

MARK BEEMAN

Department of Psychology
Northwestern University
2029 Sheridan Rd.
Evanston IL 60208-2710

phone: 847-491-4617
mjungbee@northwestern.edu

Major Professional Interests

Cognitive neuroscience of insight and creative cognition; neural bases of semantic processing and natural language comprehension; brain and cognitive asymmetries

Education

1981-1985: B.A., Psychology, Brandeis University
1985-1990: M.A., Ph.D. in Experimental Psychology, University of Oregon

Employment

1990 – 1992: Postdoctoral Fellow, Cognitive Neuroscience Section, NIH/ National Institute for Neurological Disorders and Stroke, Bethesda MD
1992 – 2000: Assistant Professor, Department of Neurological Sciences, Rush Medical College, Chicago IL (half-time in 1995-1996)
2000 – 2002: Research Associate, Center for Cognitive Neuroscience, University of Pennsylvania, Philadelphia (half-time 2000-2001)
2002 – 2013: Associate Professor of Psychology & Interdepartmental Program in Neurosciences,, Northwestern University
2012 – current: Research Faculty Council, Segal Design Council, Northwestern University
2013 – current: Professor of Psychology & Interdepartmental Program in Neurosciences, Northwestern University

Post-doctoral Awards

Intramural Research Training Award, National Institutes of Health, 1990-1992
McDonnell-Pew Fellowship to the Summer Institute in Cognitive Neuroscience, 1991
Travel grant and stipend for the International School of Neuroscience at Padova, Italy, 1991
FIRST Award, NIH/ National Institute for Deafness and other Communication Disorders, 1993
McDonnell-Pew Fellowship to the Summer Institute in Cognitive Neuroscience, 1993
Shannon Award, NIH/ National Institute for Deafness and Communication Disorders, 1999
Fellow, Association for Psychological Science, 2009
New Voices in Creativity and Intelligence, 2009
Torrance Lecture, Torrance Center for Creativity and Talent Development, 2011
Kavli Fellow, National Academy of Sciences, 2011

Pre-doctoral Awards

Academic All-American, 1983, 1984, 1985
Magna Cum Laude, Highest Honors in Psychology, Brandeis University, 1985
Gertrude and Ida Stein Award for Outstanding Student-Athlete, 1985
NCAA Post-Graduate Scholarship, 1985
University of Oregon Biomedical Research Award, 1990

Research Support (Total costs = direct + indirect; **Bold = PI**)**1993-1998 NIH/National Institute of Deafness and Communication Disorders***Right hemisphere coarse semantic coding***Principal Investigator**

Total costs = \$545,000

1999-2001 NIH/National Institute of Deafness and Communication Disorders*Neuroimaging investigations of language processing***Principal Investigator**

Total costs = \$100,000

2001-2006 NIH/National Institute of Deafness and Communication Disorders*An fMRI investigation of language in both hemispheres***Principal Investigator**, R01 DC04052*Total costs = \$1,583,000***2002-2004 NIH/National Institute of Deafness and Communication Disorders***Supplement to An fMRI investigation of language in both hemispheres***Principal Investigator**, Supplement for minority postdoc*Total costs approx \$180,000***2004-2007 Binational Science Foundation (U.S.- Israel)***Processing conventional vs. novel metaphors by the two cerebral hemispheres: An fMRI study***Co-PI** (with Miriam Faust, Bar-Ilan University, Israel)

Total costs = approx \$100,000

2010-2011 DARPA*Rapid Team Cognitive Readiness Assessment based on Dynamic Bayesian Networks and Neurocognitive Measures*

Consultant (PI: Intelligent Automation, a private research group)

Total costs = approx \$100,000

2011-2013 John Templeton Foundation*Brain bases of insight and cognitive control in highly creative versus analytic individuals across domains***Principal Investigator**, Grant # 24467

Total costs = \$375,000

2011-2014 National Science Foundation*Insight and resting state brain activity*

Collaborator (PI: John Kounios, Drexel University), Grant # 1144976

Total costs = \$288,000

Current:**2013-2017 Office of Naval Research***Enhancing intuitive decision-making through implicit learning***Co-Principal Investigator** of NU component (with Paul Reber & Ken Paller, NU Psychology)

Total costs = approximately \$1,216,303 (NU component)

Pending:**2015-2018 National Science Foundation**

The causal relation between insight and internal versus external attention: Integrative eye-tracking fMRI and EEG investigations

Principal Investigator (co-PI at University of Wisconsin@Parkside: Ed Bowden)

Total costs approximately \$700,000

(Not funded; in revision)

2013-2017 National Institutes of Health

Targeted problem reactivation and incubation during slow-wave sleep

Principal Investigator

Total costs = approximately \$153,000

(Tentative start date 12/1/2015)

Books

1. Beeman, M., & Chiarello, C. (Eds.). (1998). *Right hemisphere language comprehension: Perspectives from cognitive neuroscience*. Mahwah, NJ: Lawrence Erlbaum Associates. (With editors' commentaries after each of three sections).
2. Kounios, J. & Beeman, M. (April 2015). *The Eureka Factor: Aha moments, creative insight, and the brain*. New York: Random House Publishing.

Papers and chapters

3. **Beeman, M.** & Gernsbacher, M.A. (1988a). Real-time language comprehension research using the Apple-Psych system. *Behavior Research Methods, Instruments, & Computers*, **20**, 164-170.
4. **Beeman, M.** & Gernsbacher, M.A. (1988b). An on-line study of pronominal resolution. In S. Delancey & R.S. Tomlin (Eds.), *Proceedings of the Pacific Linguistics Conference*, **3**, 13-41.
5. Gernsbacher, M.A., Hargreaves, D.J., & **Beeman, M.** (1989). Building and accessing clausal representations: The advantage of first mention versus the advantage of clause recency. *Journal of Memory and Language*, **28**, 735-755.
6. **Beeman, M.** (1993). Semantic processing in the right hemisphere may contribute to drawing inferences from discourse. *Brain and Language*, **44**, 80-120. PMID: 8467379
7. Friedman, R.B., **Beeman, M.**, Lott, S.N., Link, K., Grafman, J., & Robinson, S. (1993). Modality specific phonological alexia. *Cognitive Neuropsychology*, **10**, 549-568.
8. **Beeman, M.**, Friedman, R.B., Grafman, J., Perez, E., Diamond, S., & Lindsay, M.B. (1994). Summation priming and coarse semantic coding in the right hemisphere. *Journal of Cognitive Neuroscience*, **6**, 26-45.
9. **Beeman, M.**, Ortony, A.O., & Monti, L.A. (1995). Emotion-cognition interactions. In M. Arbib (Ed.), *The Handbook of Brain Theory and Neural Networks*, pp. 360-363. Cambridge: MIT Press.
10. Smith, S., Faust, M.E, **Beeman, M.**, & Kennedy, L., & Perry, D. (1995). A property level analysis of lexical semantic representation in Alzheimer's disease. *Brain and Language*, **49**, 263-279.
11. Chiarello, C., & **Beeman, M.** (1997). Toward a veridical interpretation of right hemisphere processing and storage. *Psychological Science*, **8**, 343-344.

12. **Beeman, M.** (1998). Coarse semantic coding and discourse comprehension. In M. Beeman & C. Chiarello, (Eds.), *Right hemisphere language comprehension: Perspectives from cognitive neuroscience*, pp. 255-284. Mahwah, NJ: Lawrence Erlbaum Associates.
13. **Beeman, M.J.** & Chiarello, C. (1998). Complementary right and left hemisphere language comprehension. *Current Directions in Psychological Science*, *7*, 2-8.
14. **Beeman, M.** & Chiarello, C. (1998). Concluding remarks: Getting the whole story right. In M. Beeman & C. Chiarello, (Eds.), *Right hemisphere language comprehension: Perspectives from cognitive neuroscience*, pp. 377-389. Mahwah, NJ: Lawrence Erlbaum Associates.
15. Bowden, E.M., & **Beeman, M.J.** (1998). Getting the right idea: Semantic activation in the right hemisphere may help solve insight problems. *Psychological Science*, *9*, 435-440.
16. **Beeman, M.J.**, Bowden, E.M., & Gernsbacher, M.A. (2000). Right and left hemisphere cooperation for drawing predictive and coherence inferences during normal story comprehension. *Brain and Language*, *71*, 310-336.
17. **Beeman, M.J.** & Bowden, E.M. (2000). The right hemisphere maintains solution-related activation for yet-to-be solved insight problems. *Memory & Cognition*, *28*, 1231-1241.
18. Bowden, E.M. & **Jung-Beeman, M.** (2003a). Aha! Insight experience correlates with solution activation in the right hemisphere. *Psychonomic Bulletin & Review*, *10*, 730-737. PMID: 14620371
19. Bowden, E.M., & **Jung-Beeman, M.** (2003b). One hundred forty-four Compound Remote Associate Problems: Short insight-like problems with one-word solutions. *Behavioral Research, Methods, Instruments, and Computers*, *35*, 634-639.
20. **Jung-Beeman, M.**, Bowden, E.M., Haberman, J., Frymiare, J.L., Arambel-Liu, S., Greenblatt, R., Reber, P.J., & Kounios, J. (2004). Neural activity observed in people solving verbal problems with insight. *Public Library of Science – Biology*, *2*, 500-510. PMID: 15094802
21. Bowden, E.M., **Jung-Beeman, M.**, Fleck, J., & Kounios, J. (2005). New approaches to demystifying insight. *Trends in Cognitive Sciences*, *9*, 322-328. PMID: 15953756
22. **Jung-Beeman, M.** (2005). Bilateral brain processes for comprehending natural language. *Trends in Cognitive Sciences*, *9*, 512-518.
23. Virtue, S., Haberman, J., Clancy, Z., Parrish, T., & **Jung-Beeman, M.** (2006). Neural activity of inferences during story comprehension. *Brain Research*, *1084*, 104-114.
24. Kounios, J., Frymiare, J.L., Bowden, E.M., Fleck, J.I., Subramaniam, K., Parrish, T.B., & **Jung-Beeman, M.** (2006). The prepared mind: Neural activity prior to problem presentation predicts solution by sudden insight. *Psychological Science*, *17*, 882-890.
25. Mashal, N., Faust, M., Hendler, T & **Jung-Beeman, M.** (2007). An fMRI investigation of the neural correlates underlying the processing of novel metaphoric expressions. *Brain and Language*, *100*, 115-126.
26. Bowden, E.M. & **Jung-Beeman, M.** (2007). Methods for investigating the neural components of insight. *Methods*, *42*, 87-99.
27. Fleck, J., Green, D.L., Stevenson, J.L., Payne, L., Bowden, E.M., **Jung-Beeman, M.**, & Kounios, J. (2008). The transliminal brain at rest: Baseline EEG, unusual experiences, and access to unconscious mental activity. *Cortex*, *44*, 1353-1363.
28. **Jung-Beeman, M.**, Collier, A., & Kounios, J. (2008). How insight happens: learning from the brain. *NeuroLeadership Journal*, *1*, 20-25.

29. Kounios, J., Fleck, J., Green, D.L., Payne, L., Stevenson, J.L., Bowden, E.M., & **Jung-Beeman, M.** (2008). The origins of insight in resting-state brain activity. *Neuropsychologia*, **46**, 281-291.
30. Mashal, N., Faust, M., Hendler, T & **Jung-Beeman, M.** (2008). Hemispheric differences in processing the literal interpretation of idioms: Converging evidence from behavioral and fMRI studies. *Cortex*, **44**, 848-860.
31. Virtue, S., Parrish, T., & **Jung-Beeman, M.** (2008). Inferences during story comprehension: Cortical recruitment affected by predictability of events and working-memory capacity. *Journal of Cognitive Neuroscience*, **20**, 2274-2284.
32. Kounios, J. & **Beeman, M.** (2009). The Aha! moment: The cognitive neuroscience of insight. *Current Directions in Psychological Science*, **18**, 210-216.
33. Mashal, N., Faust, M., Hendler, T & **Jung-Beeman, M.** (2009). An fMRI study of processing novel metaphoric sentences. *Laterality*, **14**, 30-54.
34. Subramaniam, K., Kounios, J., Parrish, T.B., & **Jung-Beeman, M.** (2009). A brain mechanism for facilitation of insight by positive affect. *Journal of Cognitive Neuroscience*, **21**, 415-432.
35. Kounios, J. & **Beeman, M.** (2010). The cognitive neuroscience of insight and its antecedents. In S. Kornguth, R. Steinberg, & M.D. Matthews (Eds.) *Neurocognitive and Physiological Factors During High-Tempo Operations*. Ashgate Press.
36. **Beeman, M.** (2010). Right hemisphere language processing. In P.C. Hogan (Ed.), *Cambridge Encyclopedia of the Language Sciences*, 719-721. New York: Cambridge University Press.
37. **Beeman, M.**, Bowden, E.M., Haberman, J., Frymiare, J.L., Arambel-Liu, S., Greenblatt, R., Reber, P.J., & Kounios, J. (2011). Neural activity observed in people solving verbal problems with insight. Reprinted in: T. Roberts, M. Moser, D. LePan, J. Gaunce & L. Buzzard (Eds.), *Broadview Anthology of Expository Prose*. Peterborough, ON, Canada: Broadview Press.
38. Hu, M., Kounios, J., **Beeman, M.**, & Liang, H. (October 2011). Functional network analysis of insight in resting-state brain activity. *Proceedings of 4th International Workshop on Advanced Computational Intelligence, Wuhan China*, pp. 421-425.
39. Collier, A., & **Beeman, M.** (2012). Intuitive tip of the tongue judgments predict subsequent problem solving one day later. *Journal of Problem Solving*, **4(2)**, Article 8.
40. Ellamil, M., Dobson, C., **Beeman, M.**, & Christoff, K. (2012). Evaluative and generative modes of thought during the creative process. *NeuroImage*, **59**, 1783-1794.
41. Mirous, H.J., & **Beeman, M.** (2012). Bilateral processing and affect in creative language comprehension. In M. Faust (Ed.), *The Handbook of the Neuropsychology of Language*, pp. 319-341. Oxford: Blackwell Publishing.
42. Powers, C., Bencic, R., Horton, W.S., & **Beeman, M.** (2012). Hemispheric inference priming during comprehension of conversations and narratives. *Neuropsychologia*, **50**: 2577-2583.
43. Subramaniam, K., Faust, M., **Beeman, M.**, & Mashal, N. (2012). The repetition paradigm: Enhancement of novel metaphors and suppression of conventional metaphors in the left inferior parietal lobe. *Neuropsychologia*, **50**, 2705-2719.
44. van Steenburgh, J.J., Fleck, J., **Beeman, M.**, & Kounios, J. (2012). Insight. Chapter 24 in K. Holyoak and R. Morrison (Eds.), *The Oxford Handbook of Thinking and Reasoning*, pp 475-491. Oxford: Oxford University Press.
45. Wegbreit, E., Suzuki, S., Grabowecky, M., Kounios, J. & **Beeman, M.** (2012). Visual attention modulates insight versus analytic solving of verbal problems. *Journal of Problem Solving*, **4(2)**, Article 5.

46. Zabelina, D.L., & **Beeman**, M. (2013). Short term attentional perseveration associated with real-world creative achievement. *Frontiers in Psychology*, 4:191. doi: 10.3389/fpsyg.2013.00191
47. Fleck, J.I., **Beeman**, M., & Kounios J. (2013). Insight. In D. Reisberg (Ed.), *The Oxford Handbook of Cognitive Psychology*. Oxford: Oxford University Press.
48. Zabelina, D.L., Guzman-Martinez, E., Ortega, L., Grabowecky, M., Suzuki, S., & **Beeman**, M. (2013). Suppressed semantic information accelerates analytic problem solving. *Psychonomic Bulletin & Review*, 20, 581-585.
49. Subramaniam, K., **Beeman**, M., Faust, M., & Mashal, N. (2013). Positively-valenced stimuli facilitate creative novel metaphoric processes by enhancing medial prefrontal cortical (mPFC) activation. *Frontiers in Psychology*, 4: 211. doi: 10.3389/fpsyg.2013.00211
50. Reber, P.J., **Beeman**, M., & Paller, K. (2013). Human memory systems: A framework for understanding the neurocognitive foundations of intuition. D. Schmorrow & C.M. Fidopiastis (Eds.), *Foundations of Augmented Cognition - 7th International Augmented Cognition Conference, Held as Part of HCI International*, pp. 474-483. Springer.
51. Kounios, J. & **Beeman**, M. (2014). The cognitive neuroscience of insight. *Annual Review of Psychology*, 65, 71-93. PMID: 24405359
52. Wegbreit, E., Franconeri, S., & **Beeman**, M. (2014). Anxious mood narrows attention in feature space. *Cognition & Emotion*. June, pp. 1-10 (Epub ahead of print)
53. Zabelina, D.L., Condon, D., & Beeman, M. (2014). Do dimensional psychopathology measures relate to creative achievement or divergent thinking? *Frontiers in Psychology: Psychopathology*. doi: 10.3389/fpsyg.2014.01029
54. Zabelina, D.L., O'Leary, D., Pornpattananangkul, N., Nusslock, R., & Beeman, M. (2015). Creativity and sensory gating indexed by the P50: Selective versus leaky attention in divergent thinkers and creative achievers. *Neuropsychologia*, 69, 77-84.
55. Salvi, C., Bricolo, E., Franconeri, S., Kounios, J., Beeman, M. (In press). Sudden insight is associated with shutting out visual inputs. *Psychonomic Bulletin & Review*.

Manuscripts Submitted, Under Review

56. Salvi, C., Constantini, G., Bricolo, E., Perugini, M., Beeman, M. (Revision submitted). Rebus puzzles and compound remote associate problems: and Italian version.
57. Salvi, C., Bricolo, E., Kounios, J., Bowden, E., Beeman, M. Aha is right: Insight solutions are more likely to be correct than are analytic solutions. (In revision)
58. Mirous, H. & Beeman, M. (In revision). Mood modulation of inference priming during story comprehension.
59. Zabelina, D.L., Saporta, A., & Beeman, M. (In revision). Broad or flexible attention in creative individuals? Distinct patterns of attention for different types of creative thinking.
60. Zabelina, D.L., Colzato, L., Beeman, M., & Hommel, B. (Submitted). Dopamine and the creative mind: Individual differences in everyday creative performance are predicted by interactions between dopamine genes DAT and COMT.

Manuscripts in preparation

61. van Steenburgh, J.J., Kounios, J., Beeman, M., Beauvais, J., Messing, S., Hamilton, R.H. Anterior temporal lobe transcranial direct current stimulation influences cognitive problem-solving strategies.
62. Erickson, B., Anderson, J., Kossoyan, M., Hill-Truelove, M., Beeman, M., & Kounios, J. Does thinking about the future enhance creative insight?

63. **Beeman**, M., Wegbreit, E., Kounios, J., & Bowden, E. (in prep). Insight in visual recognition and verbal problems: Preparation, onset and solution.
64. Beeman, M., Grunewald, K., Zabelina, D., Bowden, E., & Kounios, J. (in prep). The cognitive and neural components of sudden insight. *The Psychology of Learning and Motivation*, vol. 64.

Selected Conference Presentations

1. **Beeman**, M. (May 1991). *Coherence inferencing and structure building in the cerebral hemispheres*. Poster presented at the 2nd annual meeting for Theoretical and Experimental Neuropsychology (TENNET); Montreal, Canada.
2. **Beeman**, M. (November, 1992). *Summation priming and coarse coding in the right hemisphere*. Poster presented at the 33rd annual meeting of the Psychonomic Society; St. Louis.
3. **Beeman**, M., Friedman, R.B., Kwabenah, B., & Grafman, J. (November, 1993). *Making normals dyslexic: A part of speech effect when reading briefly presented words*. Poster presented at the 34th annual meeting of the Psychonomic Society; Washington, DC.
4. **Beeman**, M., Friedman, R.B., & Grafman, J. (March, 1994). *Part of speech effects when reading words briefly presented to each cerebral hemisphere*. Poster presented at the 1st annual meeting of the Cognitive Neuroscience Society; San Francisco.
5. Bowden, E.M., **Beeman**, M., & Gernsbacher, M.A. (March, 1995). *Two hemispheres are better than one: Drawing coherence inferences during comprehension*. Poster presented at the 2nd annual meeting of the Cognitive Neuroscience Society; San Francisco.
6. **Beeman**, M., & Shivde, G. (November, 1995). *Hemispheric differences in categorizing versus naming words*. Poster presented at the 36th annual meeting of the Psychonomic Society; Los Angeles CA.
7. **Beeman**, M., Bowden, E.M., Hassenfeld, K., & Shivde, G. (November, 1996). *Right hemisphere advantage for some summation primes, not others*. Poster presented at the 37th annual meeting of the Psychonomic Society; Chicago IL.
8. **Beeman**, M., Bowden, E.M., Stebbins, G.T., Desmond, J.E., Glover, G.H., & Turner, D.A. (March 1997). *Functional magnetic resonance imaging investigation of right hemisphere activity during a language task*. Poster presented at the 4th annual meeting of the Cognitive Neuroscience Society; Boston, MA.
9. **Beeman**, M., Bowden, E.M. (1997). *The right hemisphere maintains activation of solutions to insight problems*. Poster presented at 38th annual meeting of the Psychonomic Society; Philadelphia.
10. **Beeman**, M.J. (May 1998). *Right hemisphere language comprehension: Evidence from lateralized presentation and neuroimaging*. Invited paper, 70th annual meeting of the Midwest Psychological Society; Chicago IL.
11. **Beeman**, M.J., & Bowden, E.M. (November, 1998). *Hemispheric cooperation in drawing inferences and solving insight problems*. Paper presented at the 39th annual meeting of the Psychonomic Society; Dallas.
12. **Beeman**, M.J., Stebbins, G.T., Carrillo, M.C., Karni, O., Glover, G.H., & Desmond, J. (November, 2000). *fMRI reveals right hemisphere semantic activation during verbal problem solving*. Paper presented at the 41st Annual meeting of the Psychonomic Society, New Orleans.
13. **Beeman**, M.J., Stebbins, G.T., Bowden, E.M., Carrillo, M.C., Karni, O., Glover, G.H., & Desmond, J. (Nov., 2000). *Right hemisphere activity during verbal tasks: fMRI evidence for coarse semantic coding*. Paper presented at Society for Neuroscience, New Orleans.
14. **Beeman**, M.J., Bowden, E., & Haberman, J. (April, 2002). *The Aha! experience and semantic activation in the cerebral hemispheres*. Poster presented at 9th Annual Meeting of the Cognitive Neuroscience Society, San Francisco.

15. **Beeman, M.J.** (June, 2002). How the brain makes inferences. Invited paper presented at joint meeting of the Society for Scientific Study of Reading and the Society for Text and Discourse, Chicago.
16. **Beeman, M.J., Haberman, J. & Bowden, E.M.** (November, 2002). fMRI Signal at the Moment of Insight, During Insight-Like Verbal Problems. Paper presented at the 43rd Annual Meeting of the Psychonomic Society, Kansas City.
17. Kounios, J., **Beeman, M.J.**, Liu, S., Frymiare, J., Angelakis, E., Stathopoulou, T. (March, 2003). The Spark of Insight: Electrophysiological Correlates of the Aha! Experience in Problem Solving. Poster presented at the 10th Annual Meeting of the Cognitive Neuroscience Society, New York.
18. **Jung-Beeman, M.** (June, 2003). Neural correlates of semantic integration, drawing inferences, and verbal problem solving. Invited paper presented at International Conference on Higher-Level Language Processes in the Brain, Hanse Institute for Advanced Study, Delmenhorst, Germany.
19. **Jung-Beeman, M.**, Liu, S.A., Bowden, E.M., Haberman, J., & Kounios, J. (October, 2003). FMRI indices of brain activity when people comprehend sentences, draw inferences from stories, and solve insight-like verbal problems. Invited paper presented at the Annual meeting of the Society for Psychophysiological Research, Chicago IL.
20. **Jung-Beeman, M.** (November, 2003). FMRI signal when people generate causal inferences during stories. Paper presented at 44th Annual Meeting of the Psychonomic Society, Vancouver, Canada.
21. Frymiare, J., **Jung-Beeman, M.**, Bowden, E., Liu., S., & Kounios, J. (April 2004). Brain oscillations prior to problem presentation predict solution by sudden insight. Poster presented at the 11th Annual Meeting of the Cognitive Neuroscience Society, San Francisco.
22. Virtue, S., **Jung-Beeman, M.**, Haberman, J., Clancy, Z. (May 2004). Event-related fMRI during story comprehension reveals integration and selection of causal inferences. Presented at 16th Annual Convention of the American Psychological Society, Chicago.
23. **Jung-Beeman, M.** (August 2004). Imaging higher-order language comprehension and insight problem solving: What and how from where? Paper presented at 26th Annual Meeting of the Cognitive Science Society, Chicago.
24. Pilgrim, L., & **Jung-Beeman, M.** (November, 2004). Qualitatively different semantic processing in left and right hemispheres: The role of conceptual structure. Poster presented at 45th Annual Meeting of the Psychonomic Society, Minneapolis.
25. Virtue, S., Haberman, J., Clancy, Z., Swan, T., Parrish, T., & **Jung-Beeman, M.** (Nov., 2004). FMRI signal reveals semantic integration during story comprehension: The role of time course and causal constraint. Poster presented at the 45th Annual Meeting of the Psychonomic Society, Minneapolis.
26. Subramaniam, K., Haberman, J., Clancy, Z., Patterson, D., Parrish, T., & **Jung-Beeman, M.** (April 2005). Mood effects on creative insight problem solving. Poster presented at the 12th Annual Meeting of the Cognitive Neuroscience Society, New York.
27. Pilgrim, L., & **Jung-Beeman, M.** (April 2005). Semantic matching across the hemispheres: The effect of conceptual structure. Poster presented at the 12th Annual Meeting of the Cognitive Neuroscience Society, New York.
28. **Jung-Beeman, M.** (March 2006). Neural substrates and cognitive mechanisms of the “Aha!” moment. Invited paper, New Ideas about New Ideas, National Board of Economic Research, Cambridge MA.
29. **Jung-Beeman, M.**, Bowden, E., Green, D. & Kounios, J. (April 2006). The neural bases of visual Aha! in object recognition. Poster presented at the 13th Annual Meeting of the Cognitive Neuroscience Society, San Francisco.
30. Subramaniam, K., & **Jung-Beeman, M.** (May 2006). Positive mood and anxiety modulate anterior cingulate activity and preparation for insight. Poster presented at the Annual Convention of the Association for Psychological Science, New York.
31. **Jung-Beeman, M.** (March 2007). Bilateral processes and affective modulation involved in drawing

- inferences during natural story comprehension. Paper presented at Brain Mechanisms and Cognitive Processes in the Comprehension of Discourse. Leiden, The Netherlands.
32. **Jung-Beeman, M.** (April 2007). Neural basis of insight. Talk presented at Workshop on Creativity, Defense Agencies Research Projects Administration, Alexandria VA.
 33. Subramaniam, K., & **Jung-Beeman, M.** (May 2007). Positive and anxiety induced states modulate problem solving strategies. Poster presented at the 14th annual meeting of the Cognitive Neuroscience Society, New York.
 34. **Jung-Beeman, M.** (May 2007). Neural basis of insight. Talk presented at the 1st Annual Neuroleadership Summit, Asolo Italy.
 35. Wegbreit, E., Suzuki, S., Grabowecky, M., & **Jung-Beeman, M.** (2008). The effects of attentional states on verbal problems solving processes. Poster presented at the Annual meeting of the Cognitive Neuroscience Society, San Francisco.
 36. Mashal, N., Faust, M., & **Jung-Beeman, M.** (2008). The role of the temporal lobes in the comprehension of metaphoric and non-metaphoric texts. Poster presented at the Annual meeting of the Cognitive Neuroscience Society, San Francisco.
 37. Mirous, H. & **Jung-Beeman, M.** (2008). Individual differences in inference generation. Poster presented at the Annual meeting of the Cognitive Neuroscience Society, San Francisco.
 38. **Jung-Beeman** & Kounios (May 2008). Symposium Co-chairs: Neural Basis of Creative Thought. Annual Convention of the Association for Psychological Science, Chicago IL.
 39. **Jung-Beeman, M.** (May 2008). Neural basis of insight. Talk presented at the Annual Convention of the Association for Psychological Science, Chicago IL.
 40. Mirous, H. & **Jung-Beeman, M.** (June 2008). Mood Effects on Drawing Inferences During Story Comprehension. Poster presented at Institute of Education Sciences, Washington, D.C.
 41. **Jung-Beeman, M.** (September 2008). "Neural mechanisms of insight and its facilitation by positive mood. Paper presented at "Insights into Insights" workshop, Salk Institute , La Jolla CA.
 42. **Jung-Beeman, M.** (October 2008). Anatomy of Aha! Paper presented at 2008 Summit for the Neuroleadership Organization, New York NY.
 43. Mirous, H. & **Jung-Beeman, M.** (March, 2009). Mood modulation of inference priming during story comprehension. Poster presented at Annual Meeting of Cognitive Neuroscience Society, San Fran.
 44. Collier, A. & **Jung-Beeman, M.** (March, 2009). Intuition and insight problem solving. Poster presented at the Annual meeting of the Cognitive Neuroscience Society, San Francisco.
 45. Subramaniam, K., Haberman, J., Clancy, Z., Bowden, E.M., Parrish, T., Collier, A., & **Beeman, M.** (May 2009). The neural basis for the facilitation of insight problem-solving by a positive mood. Poster presented at 21st annual meeting of Association for Psychological Science, San Francisco.
 46. Collier, A. & **Beeman, M.** (May 2009). Intuition and insight problem solving. Poster presented at the 21st annual meeting of the Association for Psychological Science, San Francisco.
 47. Wegbreit, E., Franconeri, S., & **Beeman, M.** (May, 2009). Mood modulation of attention. Poster presented at the Annual meeting of the Vision Sciences Society, Florida.
 48. Mirous, H. & **Beeman, M.** (June 2009). Mood modulation of inference priming during story comprehension, II: Positive mood enhances inference priming. Poster presented at Interdisciplinary Education Society annual meeting, Washington DC.
 49. Powers, C. & **Beeman, M.** (October 2009). Comprehending conversaton language: Inference priming in the two hemispheres. Poster presented at Society for Neuroscience, Chicago
 50. Collier, A. & **Beeman, M.** (October 2009). Aha! Memory: Solving with Insight Promotes Solution Memory. Poster presented at Society for Neuroscience, Chicago.
 51. Ellamil, M., Dobson, C., **Beeman, M.**, & Christoff, K. (April, 2010). Spontaneous and deliberate

- modes of thought during the creative process. Paper presented at the 17th annual meeting of the Cognitive Neuroscience Society, Montreal.
52. Subramaniam, K., Collier, A., Powers, C., & **Beeman, M.** (June 2010). Neural Basis for the Facilitation of Insight Problem-Solving by a Positive Mood. Poster presented at the annual meeting of the Organization for Human Brain Mapping, Barcelona, Spain.
 53. Powers, C. & **Beeman, M.** (November 2010). Hemispheric inference priming during conversation comprehension. Poster presented at the annual meeting of the Society for Neuroscience, San Diego.
 54. Powers, C. & **Beeman, M.** (November 2010). Hemispheric inference priming during conversation comprehension. Neurobiology of Language, San Diego.
 55. Mirous, H.J. & **Beeman, M.** (April, 2010). Positive and anxious mood modulates inference priming during story comprehension. Poster presented at the 17th annual meeting of the Cognitive Neuroscience Society, Montreal.
 56. Wegbreit, E., Franconeri, S., & **Beeman, M.** (April, 2010). The influence of happy and anxious moods on the scope of selective visual attention. Poster presented at the 17th annual meeting of the Cognitive Neuroscience Society, Montreal.
 57. Collier, A.K., Reber, P.J., & **Beeman, M.** (April 2011). Should my mind rely on my hunch? The subjective experience of accurate and inaccurate intuitions during problem solving. Poster presented at the 18th annual meeting of the Cognitive Neuroscience Society, San Francisco.
 58. **Beeman, M.** (March 2011). Insight in the brain: The cognitive and neural bases of Eureka! moments. 2011 Paul E. Torrance Lecture, Torrance Center for Creativity and Talent Development, University of Georgia.
 59. Powers, C. & **Beeman, M.** (April 2011). Hemispheric inference priming during comprehension of conversation. Poster to be presented at the 18th annual meeting of the Cognitive Neuroscience Society, San Francisco.
 60. **Beeman, M.** (April 2011). The creative brain: Insight preparation and execution. Paper presented at the 4th Indo-American Kavli Frontiers of Science Symposium, sponsored by National Academy of Sciences and Indo-U.S. Science and Technology Forum. Irvine, CA.
 61. Zabelina, D., & **Beeman, M.** (August 2011). Creative cognition and attentional switching. Poster presented at the American Psychological Association (APA), Washington, DC.
 62. Hu, M., Kounios, J., Beeman, M., & Liang, H. (October 2011). Functional network analysis of insight in resting-state brain activity. Paper presented at 4th International Workshop on Advanced Computational Intelligence, Wuhan China.
 63. **Beeman, M.** (October 2011). Insight in the brain: Neuroimaging insight and intuition. Paper presented at annual meeting Diagnostic Error in Medicine, Chicago IL.
 64. Powers C. & **Beeman, M.** (November, 2011). Inferences in Natural Conversation: An ERP study of Explicit versus Implied Language Comprehension. Society for Neuroscience. Washington, DC.
 65. Zabelina, D. L., Guzman-Martinez, E., Ortega, L., Grabowecky, **M., Beeman, M.,** & Suzuki, S. (2012 March). Suppressed semantic information accelerates problem solving. Poster presented at the *Cognitive Neuroscience Society*, Chicago, IL.
 66. Salvi, C., Collier, A.K., Bricolo, E., Kounios, J., & **Beeman, M.** (May 2012). Aha is right: Insight solutions are more likely to be correct than are analytic solution. Association for Psychological Science Convention in Chicago, IL.
 67. Powers, C. & **Beeman, M.** (May 2012). Changes in Problem Solving Rates and Strategies after a Single Attempt at OM or FA Meditation by Non-meditators. *Association for Psychological Science*. Chicago, IL.
 68. Zabelina, D. L., & **Beeman, M.** (2012 May). Creativity and attention: Creative potential, but not creative achievement, is associated with better performance after invalid attention cues. Poster

presented at the *Association for Psychological Science*, Chicago, IL.

69. Zabelina, D. L., Guzman-Martinez, E., Ortega, L., Grabowecky, M., Suzuki, S., & **Beeman, M.** (2012 August). Suppressed semantic information accelerates problem solving. Paper presented at the *American Psychological Association*, Orlando, FL.
70. Zabelina, D. L., & Beeman, M. (2013 April). *Two distinct attention or control effects related to divergent thinking versus creative achievement*. Poster presented at the Cognitive Neuroscience Society, San Francisco, CA.
71. Zabelina, D. L., Beeman, M., & Nusslock, R. (2013 August). *Attenuated sensory gating as a common underlying mechanism between creativity and psychopathology*. Chair of the symposium: "Neuroscience of creativity and intelligence." Paper presented at the American Psychological Association, Honolulu, HI.
72. Zabelina, D., & Beeman, M. (2013 December). Distinct patterns of attention for different types of creative thinking. *Michigan State University*. East Lansing, MI
73. Beeman, M. (2014 March). *Insight and semantic fields*. Paper presented at Dyslexia Beyond Reading: Memory, Cognition, Expertise, and Innovation. San Francisco.
74. Zabelina, D., O'Leary, D., Pornpattananangkul, N., Nusslock, R., & Beeman, M. (2014 April). Creativity and P50 ERP sensory gating: Selective versus leaky attention in divergent thinkers and creative achievers. Poster presented at the 21st Annual Meeting of the Cognitive Neuroscience Society, Boston.
75. Zabelina, D. L., Beeman, M., Nusslock, R. (2014, August). Attention in creative individuals. American Psychological Association conference, Washington, D.C.
76. Dansky, E., Zabelina, D. L., Hechtman, L., & Beeman, M. (2014, September). Three levels of inhibition: Sensation, attention, and self-control. nuViBE: NU Bioscientist Presentation Sessions, Evanston, IL.
77. Beeman, M. (October 2014). Eureka: 'Aha' Moments in the Creative Process. Cold Spring Harbor Interdisciplinary Conference on Creativity, Cold Springs NY, October 2014
78. Grunewald, K., Beeman, M. (2014, November). Mechanisms of intuition. Poster presented at the 55th Annual meeting of the Psychonomics Society, Long Beach, CA
79. Dansky, E., Zabelina, D., Pornpattananangkul, N., Hechtman, L., Nusslock, R & Beeman, M. (May 2015). Three Levels of Inhibition: Sensation, Attention, and Self-Control. Midwest Psychological Association, Chicago

Selected Invited Colloquia And Presentations

Syracuse University, Dept. of Psychology, 1991
 University of Wisconsin-Madison, Dept. of Psychology, 1992
 University of Illinois, Dept. of Psychology, 1993
 Boston University, Dept. of Psychology, 1994
 Oberlin College, Dept. of Psychology, 1994
 University of California-Riverside, Dept. of Psychology, 1996
 University of Wisconsin-Madison, Dept. of Psychology, 1996
 Northwestern University, Dept. of Psychology, 1998
 University of Illinois-Chicago, Dept. of Psychology, 1999
 University of California-Davis, Center for Neuroscience, 2000
 University of Pennsylvania, Center for Cognitive Neuroscience, 2000
 Sackler Institute, Cornell Medical College, 2001
 University of California-Davis, Dept. of Psychology, 2000
 University of Pittsburgh, Psychology & LRDC, Ctr. Neural Basis of Cognition (Pitt-CMU), 2002
 Hanse Institute for Advanced Study, Delmenhorst, Germany, June 2003

Universite de Lyon (France), Cognitive Science Laboratory, 2004
University of Chicago, Brain Research Imaging Center, 2005
National Bureau of Economic Research, March 2006
Bar-Ilan University, Israel, March 2006
University of Illinois-Chicago, April 2006
University of California-San Diego, November 2006
Steppenwolf Theater, Chicago, November, 2008. Imagination and Insight. Presentation for Immersion program at Steppenwolf Theater
Howard University, Department of Psychology, April 2010.
Segal Design Institute, McCormick School of Engineering, Northwestern University, Jan. 2011.
Torrance Lecture at Torrance Center for Creativity, Univ. of Georgia College of Education, March 2011
National Academy of Science/Kavli Foundation; Indo-American Frontiers of Science; Irvine, CA, April 2011
Lake Forest College, Opening Keynote Lecture, Brain Awareness Week, November 2011
Loyola University, Chicago: Keynote Lecture, Brain Awareness Week, March 2012
Illinois Science Council, Brain Science Series, April 2012
Learning and the Brain, San Francisco, Feb 2013
FermiLab, April 2013
Department of Physics, University of Illinois, Urbana-Champaign, September 2013
Segal Design Center, Northwestern University, January 2014
Northwestern University Women's Board, February 2014
Dyslexic Advantage, San Francisco, March 2014
New America Foundation, Washington DC, May 2014
Aspen Ideas Festival, Aspen CO, June 2014
Cold Spring Harbor Interdisciplinary Conference on Creativity, Cold Springs NY, October 2014

Peer Review and Related Activities

NSF grant panels, 2009-2013

Editorial Board: *Frontiers in Psychology: Cognition*

Ad-hoc grant reviewing

National Science Foundation

Bi-National (US-Israel) Science Foundation

NSERC

Board of Editors of *Brain and Language* (1995-2006)

Ad hoc journal reviewing for:

Proceedings of the National Academy of Sciences

Psychological Science

Brain and Cognition

Brain and Language

Brain Research

Cognition

Cognitive, Affective, and Behavioral Neuroscience

Cognition and Emotion

Cognitive Brain Research

Cognitive Science

Cortex

Discourse Processes

Emotion

Human Brain Mapping

Journal of Cognitive Neuroscience

Journal of Experimental Psychology: Human Perception and Performance

Journal of Experimental Psychology: Learning, Memory, and Cognition

Journal of Memory and Language

Memory & Cognition

Nature Neuroscience

Neuroimage

Neuropsychologia

Neuropsychology

Perception and Psychophysics

Psychological Bulletin

Psychonomic Bulletin & Review

Neuropsychiatry, Neuropsychology, and Behavioral Neurology

Textbook reviews:

Houghton Mifflin

WW Norton

Tenure & promotion review:

Colorado State University

Drexel University

Bar-Ilan University, Israel

Mississippi State University

Professional Affiliations and Service:

Fellow, Association for Psychological Science

Psychonomic Society

Cognitive Neuroscience Society

Past: Elected board member, International Society for Women in Cognitive Neuroscience (1995-1998)

Teaching at Northwestern

Topics in Cognitive Neuroscience: Winter 2003, Winter 2007

Research Methods in Psychology: Spring 2003, Winter 2004, Winter 2005, Winter 2006, Fall 2011

Language and the Brain (CogSci 210): Spring 2006, Winter 2007, Winter 2008, Winter 2009, Winter 2010, Winter 2011, Winter 2012, Winter 2013, Winter 2014

Advanced Seminar in Cognition/Neuroscience: Left brain, right brain: Spring 2004, Spring 2005, Spring 2006, Summer 2007, Fall 2007; Spring 2012, Winter 2014

Advanced Seminar in Cognition/Neuroscience: Insight in the brain: Winter 2009, 2010; Spring 2011

Cognitive Science Honors Seminar: Academic years 2003 – 2008

Director of Undergraduate Studies, and primary major advisor, Cognitive Science Program: 2003 – 2008

Graduate Seminars:

The creative brain: Spring 2007

Brain Asymmetries: Spring 2008

Insight in the brain: Spring 2010

Mood, attention, cognition: Spring 2011

Left brain, right brain: Winter 2012, Winter 2014

Graduate Students

Karuna Subramaniam (NUIN), 2003 – 2007 (currently postdoc at Univ. of California-San Francisco)

Ezra Wegbreit (Psychology), September 2005 -2010 (currently postdoc at Harvard/MGH)

Heather Mirous (Psychology), 2005-2012 (currently postdoc Northwestern, SESP)

Azurii Collier (Psychology), 2006-2012 (currently postdoc at U Penn, Psychiatry)

Chivon Powers (Psychology), 2008-2013 (currently postdoc at UC-Davis)

Darya Zabelina (Psychology), 2010-2015

Lisa Hechtmann (Psychology), (switched into lab) 2012-2015

Kristin Grunewald (Psychology), entered September 2013

Tiffani Ng (Psychology), entered September 2014

Kylie Nolla (Psychology), entering September 2015

Awards won by Graduate Students under supervision:

Cognitive Science Advanced Fellowship, 2006-2007, Karuna Subramaniam

Multidisciplinary Program in Educational Sciences Fellowship, 2006-2009, Heather Mirous

NIH Training grant (T32) Fellowship, 2008-2010, Azurii Collier

Cognitive Science 1st year Fellowship, 2008-2009, Chivon Powers

Society for Neuroscience, Neuroscience Scholar, 2008-2011, Azurii Collier

National Science Foundation Fellowship, 2009-2012, Chivon Powers

Cognitive Science Advanced Fellowship, 2009-2010, Ezra Wegbreit

Illinois Diversity of Future Faculty Fellowship, 2009-2011, Azurii Collier

Society for Neuroscience, Neuroscience Scholar, 2009-2012, Chivon Powers

NIH T32 Training Fellowship, 2012-2013, Chivon Powers

Merck - United Negro College Fund Fellowship, 2010-2012, Azurii Collier

National Science Foundation Fellowship, 2009-2012, Darya Zabelina

National Science Foundation Fellowship, 2011-2012, Lisa Hechtmann

PEO Scholar Award, Darya Zabelina, 2013

NIH T32 Training Fellowship, 2013-2015, Darya Zabelina

Undergraduate Independent Study Students

2002 – 2003: Emily Abramson, Janet Vadaparampil

2003 – 2004: Sarah Chang, Jeet Patel, Janet Vadaparampil, Heidi Wong

2004 – 2005: Therese Swan, Daniel Green

2005 – 2006: Ariel Ashcraft

2006 – 2007: Mike Claffey, Samir Rashid, Valentina Dehghan, Abhi Bhandari

2007 – 2008: LaKrista Koegel, Mark Graves, Priyanka Bhagat

2008 – 2009: Alex Chang, Tianning Xu, Kathrina Czarny

2009 - 2010: Rachel Bencic, Emily Morson, Lisa Shandley

2010 - 2011: Sinead Flood, Syeda Saeed, Rachel Bencic, Molly Hannon, Megan Ichinose, Harmony Lee, Ben Logan, Lisa Shandley

2011 - 2012: Kaitlyn Thompson, Molly Hannon, Molly Conroy, Neal Kansara, Meredith Hamilton, Ben Logan, Daniel O'Leary, Harmony Lee, Feifei Huang, Stephanie Morris, Albert Ren

2012 - 2013: Molly Hannon, Molly Conroy, Meredith Hamilton, Cliff (Storm) Heidinger, Neal Kansara, Jonathan Landis, Sydney Lindsey, Daniel O'Leary, Emily Reit

2013-2014: Elena Dansky, Lucia Lee, Sydney Lindsey, Michelle Lortie, Samuel Osborn, Jacob Robinson

Undergraduate Honors Students

2005 – 2006: Daniel Green (Cognitive Science)

2008-2009: Mark Graves, Jr. (Cognitive Science)

NU Institute for Neuroscience, summer fellow:

Caroline Freitag, Summer 2005

Illinois Math and Science Academy supervision:

Tram Huynh, 2003 – 2004

Student Research Opportunities Program:

Paris Ball, summer 2012

Awards won by Undergraduate students under supervision:

Terese Swan, Weinberg College Research Grant, summer 2004

Daniel Greene, Cognitive Science Summer Undergraduate Research Fellowship, summer 2005; Honors

Sophia Lipov, Weinberg College Research Grant, & Cognitive Science Undergraduate Research Fellowship, summer 2013

Elina Zaonegina, Weinberg College Research Grant, summer 2013

Postdoctoral Trainees

Stella Arambel (Liu), 2002-04; Started faculty position at University of New Hampshire (Psychology), August 2004; deceased March 2005 (car accident)

Sandra Virtue, 2003-05 ; Began faculty position at DePaul University (Psychology), Fall 2005

Lea Pilgrim, 2003-05 (Now a postdoc at Georgetown University)

Nira Mashal, 2006-2007 (Now at Bar-Ilan University, Israel)

Research Staff

1994 – 1998, 2002 – 2005 & 2012: Edward Bowden (now Assistant Professor at University of Wisconsin-Parkside)

2001 – 2004: Jason Haberman (now Assistant Professor at Rhodes College)

2003 – 2005: Zoe Clancy (went on to Pharmacology graduate school).

2004 – 2005: Dianne Patterson (went on to graduate school in Psychology at SUNY-Binghamton)

2012 – current: Arielle Saporta

2013 – 2014: Daniel O'Leary (grad student at Stanford, Affective Science)

Other lectures/activities at Northwestern

Guest lectures in

Advanced Intro Psychology, 2009

Cognitive Psychology, May 12, 2004

NUIN 401C, April 27, 2004

Topics in Cognitive Neuroscience, March 2004

Psychology Department Graduate Prosem, October 2003, November 2002

Co-organizer of “Cross-lab Brain and Language” meeting, with James Booth and Cindy Thompson (both of Communication Sciences). Monthly meeting of 3 different labs (Jung-Beeman, Booth, & Thompson) studying different aspects of the cognitive neuroscience of language. Also attended by some Linguistics students and faculty – about 30 to 40 people total in attendance per month.

Cognitive Psychology Brown-bag – weekly (attendee and presenter)

fMRI weekly video-conference – weekly (attendee and presenter)

Cognitive Psychology recruiting weekend, March 2004, February 2005

Cognitive Neurology & Alzheimer’s Disease Center, 2003; 2008

Segal Design Center, McCormick School of Engineering, 2011

Northwestern Women's Board, Feb 2014

Segal Design Center, McCormick School of Engineering, 2014

Department, College, and University Service at Northwestern

Psychology Department, Cognitive Area Graduate Admissions Committee, 2002 – 2003

Cognitive Psychology Search Committee, 2003 – 2004, 2004 – 2005

Graduate Admissions recruiting weekend talk, 2004, 2005

Psychology Department, BBC Area Graduate Admissions (Co-)Coordinator 2004 – 2005

Colloquium Coordinator, 2005 – 2006

Cognitive Science Program, Director of Undergraduate Studies, 2003 – 2008

Cognitive Science Program Committee, 2002 – 2012

Ad-hoc tenure committee, 2007-2008

Psychology Department Diversity Committee, 2009-2011

NU Social/Behavioral IRB Advisory Committee, 2011

Initiated and co-coordinate the “cross-lab brain and language” meeting, with labs of Cynthia Thompson & James Booth (Communication Disorders)

Segal Design Center Faculty Research Council, Feb 2012-current

Cognitive Science Program, Director of Undergraduate Studies, 2014 – 2015

Chair, Department of Psychology, beginning Sep. 2015

Community Work

1998 – 2000: Initiated, organized and coached summer and after-school track club for children from Cabrini-Green and Washington Park public housing, Chicago

2004 – 2007: Soccer coach, Wilmette Park District

2007-2009: McKenzie Elementary School chess club tournament coordinator