 8:59-71
44. Ramamoorthy A, **Brown JW** (2015) Performance Monitoring. In AW Toga (ed.) *Brain Mapping: An encyclopedia reference*. 3:355-9. Academic Press: Elsevier

45. Alexander WH, **Brown JW** (2015) Reciprocal interactions of computational modeling and empirical investigation. In Forstmann and Wagenmakers (eds.) An introduction to model-based cognitive neuroscience. New York: Springer. Pp. 321-338
46. Vélez de Mendizábal N, Jones DR, Jahn A, Bies RR, **Brown JW** (2014) Nicotine and Cotinine Exposure From Electronic Cigarettes: A Population Approach. *Clinical Pharmacokinetics* 54(6):615-26. DOI 10.1007/s40262-014-0221-7
47. **Brown JW** (2014) The tale of the neuroscientists and the computer: why mechanistic theory matters. *Frontiers in Neuroscience* 8:349.
48. Alexander WH, **Brown JW** (2014) A general role for medial prefrontal cortex in event prediction. *Frontiers in Computational Neuroscience*. doi: 10.3389/fncom.2014.00069
49. Jahn A, Nee DE, Alexander WH, **Brown JW** (2014) Anterior cingulate cortex activity signals multiple predicted outcomes of actions. *NeuroImage* 95:80-89.
50. Zarr N, Alexander W, **Brown JW** (2014) Discounting of reward sequences: a test of competing formal models of hyperbolic discounting. *Frontiers in Psychology*. DOI: 10.3389/fpsyg.2014.00178
51. Silvetti M, Alexander W, Verguts T, **Brown JW** (2014) From conflict management to reward-based decision-making: Actors and critics in primate medial frontal cortex. *Neuroscience & Biobehavioral Reviews*. 46(1):44-57.
52. Nee DE, Jahn A, **Brown JW** (2014) Prefrontal cortex organization: Dissociating effects of temporal abstraction, relational abstraction, and integration with fMRI. *Cerebral Cortex* 24:2377-87. doi: 10.1093/cercor/bht091
53. **Brown JW** (2013) Beyond conflict monitoring: Cognitive control and the neural basis of thinking before you act. *Current Directions in Psychological Science*. 22(3):179-185.
54. Fukunaga R, Bogg T, Finn P, **Brown JW** (2013) Decisions during negatively-framed messages yield smaller risk-aversion-related brain activation in substance-dependent individuals. *Psychology of Addictive Behaviors*. 27(4):1141-1152 DOI: 10.1037/a0030633
55. Nee DE, **Brown JW** (2013) Dissociable frontal-striatal and frontal-parietal networks involved in updating hierarchical contexts in working memory. *Cerebral Cortex*. 23(9):2146-2158. DOI 10.1093/cercor/bhs194
56. Nee D, **Brown JW**, Askren M, Berman M, Demiralp E, Krawitz A, Jonides J (2013) A meta-analysis of executive components of working memory. *Cerebral Cortex* 23(2):264-282. doi:10.1093/cercor/bhs007.
57. Nee DE, **Brown JW** (2012) Rostral-Caudal Gradients of Abstraction Revealed by Multi-Variate Pattern Analysis of Working Memory. *NeuroImage* 63(3):1285-94.
58. Fukunaga R, **Brown JW**, Bogg T (2012) Decision Making in the Balloon Analogue Risk Task (BART): Anterior Cingulate Cortex Signals Loss-Aversion but not the Infrequency of Risky Choices. *Cogn. Aff. Behav. Neurosci.* 12:479-90.
59. Bogg T, Fukunaga R, Finn P, **Brown JW** (2012) Cognitive Control Links Alcohol Use, Trait Disinhibition, and Reduced Cognitive Capacity: Evidence for Medial Prefrontal Cortex Dysregulation during Reward-Seeking Behavior. *Drug and Alcohol Dependence*. 122:112-8
60. **Brown JW**, Nee DE (2012) Executive control of cognitive search. In Todd, Hills and Robbins (eds). *Cognitive Search: Evolution, algorithms, and the brain*. Cambridge: MIT Press.
61. Winstanley CA, Balleine BW, **Brown JW**, Büchel C, Cools R, Durstewitz D, O'Doherty JP, Pennartz CM, Redish AD, Seamans JK, Robbins TW (2012) Search, goals, and the brain. In Todd, Hills and Robbins (eds). *Cognitive Search: Evolution, algorithms, and the brain*. Cambridge: MIT Press.
62. Ahn WY, Rass O, Shin YW, Busemeyer, JR, **Brown JW**, O'Donnell B. (2012) Emotion-based reinforcement learning. In N. Miyake, D. Peebles, & R. P. Cooper (Eds.), Proceedings of the 34th Annual Conference of the Cognitive Science Society (pp. 124-129). Austin, TX: Cognitive Science Society.
63. Jahn A, Nee DE, **Brown JW** (2011) The neural basis of predicting the outcomes of imagined actions. *Frontiers in Decision Neuroscience*. 5:128. DOI: 10.3389/fnins.2011.00128
64. Alexander WH, **Brown JW** (2011) Medial prefrontal cortex as an action-outcome predictor. *Nature Neurosci.* 14(10):1338-44. doi: 10.1038/nn.2921

65. **Brown, JW** (2011) Medial prefrontal cortex activity correlates with time-on-task: What does this tell us about theories of cognitive control? *NeuroImage* 57:314-5.
66. Ahn WY, Krawitz A, Busemeyer JR, Kim W, **Brown JW** (2011) A model-based fMRI analysis with hierarchical bayesian parameter estimation. *J. Neurosci. Psychol. Econ.* 4(2):95-110.
67. Forster SE, **Brown JW** (2011) Medial prefrontal cortex learns to predict the timing of action outcomes. *NeuroImage* 55(1):253-265.
68. Krawitz A, Braver TS, Barch DM, **Brown JW** (2011) Impaired Error-Likelihood Prediction and Evaluation in Anterior Cingulate Cortex in Schizophrenia. *NeuroImage* 54(2):1506-17
69. Alexander WH, **Brown JW** (2011) Computational neuroscience models: Error monitoring, conflict resolution, and decision making. In V. *Cutsuridis*, D. *Polani*, A. *Hussain*, T. *Tishby*, and J. *Taylor* (eds.) *Perception-reason-action cycle: Models, algorithms and systems*. New York: Springer
70. Nee DE, Kastner S, **Brown JW** (2011) Functional heterogeneity of conflict, error, and task switching effects within medial prefrontal cortex. *NeuroImage* 54:528-540
71. Alexander WH, **Brown JW** (2010) Computational models of performance monitoring and cognitive control. *TopiCS* 2(4):658-677
72. Moore L, Gunzelmann G, **Brown JW** (2010) Modeling Statistical Learning and Response Inhibition with the Change Signal Task. In D.D. Salvucci & G. Gunzelmann (Eds.), *Proceedings of the 10th International Conference on Cognitive Modeling*. (pp. 169-174) Philadelphia, PA: Drexel University.
73. Krawitz A, Fukunaga R, **Brown JW** (2010) Anterior insula activity predicts the influence of gain framed messages on risky decision-making. *Cogn. Aff. Behav. Neurosci.* 10(3):392-405.
74. Alexander WH, **Brown JW** (2010) Hyperbolically discounted temporal difference learning. *Neural Computation* 22(6):1511-1527.
75. Jessup RK, Busemeyer JR, **Brown JW** (2010) Error effects in anterior cingulate cortex reverse when error likelihood is high. *J. Neurosci.* 30(9):3467-3472.
76. Stuphorn V, **Brown JW**, Schall JD (2010) Relationship of supplementary eye field to saccade initiation during a countermanding task: executive not immediate control. *J. Neurophysiol.* 103(2):801-16
doi:10.1152/jn.00221.2009
77. Alexander WH, **Brown JW** (2010) Competition between learned reward and error outcome predictions in anterior cingulate cortex. *NeuroImage* 49:3210-3218. doi:10.1016/j.neuroimage.2009.11.065
78. **Brown JW** (2009) Conflict effects without conflict in medial prefrontal cortex: multiple response effects and context specific representations. *NeuroImage* 47:334-341
79. **Brown JW**, Braver TS (2009) Executive function and higher-order cognition: Computational models. In L. Squire (ed.) *Encyclopedia of Neuroscience* 4:93-98. Oxford: Academic Press.
80. **Brown JW** (2009) Multiple cognitive control effects of error likelihood and conflict. *Psychological Research*. 73:744-750. DOI 10.1007/s00426-008-0198-7
81. **Brown JW**, Hanes DP, Ruch K, Schall JD, Stuphorn V (2008) Relation of frontal eye field activity to saccade initiation during a countermanding task. *Exp. Brain Res.* 190:135-151. DOI 10.1007/s00221-008-1455-0
82. Emeric EE, **Brown JW**, Leslie M, Pouget P, Stuphorn V, Schall JD (2008) Error-Related Local Field Potentials in the Medial Frontal Cortex of Primates. *J. Neurophysiol.* 99(2):759-72
83. **Brown JW**, Braver TS (2008) A computational model of risk, conflict, and individual difference effects in the anterior cingulate cortex. *Brain Research*. 1202:99-108. doi:10.1016/j.brainres.2007.06.080
84. **Brown JW**, Braver TS (2007) Risk Prediction and Aversion by Anterior Cingulate Cortex. *Cogn. Aff. Behav. Neurosci.* 7(4):266-277
85. **Brown JW**, Reynolds JR, Braver TS (2007) A computational model of fractionated conflict-control mechanisms in task switching. *Cognitive Psychology*. 55:37-85.

86. Emeric EE, **Brown JW**, Boucher L, Carpenter RHS, Hanes DP, Harris R, Logan GD, Mashru RN, Pare M, Pouget P, Stuphorn V, Taylor T, Schall JD (2007) Influence of History on Saccade Countermanding Performance in Humans and Macaque Monkeys. *Vision Research* 47(1):35-49.
87. Reynolds JR, Braver TS, **Brown JW**, Stigchel S (2006) Computational and neural mechanisms of task-switching. *Neurocomputing* 69:1332-6.
88. **Brown JW**, Braver TS (2005) Learned predictions of error likelihood in the anterior cingulate cortex *Science* 307(5712) 1118-1121
89. **Brown JW**, Bullock D, Grossberg S (2004) How laminar frontal cortex and basal ganglia circuits Interact to control planned and reactive saccades. *Neural Networks* 17(4):471-510.
90. Ito S, Stuphorn V, **Brown JW**, Schall JD (2003) Performance monitoring by anterior cingulate cortex during saccade countermanding. *Science* 302(5642):120-2.
91. Braver TS, **Brown JW** (2003) Principles of pleasure prediction: specifying the neural dynamics of human reward learning. *Neuron*. 38(2):150-2.
92. Schall JD, Stuphorn V, **Brown JW** (2002) Monitoring and control of action by the frontal lobes. *Neuron* 36:309-322.
93. Cohen JD, Braver TS, **Brown JW** (2002) Computational perspectives on dopamine function in prefrontal cortex. *Curr. Op. Neurobiol.*, 12:223-229.
94. **Brown J**, Bullock D, Grossberg S (1999) How the basal ganglia use parallel excitatory and inhibitory learning pathways to selectively respond to unexpected rewarding cues. *J. Neurosci.* 19(23):10502-10511.
95. **Brown J**, Hoyer A (1996) A morphological point thinning algorithm. *Patt. Rec. Letters*. 17:197-207.

BOOKS

1. **Brown JW**. Why our beliefs matter (2026) New York:Harper Collins

PRESENTATIONS AND ABSTRACTS

1. Phillips ML, Brown JW, Ludema C, Harezlak J, Rosenberg M (2025) Parental age at the birth of the last child and mid- to later-life memory decline in rural South Africa. Poster at Society for Epidemiologic Research annual meeting.
2. Ahn WY, Lee JH, Lee E, **Brown J** (2024) Neural Correlates of Nicotine and Monetary Reward Processing Using an MRI-Compatible Vaping Device: A Preliminary Model-Based fMRI Study. Poster at 2024 American College of Neuropsychopharmacology, Phoenix AZ, Dec 8-11.
3. Phillips ML, **Brown JW**, Ludema C, Harezlak J, Rosenberg M (2024) Number of children and domain-specific cognitive function in middle aged and older adults living in the United States. Poster at Society for Epidemiological Research annual meeting.
4. Lee E, Lee JH, **Brown JW**, Ahn WY (2024) Neural Correlates of Risk and Reward Signals in Smokers Using an MRI-Compatible Vaping Device: A Preliminary Study. Poster presented at Society for Neuroscience annual meeting. Chicago October 2024.
5. Modak P, **Brown JW** (2024) Hypocrisy in value based decision making: investigating the discrepancy between best option assessments and the actual choice. Nanosymposium at Society for Neuroscience annual meeting.
6. **Brown JW** (2024) Characterizing the BOLD fMRI response to TI stimulation in humans. *Invited talk at Temporal Interference Brain Stimulation*. London, UK. Sept. 26, 2024.
7. **Brown JW** (2024) Miracles: empirical research, clinical trials, and case reports. Invited Plenary talk given at annual Conference on Medicine and Religion. Indianapolis, IN. April 15, 2024
8. **Brown JW** (2024) Monkey prefrontal cortex learns to minimize sequence prediction error. Talk given at Annual Interdisciplinary Conference, Jackson Hole, WY. Jan. 29, 2024

9. Brown CG, **Brown JW** (2023) Empirical Research on Prayer for Healing. Invited virtual talk given at University of Pittsburgh Medical Center. Oct. 3, 2023
10. Netsanet R, **Brown JW**, Bolbecker A, Velavan S, Wisner KM (2023) Comparison of Comorbidities and Selection of Impactful Features in Chronic Pain and Psychiatric Patients. Poster presented at *Society for Research in Psychopathology*.
11. Herms E, **Brown J**, Wisner K, Bloomer B, Tullar R, Hetrick W, Purcell J (2023) Computational Modeling of Risk-Taking Tendencies in Schizophrenia. Poster at Schizophrenia International Research Society, Toronto Ontario, May 2023.
12. Purcell, J. **Brown**, J., Tullar, R., Bloomer, B., Kim, D.J., Moussa-Tooks, A.B., Dolan-Bennet, K., Bangert, B., Wisner, K.M., Lundin, N.B., O'Donnell, B., Hetrick, W.P. (2023). Insular and striatal correlates of uncertain risky reward pursuit in schizophrenia. Schizophrenia International Research Society (SIRS). Toronto, CA.
13. Modak P, Colon B, Need E, Fine J, Hulvershorn L, Finn P, **Brown JW** (2022) Temporal interference neurostimulation yields fMRI BOLD activation in humans. Poster at *Society for Neuroscience Annual Meeting*.
14. Cheng H, **Brown JW** (2022) Computational neural mechanisms of scalable planning to arbitrary goals. Poster at *Society for Neuroscience Annual Meeting*.
15. Lundin NB, Moussa-Tooks AB, Kim DJ, **Brown JW**, Todd PM, O'Donnell BF, Hetrick, WP (September 2022). Cerebellar discoordination and psychosis phenotypes: Disruptions in associative learning and semantic organization. Flash talk, Society for Research in Psychopathology, Philadelphia, PA
16. **Brown JW** (2022) Computational and neural mechanisms of goal-directed control. Invited keynote at Volition and Cognitive Control, TU Dresden, Germany
17. **Brown JW** (Feb. 2022) Replay as a basis for backpropagation through time in the brain. Talk at Advanced Interdisciplinary Conference, Jackson, WY
18. Tergut N, Garcés MS, **Brown JW** (2021) Learning about visual system through a COIL. Neuroscience Teaching Conference, Wake Forest University [virtual conference]
19. Purcell, J., **Brown, J.**, Kim, D.J., Tullar, R., Dolan-Bennet, K., Bangert, B., Wisner, K., O'Donnell, B., Hetrick, W.P. (2021). An fMRI Investigation of Risky Decision-Making and Associations with Cognitive Functioning in Psychosis-Spectrum Disorders. Society of Biological Psychiatry (SOBP). [virtual conference]
20. Fine J, **Brown JW** (2020) A localist network explaining motivated and goal-directed planning: GOLSA", NeurIPS workshop "Biological and Artificial Reinforcement Learning", poster [withdrawn]
21. Purcell J, **Brown JW**, Kim DJ, Tullar R, Dolan-Bennet K, Sekhon A, O'Donnell B, Wisner K, Hetrick W. (2020) Thalamic correlates of forgoing risky, greater rewards in leu of certain, lesser rewards in psychosis-spectrum disorders. 2020 Neuromatch.io 3.0 conference [withdrawn]
22. Fine J, Zarr N, **Brown JW** (2020) A computational neural model of goal-directed planning under multiple and varying reward states. 2020 Neuromatch.io 3.0 conference [withdrawn]
23. Alipour A, Beggs J, James T, **Brown JW** (2020) A computational examination of the two-streams hypothesis: which pathway needs a longer memory? 2020 Neuromatch.io 3.0 conference
24. Cheng H, **Brown JW** (2020) Biologically Plausible Fast and Statistical Sequence Learning with RNNs. 2020 Neuromatch.io 3.0 conference.
25. Modak P, Hutslar C, Polk R, Atkinsons A, Macy J, Chassin L, Presson C, Finn PR, **Brown JW** (2020) Neural bases of risky decisions involving nicotine vapor vs. monetary reward. 2020 Neuromatch.io 3.0 conference.
26. Cheng H, **Brown JW** (2020) Reversible Recurrent Neural Network (R2N2): A novel approach to biologically plausible sequence learning. Competitive poster at Cosyne 2020, Denver, CO.
27. Purcell, J., **Brown, J.W.**, Kim, D.J., Tullar, R., Dolan-Bennet, K., Sekhon, A., Bangert, B., O'Donnell, B., Hetrick, W.P. (2020). Nothing ventured, nothing gained: An fMRI investigation of disadvantageous, risk-averse decision-making in psychosis-spectrum disorders. *Biological Psychiatry (SOBP)*, New York, NY. [e-conference]
28. Purcell J, Jahn A, **Brown JW** (2019) Neural correlates of risk and reward evidence accumulation during decision-making. Poster at *Society for Neuroscience annual meeting*. 512.03. Oct. 2019, Chicago, IL.

29. **Brown JW**, Zarr N (2019) The orbitofrontal cortex as a negative feedback control system: computational modeling and fMRI. Poster at Computational Cognitive Neuroscience meeting, Berlin, Germany Sept. 14, 2019.
30. **Brown JW**, Zarr N (2019) Cognitive control from the perspective of control theory: computational modeling and fMRI. Poster at Motivation and Cognitive Control meeting, Berlin, Germany Sept. 16, 2019.
31. Purcell, J., Jahn, A., Hetrick, W.P., **Brown, J.** (2019) Neural correlates of visual attention to risk and reward evidence accumulation during decision-making. Society for Research in Psychopathology (SRP), Buffalo, NY.
32. Purcell, J., Jahn, A., **Brown J.W.**, (2019). Differential Salience Network Activation During Visual Attention to Risky and Certain Outcomes .Organization for Human Brain Mapping (OHBM), Rome, IT.
33. **Brown, JW** (2018). The computational neural mechanisms of problem solving. Oct. 2018, Invited talk at Computational properties of prefrontal cortex meeting, Nashville, TN.
34. Purcell, J., Fukunaga, R., Hetrick, W., **Brown, J.W.** (2018) Discriminating formal representations of risk in anterior cingulate cortex and inferior frontal gyrus. Association for Clinical and Translational Science (ACTS). Washington, DC.
35. Purcell J., **Brown, J.W.**, Hetrick, W.P. (2018) Neurostimulation as a Translational Method: Error Signaling and Performance Monitoring in Psychosis-Spectrum Disorders. Computational Interdisciplinary Graduate Program Seminar (CIGP), Purdue University, West Lafayette, IN.
36. Purcell J., **Brown, J.W.**, Hetrick, W.P. (2018) Ameliorative Effects of Transcranial Direct-Current Stimulation on Error Signaling and Risk Processing During Decision-Making in Schizophrenia. Indiana Clinical and Translational Sciences Institute (CTSI) Annual Fellows Meeting, Indianapolis, IN.
37. Hutslar C, Polk R, Atkinson E, Macy JT, Chassin L, Presson C, Finn P, **Brown JW** (2018) Distinct neural mechanisms of monetary and drug reward seeking decisions under uncertainty. Poster at *Society for Neuroscience annual meeting*. 421.05. Nov. 2018, San Diego, CA.
38. **Brown, JW** (2018). Google translate vs. Skynet: the distinction between passive and active AI. June 2018, Invited talk at symposium on future of AI, Virginia Tech.
39. **Brown, JW** (2018). Computational and neural mechanisms of goal-directed planning and problem-solving. II-65 Poster at computational and systems neuroscience annual meeting, March 2018, Denver, CO.
40. Purcell J, **Brown, JW**, O'Donnell B, Ramirez A, Patel S, Hetrick W. (2017) Optimal decision-making within gain and loss contingencies. Society for Affective Sciences (SAS), Boston, MA.
41. Zarr N, **Brown JW**. (2017) Neural correlates of goal representations and planning in a multi-step navigation task. Poster presented at Society for Neuroscience Annual Meeting. Nov. 2017, Washington DC.
42. **Brown, JW** (2017). Modeling cognitive control with engineering control theory. Aug. 2017, Invited talk presented at Brown University, Providence, RI.
43. Zarr N, **Brown JW**. (2017) A biologically plausible neural network model of goal-directed learning and action. Poster presented at Reinforcement Learning and Decision-Making conference, June, 2017. Ann Arbor, MI.
44. Jahn A, Nee D, Alexander W, **Brown J** (2016) Medial prefrontal cortex signals prediction errors across domains of pain and cognitive control. Poster at *Society for Neuroscience Annual Meeting* 362.05. San Diego, CA. Nov. 14, 2016.
45. Zarr N, **Brown JW** (2016) A computational neural model of sequential action in the fronto-parietal network. Poster at *Society for Neuroscience Annual Meeting* 362.09. San Diego, CA. Nov. 14, 2016.
46. **Brown JW** (2016) How does anterior cingulate cortex control value-based decision-making? Invited talk at Control Processes meeting. La Jolla, CA. Nov. 10, 2016.
47. **Brown JW** (2016) How does the anterior cingulate cortex control value-based decision making? Symposium talk at Cognitive Neuroscience Society annual meeting, New York, NY. April 4, 2016.
48. **Brown JW** (2016) Hierarchical prediction errors in medial prefrontal cortex. Talk presented at Computational and Systems Neuroscience (Cosyne) workshops, Salt Lake City, UT. Mar. 1, 2016.

49. Wong J, Owen J, Gabana N, **Brown JW**, McInnis S, Toth P, Gilman L (2016) Does Gratitude Writing Improve the Mental Health of Psychotherapy Clients? Symposium presentation at APA annual convention, Aug. 4-7, 2016, Denver, CO.
50. Macy JT, Chassin L, Presson C, **Brown JW** (2016) Effects of Exposure to Graphic Warning Labels with Different Message Framing and with and without a Self-Efficacy Message. Poster presented at Society for Research on Nicotine and Tobacco annual meeting, Chicago, March 2016.
51. **Brown JW**, Kini P, McInnis S, Gabana N, Wong J (2015) The effects of gratitude expression on neural activity and plasticity. Oct. 21, 2015. Chicago, IL. Poster at Society for Neuroscience 721.02.
52. **Brown JW** (2015) How can models of the prefrontal cortex be tested? Invited talk at conference on computational properties of the prefrontal cortex. May 17, 2015. Washington, DC
53. **Brown JW** (2015) Computational models of interactions between lateral and medial prefrontal cortex. Invited talk at conference on computational properties of the prefrontal cortex. May 15, 2015. Washington, DC
54. Jahn A, Strait C, **Brown JW**, Hayden B (2014) Testing computational models of anterior cingulate cortex with monkey single units. Washington DC. Poster at Society for Neuroscience 462.06.
55. Jahn A, Nee D, Alexander WH, **Brown JW** (2014) Medial prefrontal cortex signals prediction errors across multiple domains of pain and cognitive control. Washington DC. Poster at Society for Neuroscience 838.05.
56. **Brown JW** (2014) Computational psychiatry and models of higher cognitive function. Invited talk at Indianapolis Society for Neuroscience meeting, IUPUI campus, Oct. 10, 2014.
57. **Brown JW** (2014) Computational Psychiatry: where higher cognitive function intersects with computational neuroscience, neuroimaging, and clinical science. Invited talk at Alumni Weekend, Dept. of Psychological & Brain Sciences, Indiana University. Oct. 17, 2014.
58. **Brown JW** (2014) Cognitive control as a process of prediction and evaluation. Symposium talk at Federation of European Neuroscience Societies (FENS) conference 2014, Milan, Italy. July 6, 2014.
59. Alexander W, **Brown JW** (2014) A computational model of dorsolateral prefrontal cortex. Poster at Cognitive Neuroscience Society, Boston, MA.
60. Jahn A, Nee D, Alexander W, **Brown JW** (2013) Distinct regions of anterior cingulate cortex signal prediction and outcome evaluation. San Diego, CA. Poster at Society for Neuroscience 481.17.
61. **Brown JW**, Fukunaga R (2013) Discriminating formal representations of risk in anterior cingulate cortex and anterior insula. San Diego, CA. Poster at Society for Neuroscience 664.07.
62. Alexander W, **Brown JW** (2013) A general role for anterior cingulate cortex in predicting task-related events. Poster at Cognitive Neuroscience Society meeting, San Francisco, CA.
63. **Brown JW** (2013) Prediction, evaluation, and risk avoidance signals in the medial prefrontal cortex. Invited talk at Neural Circuits for Adaptive Control of Behavior conference, L'Institut du Cerveau et de la Moelle Épinrière, Paris, France. Sept. 24, 2013.
64. **Brown JW** (2013) Cognitive control as a process of prediction and evaluation. Invited talk at Dept. of Speech and Hearing Science, Indiana University. Sept. 20, 2013.
65. **Brown JW** (2013) Cognitive control as a process of prediction and evaluation. Invited talk at Donders Institute for Brain, Cognition, and Behavior, Radboud University, Nijmegen, Netherlands. June 24, 2013.
66. **Brown JW** (2013) Performance monitoring and hierarchical representation. Invited talk at DeepMind Inc., London, UK. June 7, 2013.
67. **Brown JW** (2013) Cognitive control as a process of prediction, evaluation, and risk avoidance. Invited talk at Centre Interfacultaire en Sciences Affectives, University of Geneva, Switzerland. May 16, 2013.
68. **Brown JW** (2013) Neural mechanisms of risk evaluation in healthy and substance-dependent individuals. Invited talk at Centre Hospitalier Universitaire Vaudois, Lausanne, Switzerland. May 15, 2013.
69. **Brown JW** (2013) Cognitive control as a process of prediction and evaluation. Invited talk at École Polytechnique Fédérale de Lausanne, Switzerland. May 15, 2013.

70. **Brown JW** (2013) Cognitive control as a process of prediction, evaluation, and risk avoidance. Invited talk at Univ. Zurich, Dept. of Neuroeconomics, Switzerland. May 14, 2013.
71. **Brown JW** (2013) Beyond composite valuation: distinct neural mechanisms of reward and risk learning in decision-making. Invited talk at University College, London. May 10, 2013.
72. **Brown JW** (2013) Cognitive control as a process of prediction and evaluation. Invited talk at Saarbruecken University, Germany. March 6, 2013.
73. **Brown JW** (2013) Cognitive control as a process of prediction and evaluation. Invited talk at INSERM, Lyon, France. March 4, 2013.
74. **Brown JW** (2013) Cognitive control as a process of prediction and evaluation. Invited talk at University of Amsterdam, Netherlands. Feb. 28, 2013.
75. **Brown JW** (2013) Cognitive control as a process of prediction and evaluation. Invited talk at Birkbeck College London, UK. Jan. 30, 2013.
76. **Brown JW** (2013) Cognitive control as a process of prediction and evaluation. Invited talk at Durham University, UK. Jan. 25, 2013.
77. **Brown JW** (2013) Cognitive control as a process of prediction and evaluation. Invited talk at Oxford University, UK. Jan. 22, 2013.
78. **Brown JW** (2012) Computational cognitive neuroscience modeling and fMRI of cognitive control. Invited talk at Purdue University, Sept. 5, 2012.
79. **Brown JW** (2012) Towards a unifying model of anterior cingulate cortex. Invited talk at Conflicts as Signals conference, Berlin, Germany. June 1, 2012.
80. Forster S, Finn P, **Brown JW** (2012) Neural predictors and indicators of successful early recovery in substance dependent individuals. *Soc. Neurosci. Abstracts*. Poster presented at the Society for Neuroscience Oct. 14, 2012.
81. **Brown JW** (2011) Think before you act: Cognitive control and risky decision-making. Invited talk at University of Texas, Austin, Dec. 5, 2011
82. Nee DE, **Brown JW** (2011) Dissociable frontal-striatal and frontal-parietal networks involved in updating goals and sub-goals in working memory. Program No. 829.19. 2011 Neuroscience Meeting Planner. Washington, DC: Society for Neuroscience. Online.
83. Jahn A, Nee DE, **Brown JW** (2011) The neural basis of predicting the potential outcomes of planned actions. Program No. 930.04. 2011 Neuroscience Meeting Planner. Washington, DC: Society for Neuroscience. Online.
84. **Brown, JW** (2011) Planning and acting: basal ganglia, thalamus, and laminar frontal cortical interactions. Invited talk presented at Brandeis University. April 29, 2011. Waltham, MA.
85. **Brown, JW** (2011) Executive control of sensemaking – anterior cingulate cortex. Invited talk presented to Raytheon BBN and IARPA. March 7, 2011. Cambridge, MA.
86. **Brown, JW** (2011) Computational neural modeling and neuroimaging of medial prefrontal cortex as an action-outcome predictor. Invited talk given at Computational and Systems Neuroscience (CoSyNe) Workshop. March 1, 2011. Salt Lake City, UT.
87. **Brown, JW** (2011) Executive control of cognitive search. Invited paper presented at the Ernst Strüngmann Forum on Cognitive Search. Feb. 22-26, 2011. Frankfurt, Germany.
88. **Brown, JW** (2010) How the brain detects and avoids risky behavior. Invited talk given to Advance College Project teacher group at Indiana University Bloomington. Oct. 28, 2010.
89. Fukunaga R, Krawitz A, **Brown JW** (2010) Messages driving risky behavior modulate decision-related activity in the anterior cingulate cortex, insula and ventromedial prefrontal cortex. Program No. 503.15. 2010 Neuroscience Meeting Planner. Washington, DC: Society for Neuroscience. Online.
90. Alexander W, **Brown JW** (2010) A computational model of how medial prefrontal cortex learns to predict the value of actions. Program No. 634.2. 2010 Neuroscience Meeting Planner. Washington, DC: Society for Neuroscience. Online.

91. Krawitz A, Braver T, Barch D, **Brown JW** (2010) Impaired error-likelihood prediction in medial prefrontal cortex in schizophrenia. Program No. 831.5. 2010 Neuroscience Meeting Planner. Washington, DC: Society for Neuroscience. Online.
92. Alexander WH, **Brown JW** (2010) Discounting time and probability by reward perception. Poster at the Society for Neuroeconomics annual conference. Evanston, IL.
93. Alexander WH, **Brown JW** (2010) Medial prefrontal cortex learns to predict the outcome of actions. Poster presented at conference on motivational and cognitive control, June 2010, Oxford, England.
94. **Brown JW** (2010) Cognitive neuroscience and neuromarketing. Invited talk to IU Kelley School of Business, Jan. 22, 2010
95. **Brown JW**, Nee DE, Kastner S (2009) Medial prefrontal cortex shows a regional gradient of monitoring and control functions consistent with a role in outcome prediction. Program No. 93.2. 2009 Neuroscience Meeting Planner. Washington, DC: Society for Neuroscience. Online.
96. Forster S, **Brown JW** (2009) Violations of temporal expectancy activate discrete regions of medial prefrontal cortex in risk-averse and risk-seeking individuals. Program No. 93.1. 2009 Neuroscience Meeting Planner. Washington, DC: Society for Neuroscience. Online.
97. Fukunaga R, **Brown JW** (2009) Informative messages against risky behavior show differential risk-aversion related activity in substance-dependent compared to healthy individuals. Program No. 93.3. 2009 Neuroscience Meeting Planner. Washington, DC: Society for Neuroscience. Online.
98. **Brown JW** (2009) Computational neural models of risk. Invited talk. *AFOSR Joint Program Review – Cognition and Decision Program and Human-System Interface Program*. Jan 28-30, 2009, Arlington, VA
99. Alexander WH, **Brown JW** (2008) A computational neural model of learned response-outcome predictions by anterior cingulate cortex. Program No. 682.21. 2008 Neuroscience Meeting Planner. Washington, DC: Society for Neuroscience. Online.
100. **Brown JW**, Finn PR (2008) Error likelihood and error consequence prediction effects are inverted in the anterior cingulate cortex of substance abusers. Program No. 682.19. 2008 Neuroscience Meeting Planner. Washington, DC: Society for Neuroscience. Online.
101. Ahn WY, Krawitz A, Kim W, Busemeyer JR, **Brown JW** (2008) Disentangling neural processing of the Iowa gambling task: a model-based fMRI study. Program No. 681.7. 2008 Neuroscience Meeting Planner. Washington, DC: Society for Neuroscience. Online.
102. Krawitz A, Braver TS, Barch DM, **Brown JW** (2008) The influence of working memory on error-likelihood prediction in the anterior cingulate cortex and its disturbance in schizophrenia. Program No. 288.3. 2008 Neuroscience Meeting Planner. Washington, DC: Society for Neuroscience. Online.
103. Ashourvan A, **Brown JW**, Port NL (2008) A dynamical systems neural network model of predictive remapping of the tilt aftereffect preceding saccadic eye movements. Program No. 167.6. 2008 Neuroscience Meeting Planner. Washington, DC: Society for Neuroscience. Online.
104. **Brown JW** (2008) The basic science behind neuromarketing. Invited talk to Shoppability conference, Kelley Executive Partners, Kelley School of Business, Indiana University. October 2008.
105. **Brown JW** (2008) Risk predictions and cognitive control of decision-making. Invited talk at Johns Hopkins. October 2008.
106. Potter RF, Lang A, **Brown JW**, Fukunaga R, Krawitz A (2008) Brain activation during risk: The influence of trait motivation on ACC activation during choice and consequence. Contributed paper at *International Communication Association* annual meeting, Montreal, Canada, May 23, 2008
107. Alexander W, **Brown JW** (2008) Error likelihood effects in anterior cingulate cortex modulated by average reward and reinforcement learning. Contributed poster at Indiana Neuroimaging Symposium, IUPUI, April 2008
108. Ahn WY, Krawitz A, Busemeyer JR, **Brown JW** (2008) Neural correlates of decision-making processes in the Iowa gambling task: a model-based fMRI study. Contributed poster at Indiana Neuroimaging Symposium, IUPUI, April 2008

109. **Brown JW** (2008) fMRI methods – a brief overview. Invited talk. *Indiana Neuroimaging Symposium*. IUPUI campus, April 2008.
110. Fukunaga R, Krawitz A, **Brown JW** (2008) Persuasive messages against risky behavior increase risk aversion-related activity in the anterior cingulate cortex and insula. Poster presentation, *Cognitive Neuroscience Society*. San Francisco, CA
111. **Brown JW** (2008) Conflict effects without conflict in medial prefrontal cortex. Poster presentation, *Cognitive Neuroscience Society*. San Francisco, CA
112. Alexander W, **Brown JW** (2008) Error likelihood effects in anterior cingulate cortex modulated by average reward and reinforcement learning. Poster presentation, *Cognitive Neuroscience Society*. San Francisco, CA
113. Krawitz A, Braver TS, **Brown JW** (2008) The influence of working memory on error-likelihood prediction in the anterior cingulate cortex. Poster presentation, *Cognitive Neuroscience Society*. San Francisco, CA
114. **Brown JW** (2008) Individual differences in medial prefrontal cortex, conflict, error likelihood prediction, and risk aversion. *Invited Symposium, International Congress of Psychology*. Berlin, Germany
115. **Brown JW** (2008) Computational neural models of risk. Invited talk. *AFOSR Joint Program Review – Cognition and Decision Program and Human-System Interface Program* Jan 22-24, 2008, Arlington, VA
116. **Brown JW, Braver TS** (2007) Individual differences in medial prefrontal cortex, conflict, error likelihood prediction, and risk aversion. Program No. 232.9. 2007 Abstract Viewer/Itinerary Planner. Washington DC: Society for Neuroscience.
117. **Brown JW** (2007) Error and conflict, prediction, and the adaptive regulation of control. Invited talk at Conflicts as Signals workshop, Berlin, Germany
118. **Brown JW** (2007) The Role of Medial Prefrontal Cortex in Learned Risk Prediction and Aversion. Invited talk at Max-Planck Institute for Adaptive Behavior and Cognition, Berlin, Germany
119. **Brown JW** (2007) The role of medial prefrontal cortex in learned risk prediction and aversion. *Contributed talk at Indiana Neuroimaging Symposium*, Bloomington, Indiana
120. **Brown JW, Braver TS** (2006) Error and Conflict, Prediction, and the Adaptive Regulation of Control. *Invited Symposium Lecture at the Psychonomic Society Annual Meeting*. Houston, Texas.
121. **Brown JW** (2006) The Role of Medial Prefrontal Cortex in Error Likelihood Prediction and Risk Aversion. *Contributed talk and poster for annual Computational Cognitive Neuroscience conference*. Houston, Texas
122. **Brown JW** (2006) The Role of Medial Prefrontal Cortex in Error Likelihood Prediction and Risk Aversion. Invited Lecture, *Workshop on Medial PFC*. Amsterdam, Netherlands
123. **Brown JW, Braver TS** (2005) A computational neural model of anterior cingulate cortex learns to estimate context-dependent behavioral risk. Program No. 877.15. 2005 Abstract Viewer/Itinerary Planner. Washington DC: Society for Neuroscience.
124. **Brown, JW** (2005) Unified computational neural modeling of behavior, fMRI, and neurophysiological data with RNS++. Dynamical Neuroscience XIII: Computational Cognitive Neuroscience Conference 2005, Washington, DC - USA.
125. Pouget P, James L, Stuphorn V, **Brown JW**, Rao SC, Schall JD (2005) Coincident activity in supplementary eye field and anterior cingulate cortex of macaque monkeys. Program No. 166.13. 2005 Abstract Viewer/Itinerary Planner. Washington DC: Society for Neuroscience
126. Leslie MW, Pouget P, Schall JD, **Brown JW**, Stuphorn V (2005) Analysis of error-related neural unit activity in macaque SEF and ACC during saccade countermanding. Program No. 166.15. 2005 Abstract Viewer/Itinerary Planner. Washington DC: Society for Neuroscience
127. Emeric EE, Stuphorn V, **Brown JW**, Schall JD (2005) Absence of post-error slowing of countermanding saccades. Program No. 412.3. 2005 Abstract Viewer/Itinerary Planner. Washington DC: Society for Neuroscience
128. **Brown JW, Braver TS** (2005) Learned Error Matching in the Anterior Cingulate Cortex. *Cognitive Neuroscience Society Meeting* April 2005, New York.

129. **Brown JW** (2005) Uh-oh... Oops! The brain's early warning system for mistakes. *Invited Lecture* University of Houston, April 8, 2005.
130. **Brown JW**, Braver TS (2004) A computational neural model of learned conflict in the anterior cingulate and pre-SMA. Program No. 211.9. 2004 Abstract Viewer/Itinerary Planner. Washington, DC: Society for Neuroscience, 2004. CD-ROM.
131. **Brown JW**, Braver TS (2003) fMRI of higher order sequential effects in task switching. Program No. 287.18. 2003 Abstract Viewer/Itinerary Planner. Washington, DC: Society for Neuroscience, 2003. CD-ROM.
132. Stuphorn V, **Brown JW**, Schall JD (2003) Supplementary eye field does not initiate visually-guided saccades. Program No. 187.15. 2003 Abstract Viewer/Itinerary Planner. Washington, DC: Society for Neuroscience, 2003. CD-ROM.
133. **Brown J**, Reynolds J, Braver T (2003) A computational neural model of anterior cingulate cortex in task-switching. *J. Cog. Neurosci. Suppl* 61-61.
134. Hoyer C, Braver T, **Brown J** (2003) Cognitive control in the stroop task: A sustained effect? *J. Cog. Neurosci. Suppl.* 63-63.
135. **Brown JW**, Reynolds JR, Jones AD, Braver TS. A neurocomputational model of anterior cingulate cortex in response- and task-switching. Program No. 182.4. 2002 Abstract Viewer/Itinerary Planner. Washington, DC: Society for Neuroscience, 2002. CD-ROM.
136. Ito S, Stuphorn V, **Brown J**, Schall JD. Anterior cingulate cortex: Error-related activity in the countermanding paradigm. Program No. 464.6. 2002 Abstract Viewer/Itinerary Planner. Washington, DC: Society for Neuroscience, 2002. CD-ROM.
137. **Brown JW**, Bullock D, Grossberg S (2002) A computational neural model of laminar frontal cortex and basal ganglia interactions in movement control. *Advances in Computational Motor Control*, Orlando, FL Nov. 2002
138. **Brown JW**, Stuphorn V, Schall JD (2001) Reliability of macaque FEF but not SEF movement neurons predicting saccade initiation. *Soc. Neurosci. Abstr.* 27:575.9
139. Stuphorn V, **Brown JW**, Schall JD (2001) Effects of supplementary eye field microstimulation on performance in the countermanding paradigm. *Soc. Neurosci. Abstr.* 27:575.10.
140. **Brown J** (2001) Neural Mechanisms of oculomotor learning and decision-making: Modeling and experiment. *Invited Lecture, Washington University School of Medicine.*
141. **Brown J**, Bullock D, Grossberg S (2001) How reinforcement learning affects oculomotor decision-making and planning in identified brain circuits. *Cold Spring Harbor Conference on Learning and Memory, Cold Spring Harbor, NY.*
142. **Brown J** (2001) Mechanisms of learning and decision-making in autonomous agents: Insights from biologically-realistic neural networks. Invited Lecture, *Intelligent Robotics Laboratory, Vanderbilt University.*
143. **Brown J**, Bullock D, Grossberg S (2000) How laminar frontal cortex and basal ganglia circuits interact to control planned and reactive saccades. *Soc. Neurosci. Abstr.* 26.
144. **Brown J**, Bullock D, Grossberg S (2000) Biomimetic circuits for autonomously learning to selectively respond to unexpected reward related events. *First IEEE-RAS Intl.Conf. Humanoid Robots.*
145. **Brown J**, Bullock D, Grossberg S (2000) How the basal ganglia use parallel excitatory and inhibitory learning pathways to selectively respond to unexpected rewarding cues. *Fourth Intl. Conf. on Cognitive and Neural Systems.*
146. **Brown J**, Bullock D, Grossberg S (1999) How the basal ganglia use parallel excitatory and inhibitory learning pathways to selectively respond to unexpected rewarding cues. *Soc. Neurosci. Abstr.* 25:376.
147. **Brown J**, Bullock D, Grossberg S (1999) Temporally-structured expectations of reward in the basal ganglia. *J. Cognit. Neurosci. Suppl.* S, 43-43.

PENDING GRANTS

- Neural and Computational Mechanisms of Semantic Foraging in Psychosis. **R01XXXXXX. Co-PI: Brown.** 4/1/2026-3/31/31. \$2.6M total direct costs

CURRENT GRANTS

- Temporal interference methods for non-invasive deep brain stimulation. **R21MH140210-01. PI: Brown.** 5/15/2025-5/14/2027. \$275K total direct costs.
- Temporal interference methods for addiction treatment. **R21DA062805-01. PI: Brown.** 7/15/25-6/30/27. \$275K total direct costs.

COMPLETED GRANTS

- Pain perception in Individuals with Chronic Pain. **C3A Pilot Project under P30DA056410.** 7/1/2024-6/30/2025. \$20,555 total direct costs.
- Noninvasive deep neurostimulation treatment for addiction. **IU Addiction Grand Challenge grant.** 10/1/2018-2/28/2023. \$464,755 direct costs. PI: Joshua Brown
- Neural mechanisms of addictive drug-taking decisions. **NIH/NIDA R21 DA040773.** Funded 2/1/2017-1/31/2019. \$275,000 direct costs. PI: Joshua Brown
- Functional neuroimaging of e-cigarette use decisions. **Indiana Clinical Translational Sciences Institute.** Funded 9/1/2014-8/31/2016. \$10,000 direct costs. PI: Joshua Brown
- Effect of exposure to graphic cigarette warning labels on nicotine intake. **Indiana University Office of the Vice President for Research.** \$1847 direct costs. Co-PIs: Joshua Brown & Jon Macy
- The Use of a Gratitude Writing Intervention With Psychotherapy for Outpatient Clients: Examining Neural Correlates and Psychosocial Mechanisms. **John Templeton Foundation.** Funded 9/1/2012-7/31/2014. \$199,998 total costs. Co-PIs: Joshua Brown and Joel Wong
- Integrated Cognitive Architectures for Understanding Sensemaking (ICArUS), Subcontract from Raytheon BBN. **IARPA Sensemaking Program**, funded 1/1/2011- 6/5/2014. \$635,016 total costs. PI: Joshua Brown (subcontract)
- Integrative predoctoral training in drug abuse research, **NIH NIDA T32 Training Grant.** PI: George Rebec. Role: Co-investigator
- Functional neuroimaging of addictive drug-taking. **Indiana CTSI Core Pilot grant.** Funded 1/1/2011-6/30/2013. \$9,880 total costs. PI: Joshua Brown
- Neural mechanisms of risky behavior avoidance **NIH NIDA R01 DA026457**, funded 8/1/2009-7/31/2012. \$683,736 total costs. PI: Joshua Brown
- Integrated functional neuroimaging and quantitative genomics of cognition. **IU Faculty Research Support Program** Funded 6/23/09-6/22/10. \$74,587 total costs. PI: Joshua Brown
- Computational Neural Models of Risk, **AFOSR** Funded 6/1/07-11/30/09. \$197,722 total direct costs. PI: Joshua Brown
- Modeling in Cognition, **NIH NIMH T32 Training Grant.** PI: James Townsend. Role: Co-investigator
- Neural Mechanisms of Learned Self-Monitoring, **NARSAD Young Investigator Award**, funded 2005-2008, \$59,950 total direct costs. PI: Joshua Brown
- Neural Mechanisms of Risk Aversion, **NIH NIDA R03 DA023462 I/START**, funded 5/1/07-4/30/09. \$150,000 total direct costs. PI: Joshua Brown. Priority Score: 135
- Neural Network Simulations of Cognitive Control and Motivational Factors, **Office of Naval Research**, funded 2003-2006, \$301,823 total direct costs. PI: Todd Braver, Role: Co-Investigator

TEACHING

- **2024-2025: Indiana University** -- Brain and cognition (Q301), Decision-making and the brain (P453) 2x
- **2023-2024: Indiana University** – sabbatical
- **2022-2023: Indiana University** – Brain and cognition (Q301), Decision-making and the brain (P453)
- **2021-2022: Indiana University** – Brain and cognition (Q301), Neural networks and the brain (Q355/Q590)
- **2020-2021: Indiana University** – Brain and cognition (Q301), Decision-making and the brain (P453)
- **2019-2020: Indiana University** – Brain and cognition (Q301), Neural networks and the brain (Q355), Decision-making and the brain (P453)
- **2018-2019: Indiana University** – Neural networks and the brain (Q355)
- **2017-2018: Indiana University** – Brain and cognition (Q301), Decision-making and the brain (P453)
- **2016-2017: Indiana University** – Brain and cognition (Q301), Decision-making and the brain (P453)
- **2015-2016: Indiana University** – Computational Neural Modeling Methods (P657), Brain and cognition (Q301), Decision-making and the brain (P453)
- **2014-2015: Indiana University** – Brain and cognition (Q301)
- **2013-2014: Indiana University** – Brain and cognition (Q301), Decision-making and the brain (P453)
- **2012-2013: Indiana University** – Computational Cognitive Neuroscience Methods (P657)
- **2011-2012: Indiana University** – Brain and cognition (Q301), Decision-making and the brain (P453)
- **2010-2011: Indiana University** – Brain and cognition (Q301), Decision-making and the brain (P453)
- **2009-2010: Indiana University** – Brain and cognition (Q301), Decision-making and the brain (P453)
- **2008-2009: Indiana University** – Brain and cognition (Q301), Decision-making and the brain (P357)
- **2007-2008: Indiana University** – Brain and cognition (Q301), Decision-making and the brain (P357)
- **2006-2007: Indiana University** – Graduate seminar in cognitive control (P657); Brain and cognition (Q301), Brain and decision-making (P402)
- **2004, 2005: Guest Lecturer, Washington University in St. Louis** – Advanced cognitive, computational, and systems neuroscience (CCSN) graduate course.
- **2002: Adjunct Professor of Psychology, Washington University in St. Louis** – Undergraduate Biological Psychology (Psych 3401).

TRAINEES

- **Research Scientist:** Tim Bogg (2008-2011), Leslie Hulvershorn (2010-2014), Justin Fine (2019-2021)
- **Postdoctoral:** Adam Krawitz (2007-2010) Will Alexander (2007-2013), Derek Nee (2008-2012), Anand Ramamoorthy (2013-2014)
- **Graduate student advisees:** Rena Fukunaga (2007-2013, committee chair), Rima Hanania (2007-2008), George Chadderdon (2007-2009), Ryan Jessup (2007-2011), Woo-Young Ahn (2007-2012), Olga Rass (2008-2012), Molly Erickson (2008-2012), Arian Ashourvan (2007-2012), Sarah Forster (2008-2015, committee co-chair), Indrani Sarkar (2010), Andy Jahn (2010-2015, committee chair), Noah Zarr (2012-2018, committee chair), Steve Green (2011-2014), Rui Cao (2013-2018), Adrian Barr (2014-2018, committee chair), John Purcell (2016-2022, committee member), Nancy Lundin (2016-2022, committee member), Huzi Cheng (2018-2024, committee chair), Priyamvada Modak (2019-present, committee chair), Rahwa Netsanet (2023-present, committee chair), Eileen Faulk (2024-present), Mariah Evans (2024-present)

- **Undergraduate independent study advisees:** Sharday Summers (P493, Fall 2007), Kierstin Johnson (P493, Fall 2008), Ian Kaelble (IU STARS, Fall 2008-2012), Julie Ghekas (Summer 2009), Isaiah Innis (Summer, Fall 2011), Prathik Kini (IU STARS, Fall 2011-Spring 2015), Christian Hutslar (Cox Scholar, Fall 2014-present), Robert Gevers (2019-2020), Brayden Colón (2021-2023)

AWARDS AND HONORS

- Fellow, Association for Psychological Science (2015)
- Indiana University Outstanding Junior Faculty Award (2011)
- NARSAD Sidney R. Baer, Jr. Foundation Young Investigator (2005, 2006)
- Boston University Presidential University Graduate Fellow (1996-2000)
- NSF Graduate Fellowship Honorable Mention (1996,1997)
- Phi Beta Kappa (1996)

PROFESSIONAL SERVICE

- **Editorial board:** Cognitive, Affective, & Behavioral Neuroscience (2015-), Cognitive Science (2015-), Topics in Cognitive Science (2021-)
- **Ad-hoc journal reviews:** *Science*, *Psychological Review*; *Proc. Natl. Acad. Sci.*, *Neuron*; *Journal of Neuroscience*; *Cerebral Cortex*; *Neuroimage*, *Journal of Cognitive Neuroscience*; *Neural Networks*; *Psychonomic Bulletin & Review*; *Vision Research*; *Biol. Psychiatry*; *Neuroscience Letters*, *Phil. Trans. Royal Soc. B*; *European Journal of Neuroscience*; *IEEE Science, Measurement, and Technology*; *Biosystems*; *Psychology*; *Trends Cog. Sci, Cogn. Aff., Behav. Neurosci.*
- **Grant reviews:** NSF BCS (panel, Spring 2006); AFOSR Decision-making (ad-hoc, Fall 2006); Indiana CTSI (Spring 2010; Spring 2011; Fall 2014), NIH (Spring 2012; Fall 2018)
- **Committees:** Director of Undergraduate Studies, IU Cognitive Science Program (2013-present); Interim Associate Director, IU Imaging Research Facility (Fall 2012), IU Imaging Research Facility committee (Fall 2006-present), IU Cognitive Science undergraduate curriculum committee (Fall 2007-Fall 2012), IU Graduate admissions committee, IU Cognitive Neuroscience area spokesperson (2011-2012; 2014)
- **Leadership:** Director, IU Graduate Program in Neuroscience (2020-2023)

PROFESSIONAL MEMBERSHIPS

- Association for Psychological Science
- Cognitive Neuroscience Society
- Society For Neuroscience
- Cognitive Science Society

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