

## Curriculum Vitae – August, 2016

**Brian Knutson**

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**Current Employment**

2016-present *Professor*, Psychology and Neuroscience,  
Stanford University Psychology Department

**Past Employment**

2008-2016 *Associate Professor*, Psychology and Neuroscience,  
Stanford University Psychology Department

2001-2008 *Assistant Professor*, Psychology and Neuroscience,  
Stanford University Psychology Department

1996-2001 *Research Fellow*, National Research Council  
with Drs. Daniel Hommer and Markku Linnoila  
at the National Institute on Alcohol Abuse and Alcoholism, NIH

**Education**

1993-1996 *Post-doctoral Fellow*, NIMH Training Grant in Emotion Research  
with Drs. Paul Ekman and Owen Wolkowitz at U.C. San Francisco  
and Dr. Jaak Panksepp at Bowling Green State University

1989-1993 *Ph.D.*, Stanford University, Psychology.  
Dissertation advisor: Dr. Susan Nolen-Hoeksema  
Title: "Links Between Facial Expression and Interpersonal Traits"

1985-1989 *B.A.*, Trinity University, Comparative Religion  
*B.A.*, Trinity University, Psychology, magna cum laude.  
Honors Thesis advisor: Dr. Daniel Wegner  
Title: "Effects of Distraction on Thought Suppression"

**Research Interests**

Neural basis of emotional experience and expression  
Implications for economic and social decision-making  
Applications to clinical disorders of affect and addiction

**Funding** (Principal Investigator unless otherwise noted)

- 2015 National Institute of Drug Abuse P50 Center Grant (Co-investigator with PI Karl Deisseroth; 5 years): Neural circuit dynamics of drug action, Resubmitted.
- 2014 Stanford Neuroscience Institute “Big Ideas” Initiative (with Co-investigators Rob Malenka and Keith Humphreys; 2 years): “Neurochoice”: From neuroscience to public policy.
- 2013 National Science Foundation (Co-investigator with PI Jeanne Tsai; 3 years): The cultural shaping of leadership judgments: The role of ideal affect.
- 2012 Bio-X Interdisciplinary Initiatives Seed Grant (with Co-investigator Karl Deisseroth; 3 years): Illuminating the neural basis of risky choice.
- 2012 Precourt Energy Efficiency Center Grant (2 years): Experiments with appliance choice.
- 2010 FINRA Investor Education Fund Grant (2 years): Individual differences in vulnerability to Financial Fraud.
- 2009 Center for Compassion and Altruism Research and Education Grant (2 years): Neural correlates of compassion.
- 2009 Hasso Plattner Design Thinking Research Program Award (2 years): Neural correlates of design thinking.
- 2008 National Science Foundation (3 years): Anticipatory affect and financial risk taking.
- 2007 National Institute of Aging R21 (3 years): Anticipation of reward and risk across the lifespan.
- 2007 HopeLab Foundation Gift (3 years): Neural substrates of game-induced attitude change.
- 2007 FINRA Investor Education Fund Grant (3 years): Individual differences in financial decision-making across the lifespan.
- 2006 National Institute of Aging Center on Advancing Decision Making in Aging Seed Grant (2 years): Investing in the future you: Delay discounting in older and younger adults.
- 2006 National Institute of Aging Center on Advancing Decision Making in Aging Seed Grant (3 years): Ambiguity aversion in younger and older adults.
- 2006 National Institute of Mental Health R01 (Co-investigator with PI Sheri Johnson; 4 years): Neural and cognitive facets of reward responsivity in bipolar disorder.
- 2005 National Institute of Mental Health R01 (Co-investigator with PI Jeanne Tsai, 4 years): Cultural variation in affect valuation.

- 2005 National Institute of Aging Center on Advancing Decision Making in Aging Seed Grant (2 years): Affective aspects of decision-making in older adults.
- 2005 National Institute on Drug Abuse R03 (2 years): Affective neuroscience probes of cigarette craving.
- 2005 National Institute of Aging Center for Demography and Economics of Aging Seed Grant (2 years): Affective forecasting across the lifespan.
- 2004 National Alliance for Research on Schizophrenia and Depression Young Investigator Award (2 years): fMRI of reward processing in unipolar depression.
- 2002 National Institute of Mental Health R03 (3 years): A Neurobehavioral Probe of Human Reward Processing.
- 2002 Stanford University Office of Technology Licensing Development Grant (3 years): Visualizing the Subcortex.
- 1994 U. C. San Francisco Research Evaluation and Allocation Committee Grant (Co-Investigator with PI Victor Reus; 1 year): Effects of Serotonin-Specific Reuptake Inhibitors on Personality.

### Honors and Awards

- 2016 *President*, Society for Neuroeconomics
- 2015 *Awardee*, P. & K. Puhlinger Prize for Neurofinance
- 2010 *Fellow*, Association for Psychological Science
- 2009 *Fellow*, Academy of Behavioral Medicine Research
- 2003 *Young Investigator Award*, National Alliance for Research on Schizophrenia and Depression
- 2002 *New Investigator Award*, Academy of Behavioral Medicine Research
- 1996 *Young Investigator Award*, American Psychiatric Association
- 1996 *Young Scientist Award*, New York Academy of Sciences
- 1993 *Postdoctoral Fellowship in Emotion Research* (3 years), National Institute of Mental Health
- 1993 *Dissertation Award*, American Psychological Association
- 1989 *Graduate Fellowship* (4 years), National Science Foundation
- 1989 *Graduate Fellowship* (4 years), Stanford University
- 1989 *Outstanding Psychology Student Award*, Trinity University
- 1989 *Phi Beta Kappa*, Trinity University
- 1986 *Presidential Scholarship* (4 years), Trinity University
- 1986 *National Merit Scholarship* (4 years)

### Association Memberships

Academy of Behavioral Medicine Research (Fellow)  
 Association for Psychological Science (Fellow)  
 Organization for Human Brain Mapping  
 Society for Neuroeconomics (President, Council x2)  
 Society for Neuroscience

## Publications

### Articles

1. Zalocusky, K. A., Ramakrishnan, C., Lerner, T. N., Davidson, T.J., **Knutson, B.**, Deisseroth, K. (2016). Nucleus accumbens D2R cells signal prior outcomes and control risky decision-making. Nature. 531, 642-646.
2. Greer, S. M., Goldstein, A. N., **Knutson, B.**, Walker, M. P. (2016). A genetic polymorphism of the human dopamine transporter determines the impact of sleep deprivation on brain responses to rewards and punishments. Journal of Cognitive Neuroscience. 38, 803-810.
3. Leong, J. K., Pestilli, F., Wu C. C., Samanez-Larkin, G. R., **Knutson, B.** (2016). White-matter tract connecting anterior insula to nucleus accumbens correlates with reduced preference for positive skewed gambles. Neuron, 89, 63-69.
4. Ferenczi, E. A., Zalocusky, K. A., Liston, C., Katovich, K., Mehta, H., Amatya, D., Patenaude, B., Warden, M.R., Ramakrishnan, C., Grosenick, L., Kalanithi, P., Etkin, A., **Knutson, B.**, Glover, G.H., Deisseroth, K. (2016). Prefrontal cortical regulation of brainwide circuit dynamics and reward-related behavior. Science. 351, 41.
5. **Knutson, B.** & Huettel, S. A. (2015). The risk matrix. Current Opinion in Behavior, 5, 141-146.
6. Park, B. K., Tsai, J. L., Chim, L., Blevins, E., **Knutson, B.** (2015). Neural evidence for cultural differences in the valuation of positive facial expressions. Social, Cognitive, and Affective Neuroscience, 11, 243-252.
7. Sawe, N., **Knutson, B.** (2015). Neural valuation of environmental resources. NeuroImage. 122, 87-95.
8. Genevsky, A., **Knutson, B.** (2015). Neural affective mechanisms predict market-level microlending. Psychological Science. 26, 1411-1422.
9. Samanez-Larkin G. R., **Knutson B.** (2015). Decision making in the ageing brain: Changes in affective and motivational circuits. Nature Reviews Neuroscience. 16, 278-289.
10. **Knutson, B.**, Heinz, A. (2015). Probing psychiatric symptoms with the Monetary Incentive Delay task. Biological Psychiatry. 77, 418-420.
11. Karmarkar, U. R., Shiv, B., **Knutson B.** (2015). Cost conscious? The neural and behavioral impact of price primacy on purchasing decisions. Journal of Marketing Research. 52, 467-481.
12. **Knutson, B.**, Katovich, K., Suri, G. S. (2014). Inferring affect from fMRI data. Trends in Cognitive Science. 18, 422-428.
13. Smidts, A., Hsu, M., Sanfey, A. S., Boksem, M. A. S., Ebstein, R. B., Huettel, S. A., Kable, J. W., Karmarkar, U., Kitayama, S., **Knutson B.**, Liberzon, I., Lohrenz, T., Stallen,

- M., Yoon, C. (2014). Advancing consumer neuroscience. *Marketing Letters*. 25, 257-267.
14. Samanez-Larkin G. R., Worthy, D. A., Mata, R., McClure, S. M., **Knutson, B.**, (2014). Adult age differences in frontostriatal representation of prediction error but not reward outcome. *Cognitive, Affective, and Behavioral Neuroscience*. 14, 672-682.
  15. Greer, S. M., Trujillo, A. J., Glover, G. H., **Knutson B.** (2014). Control of nucleus accumbens activity with neurofeedback. *NeuroImage*. 96, 237-244.
  16. Miller, E. M., Shankar, M. U., **Knutson B.**, McClure, S. M. (2014). Dissociating effort from reward in human striatal activity. *Journal of Cognitive Neuroscience*. 26, 1075-1084.
  17. Wu, C. C., Samanez-Larkin, G. R., Katovich, K., **Knutson, B.** (2014). Affective traits link to reliable neural markers of incentive anticipation. *NeuroImage*. 84, 279-289.
  18. Genevsky, A., Vjastfall, D., Slovic, P., **Knutson B.** (2013). Neural underpinnings of the identifiable victim effect: Affect shifts preferences for giving. *Journal of Neuroscience*, 33, 17188-17196.
  19. Vaidya, J. G., **Knutson, B.**, O'Leary, D. S., Block, R. I., Magnotta, V. (2013). Neural sensitivity to absolute and relative anticipated reward in adolescents. *PLoS ONE*. 8, e58708.
  20. Grosenick, L., Klingenberg, B., Katovich, K., **Knutson, B.**, Taylor, J. E. (2013). Interpretable whole-brain prediction analysis with GraphNet. *NeuroImage*. 72, 304-321.
  21. Kuhnen, C. M., Samanez-Larkin, G. R., **Knutson, B.** (2013). Serotonergic genotypes, neuroticism, and financial risk taking. *PLoS ONE*, 8, e54632.
  22. Sacchet, M. J., **Knutson, B.** (2013). Spatial smoothing systematically biases the localization of reward-related brain activity. *NeuroImage*, 66, 270-277.
  23. Wu, C. C., Sacchet, M. J., **Knutson, B.** (2012). Toward an affective neuroscience account of financial risk taking. *Frontiers in Neuroscience*, 6, 1-10.
  24. Samanez-Larkin, G.R., Levens, S. M., Perry, L. M., Dougherty, R. M., **Knutson B** (2012). Frontostriatal white matter integrity mediates adult age differences in probabilistic reward learning. *Journal of Neuroscience*. 32, 5333-5337.
  25. Cole, S. W., Yoo, D. J., **Knutson B** (2012). Interactivity and reward-related neural activation during a serious videogame. *PLoS ONE*. 7: e33909.
  26. Schlagenhaut, F., et al (2012). Ventral striatal activation during reward processing in subjects with ultra-high risk for schizophrenia. *Neuropsychobiology*. 66, 50-56.
  27. **Knutson, B.**, Samanez-Larkin, G. R., Kuhnen, C. M. (2011). Gain and loss learning differentially contribute to life financial outcomes. *PLoS ONE*, 6: e24390.
  28. Stoy, M., Schlagenhaut, F., Sterzer, P., Bermpohl, F., Hagele, C., Suchotzki, K., Schmack, K., Wrase, J., Ricken, R., **Knutson, B.**, Adli, M., Bauer, M., Heinz, A., Strohle, A. (2011). Hyporeactivity of ventral striatum towards incentive stimuli in unmedicated depressed patients normalizes after treatment with escitalonram. *Journal of Pschonpharmacology* 26

677-688.

29. Kuhnen, C. M., **Knutson, B.** (2011). The impact of anticipatory affect on beliefs, preferences, and financial risk taking. Journal of Financial and Quantitative Analysis, 46, 605-626.
30. Stoy, M., Schlagenhaut, F., Schlochtermeyer, L., Wrase, J., **Knutson, B.**, Lehmkuhl, U., Huss, M., Heinz, A., Strohle, A. (2011). Reward processing in male adults with childhood ADHD – A comparison between drug-naive and methylphenidate-treated subjects. Psychopharmacology. 215, 467-481.
31. Wu, C. C., Bossaerts, P. A., **Knutson, B.** (2011). The affective impact of financial skewness on neural activity and choice. PLoS ONE. 6: e16838.
32. Samanez-Larkin, G. R., Wagner, A. D., **Knutson B.** (2011). Expected value information improves financial risk taking across the adult lifespan. Social, Cognitive, and Affective Neuroscience, 6, 207-217.
33. Cooper, J. C., Kreps, T. A., Wiebe, T., Pirkel, T., **Knutson, B.** (2010). When giving is good: Ventromedial prefrontal cortex activation for others' intentions. Neuron. 67, 511-521.
34. Samanez-Larkin, G. R., Kuhnen, C. M., Yoo, D. J., **Knutson B.** (2010). Variability in nucleus accumbens activity mediates age-related suboptimal financial risk taking. Journal of Neuroscience, 30, 1426-1434. [cover]
35. Haber, S. N., **Knutson B.** (2010). The reward circuit: Linking primate anatomy and human imaging. Neuropsychopharmacology, 35, 4-26.
36. Cooper, J. C., Hollon, N. G., Wimmer, G. E., **Knutson, B.** (2009). Available alternative incentives modulate anticipatory nucleus accumbens activation. Social Cognitive and Affective Neuroscience, 4, 409-416.
37. Beck, A., Schlagenhaut, F., Wustenberg, T., Hein, J., Kienast, T., Kahnt, T., Schmack, K., Hagele, C., **Knutson, B.**, Heinz, A., Wrase, J. (2009). Ventral striatal activation during reward anticipation correlates with impulsivity in alcoholics. Biological Psychiatry, 66, 734-742.
38. Ersner-Hershfield, H., Garton, M. T., Ballard, K., Samanez-Larkin, G. R., **Knutson, B.** (2009). Don't stop thinking about tomorrow: Individual differences in future self-continuity account for saving. Judgment and Decision Making, 4, 280-286.
39. Hasler, G., Luckenbaugh, D. A., Snow, J., Meyers, N., Waldeck, T., Geraci, M., Roiser, J., **Knutson, B.**, Charney, D. S., Drevets, W. C. (2009). Reward processing after catecholamine depletion in unmedicated remitted subjects with major depressive disorder. Biological Psychiatry, 66, 201-205.
40. Ballard, K., **Knutson, B.** (2009). Dissociable neural representations of future reward magnitude and delay during temporal discounting. NeuroImage, 45, 143-150.
41. Ersner-Hershfield, H., Wimmer, G. E., **Knutson, B.** (2008). Saving for the future self: Neural measures of future self-continuity predict temporal discounting. Social Cognitive

- and Affective Neuroscience, 4, 85-92.
42. Grosenick, L., Greer, S. M., **Knutson, B.** (2008). Interpretable classifiers for fMRI improve prediction of purchases. IEEE Transactions on Neural Systems and Rehabilitation Engineering, 16, 539-548.
  43. **Knutson, B.**, Greer S. M. (2008) Anticipatory affect: Neural correlates and consequences for choice. Philosophical Transactions of the Royal Society B, 363, 3771-3786. [cover]
  44. Bjork, J. M., **Knutson, B.**, Hommer, D. W. (2008). Incentive-elicited striatal activation in adolescent children of alcoholics. Addiction, 103, 1308-1319.
  45. Nielsen, L., **Knutson, B.**, Carstensen, L. L. (2008). Affect dynamics, affective forecasting, and aging. Emotion, 8, 318-330.
  46. **Knutson, B.**, Wimmer, G. E., Rick, S., Hollon, N. G., Prelec, D., Loewenstein, G. (2008). Neural antecedents of the endowment effect. Neuron, 58, 814-822.
  47. Samanez-Larkin, G. R., Hollon, N. G., Carstensen, L. L., **Knutson, B.** (2008). Individual differences in insular sensitivity during loss anticipation predict avoidance learning. Psychological Science, 19, 320-323.
  48. **Knutson, B.**, Wimmer, G. E., Kuhnen, C. M., Winkielman P. (2008). Nucleus accumbens activation mediates the influence of reward cues on financial risk-taking, NeuroReport, 19, 509-513.
  49. Schlagenhaut, F., Juckel, G., Koslowski, M., Kahnt, T., Dembler, T. **Knutson, B.**, Kienast, T., Gallinat, J., Wrase, J., Heinz, A. (2008). Increased reward system activation is associated with decreased negative symptoms in schizophrenic patients switched from typical neuroleptics to olanzapine. Psychopharmacology, 196, 673-684.
  50. **Knutson, B.**, Bhanji, J., Cooney, R. E., Atlas, L., Gotlib, I. H. (2008). Neural responses to monetary incentives in major depression. Biological Psychiatry, 63, 686-692.
  51. Strohle, A., Stoy, M., Wrase, J., Schwarzer, S., Schlagenhaut, F., Huss, H., Hein, J., Nedderhut, A., Neumann, B., Gregor, A., **Knutson, B.**, Lehmkuhl, U., Bauer, M., Heinz, A. (2008). Reward anticipation and outcomes in adult males with attention deficit hyperactivity disorder. NeuroImage, 39, 966-972.
  52. Cooper, J. C., **Knutson, B.** (2008). Valence and salience contribute to nucleus accumbens activation. NeuroImage, 39, 538-547.
  53. **Knutson, B.**, Bossaerts, P. (2007). Neural antecedents of financial decisions. Journal of Neuroscience, 27, 8174-8177.
  54. Samanez-Larkin, G. R., Gibbs, S. E. B., Nielsen, L., Khanna, K., Carstensen, L., **Knutson, B.** (2007). Anticipation of monetary gain but not loss in older adults. Nature Neuroscience, 10, 787-791.
  55. Wrase, J., Kahnt, T., Schlagenhaut, F., Beck, A., Cohen, M. X., **Knutson, B.**, Heinz, A. (2007). Different neural systems adjust motor behavior in response to reward and

- punishment. NeuroImage, 36, 1253-1262.
56. Winkielman, P., **Knutson, B.**, Paulus, M. P., Trujillo, J. L. (2007). Affective influence on decisions: Moving towards mechanisms. Review of General Psychology, 11, 179-192.
57. **Knutson, B.**, Wimmer, G. E. (2007). Splitting the difference: How does the brain code reward episodes? Annals of the New York Academy of Sciences, 1104, 54-69.
58. Wrase, J., Schlagenhauf, F., Kienast, T., Wustenberg, T., Bermpohl, F., Kahnt, T., Beck, A., Strohle, A., Juckel, G., **Knutson, B.**, Heinz, A. (2007). Dysfunction of reward processing correlates with alcohol craving in detoxified alcoholics. NeuroImage, 35, 787-794.
59. **Knutson, B.**, Gibbs, S. E. B. (2007). Linking nucleus accumbens dopamine and blood oxygenation. Psychopharmacology, 191, 813-822.
60. Scheres, A., Milham, M., **Knutson, B.**, Castellanos, F. X. (2007). Ventral striatal hypo-responsiveness during reward anticipation in Attention Deficit / Hyperactivity Disorder, Biological Psychiatry, 61, 720-724.
61. **Knutson, B.**, Rick, S., Wimmer, G. E., Prelec, D., Loewenstein, G. (2007). Neural predictors of purchases. Neuron, 53, 147-156.
62. Juckel, G., Schlagenhauf, F., Koslowski, M., Wustenberg, T., Villringer, A., **Knutson, B.**, Wrase, J., Heinz, A. (2006). Dysfunction of ventral striatal reward prediction in schizophrenic patients treated with typical but not atypical neuroleptics. Psychopharmacology, 187, 222-228.
63. Adcock, R. A., Thangavel, A., Whitfield-Gabrieli, S., **Knutson, B.**, Gabrieli, J. D. E. (2006). Reward-motivated learning: Mesolimbic activation precedes memory formation. Neuron, 50, 507-517.
64. Tsai, J. L., **Knutson, B.**, Fung, H. (2006). Cultural variation in affect valuation. Journal of Personality and Social Psychology, 90, 288-307.
65. Juckel, G., Schlagenhauf, F., Koslowski, M., Wustenberg, T., Villringer, A., **Knutson, B.**, Wrase, J., Heinz, A. (2006). Dysfunction of ventral striatal reward prediction in schizophrenia. NeuroImage, 29, 409-416.
66. Kuhnen, C. M. & **Knutson, B.** (2005). The neural basis of financial risk-taking. Neuron, 47, 763-770. [cover] [Reprinted in Biological Economics, (pp.) Cheltenham UK: Edward Elgar Publishing.]
67. **Knutson, B.**, Cooper, J. C. (2005). Functional magnetic resonance imaging of reward prediction. Current Opinion in Neurology, 18, 411-417.
68. **Knutson, B.**, Peterson, R. (2005). Neurally reconstructing expected utility. Games and Economic Behavior. 52, 305-315.
69. **Knutson, B.**, Taylor, J., Kaufman, M., Peterson, R., Glover, G. (2005). Distributed neural representation of expected value. Journal of Neuroscience. 25, 4806-4812. [cover]



70. **Knutson, B.**, Bjork, J. M., Fong, G. W., Hommer, D. W., Mattay, V. S., Weinberger, D. R. (2004). Amphetamine modulates human incentive processing. Neuron, 43, 261-269.
71. Momenan, R., Rawlings, R., Fong, G. W., **Knutson, B.**, Hommer, D. (2004). Voxel-based homogeneity probability maps of gray matter in groups: Assessing the reliability of functional effects. NeuroImage, 21, 801-817.
72. Bjork, J. M., **Knutson, B.**, Fong, G. W., Caggiano, D. M., Bennett, S. M., Hommer, D. (2004). Incentive-elicited brain activation in adolescents: Similarities and differences from young adults. Journal of Neuroscience, 24, 1793-1802.
73. Hommer, D. W., **Knutson, B.**, Fong, G. W., Bennett, S., Adams, C. M., Varner, J. L. (2003). Amygdalar recruitment during anticipation of monetary rewards: An event-related FMRI study. Annals of the New York Academy of Sciences, 985, 476-478.
74. **Knutson, B.**, Fong, G. W., Bennett, S. M., Adams, C. S., Hommer, D. (2003). A region of mesial prefrontal cortex tracks monetarily rewarding outcomes: Characterization with rapid event-related fMRI. NeuroImage, 18, 263-272.
75. **Knutson, B.**, Burgdorf, J., Panksepp, J. (2002). Ultrasonic vocalizations as indices of affect in rats. Psychological Bulletin, 128, 961-977.
76. Winterer, G., Adams, C. M., Jones, D. W., **Knutson, B.** (2002). Volition to action — an event-related FMRI study. NeuroImage, 17, 851-858.
77. Panksepp, J., **Knutson, B.**, Burgdorf, J. (2002). The role of emotional brain systems in addictions: A neuro-evolutionary perspective. Addiction, 97, 459-469.
78. **Knutson, B.**, Fong, G., Adams, C. M., Hommer, D. (2001). Dissociation of reward anticipation versus outcome with event-related FMRI. NeuroReport, 12, 3683-3687.
79. **Knutson, B.**, Momenan, R., Rawlings, R., Fong, G., Hommer, D (2001). Negative association of neuroticism with brain volume ratio in healthy humans. Biological Psychiatry, 50, 685-690.
80. **Knutson, B.**, Adams, C., Fong, G., Hommer, D. (2001). Anticipation of monetary reward selectively recruits nucleus accumbens. Journal of Neuroscience, 21:RC159.
81. Burgdorf, J., **Knutson, B.**, Panksepp, J. (2001). Nucleus accumbens amphetamine dose-dependently increases high-frequency ultrasonic vocalizations in rats. Behavioral Neuroscience, 115, 940-944.
82. Burgdorf, J., **Knutson, B.**, Panksepp, J, Shippenberg, T. (2001). Evaluation of rat ultrasonic vocalizations as predictors of the conditioned aversive effects of drugs. Psychopharmacology, 155, 35-42.
83. **Knutson, B.**, Westdorp, A., Kaiser, E., Hommer, D. (2000). FMRI visualization of brain activity during a monetary incentive delay task. NeuroImage, 12, 20-27.
84. Burgdorf, J., **Knutson, B.**, Panksepp, J. (2000). Anticipation of rewarding brain stimulation evokes ultrasonic vocalizations in rats. Behavioral Neuroscience, 114, 320-

327.

85. **Knutson, B.**, Burgdorf, J., Panksepp, J. (1999). High-frequency ultrasonic vocalizations index conditioned pharmacological reward in rats. Physiology and Behavior, 66, 639-643.
86. **Knutson, B.**, Wolkowitz, O. M., Cole, S. W., Chan, T., Moore, E. A., Johnson, R. C., Terpstra, J., Turner, R. S., Reus, V. I. (1998). Selective alteration of personality and social behavior by serotonergic intervention. American Journal of Psychiatry, 155, 373-379. [Reprinted in Foundations in Social Neuroscience, (pp. 1059-1070) New York: MIT Press.]
87. **Knutson, B.**, Burgdorf, J., Panksepp, J. (1998). Anticipation of play elicits high-frequency ultrasonic vocalizations in young rats. Journal of Comparative Psychology, 112, 65-73.
88. **Knutson, B.**, Cole, S., Wolkowitz, O., Reus, V., Chan, T., Moore, E. (1997). Serotonergic intervention increases affiliative behavior in humans. Annals of the New York Academy of Sciences, 807, 492-493.
89. **Knutson, B.**, Panksepp, J. (1997). Effects of serotonin depletion on the play of juvenile rats. Annals of the New York Academy of Sciences, 807, 475-477.
90. **Knutson, B.**, Panksepp, J., Pruitt, D. (1996). Effects of fluoxetine on play dominance in juvenile rats. Aggressive Behavior, 22, 241-257.
91. **Knutson, B.** (1996). Facial expressions of emotion influence interpersonal trait inferences. Journal of Nonverbal Behavior. 20, 165-182.
92. Wegner, D. M., Schneider, D. J., **Knutson, B.**, McMahon, S. R. (1991). Polluting the stream of consciousness: The effect of thought suppression on the mind's environment. Cognitive Therapy and Research, 15, 141-157.

#### *Submitted Articles*

1. Genevsky, A., Yoon, C., **Knutson, B.** (Submitted). When brain beats behavior: Neuroforecasting crowdfunding success.
2. Buchel, C., Peters, J., ... **Knutson, B.**, and the IMAGEN Consortium (Submitted). Diminished ventral striatal activity during reward anticipation foreshadows problematic drug use in novelty-seeking adolescents.
3. Sawe, N., Sahoo, A., Hershfield, H., **Knutson, B.** (Submitted). Distinct roles of future self-continuity and temporal discounting in asset accumulation and allocation.
4. Hofree, G., Erner, C., Fox, C. R., **Knutson, B.**, Winkielman, P. (Submitted). The influence of incidental affect on risky choice.
5. Park, B., Blevins, E., **Knutson, B.**, Tsai, J.L. (Submitted). Ideal affect match lowers neural hurdles to giving.
6. Morelli, S., **Knutson, B.**, Zaki, J. (Submitted). Neural sensitivity to vicarious reward correlates with prosocialty and well-being.

*Chapters*

1. **Knutson, B.**, Stallen, M. (2016). How does affect influence choice? In R. Davidson (Ed.) The Nature of Emotion, Oxford, UK: Oxford University Press.
2. **Knutson, B.**, Karmarkar, U. R. (2014). Appetite, consumption, and choice in the human brain. In S. Preston, M. Kringelbach, & B. Knutson (Eds.) The Interdisciplinary Science of Consumption. Cambridge, MA: MIT Press, pp. 163-184.
3. Preston, S. D., Kringelbach, M. L., **Knutson, B.** (2014). Towards an interdisciplinary science of consumption. In S. Preston, M. Kringelbach, & B. Knutson (Eds.) The Interdisciplinary Science of Consumption. Cambridge, MA: MIT Press.
4. Samanez-Larkin G. R., **Knutson, B.**, (2014). Reward processing and risky decision making in the aging brain. In V. Reyna & V. Zayas (Eds.) The Neuroscience of Risky Decision Making. Washington DC: American Psychological Association.
5. **Knutson, B.**, Samanez-Larkin G. R. (2012). Brain, decision, and debt. In R. Brubaker, R. M. Lawless, & C. Tabb (Eds.) A Debtor World: Interdisciplinary Perspectives on an Indebted Global Society. New York: Oxford University Press, pp. 167-180.
6. **Knutson, B.**, Delgado, M. R., Phillips P. E. (2008). Representation of subjective value in the striatum. In Glimcher, P. W., Camerer, C. F., Fehr, E., Poldrack, R. A. (Eds.). Neuroeconomics: Decision making and the brain. Oxford: Oxford University Press, pp. 387-403.
7. **Knutson, B.**, Wimmer, G. E. (2007). Reward: Neural circuitry for social valuation. In Harmon-Jones, E., & Winkielman, P. (Eds.). Social Neuroscience: Integrating biological and psychological explanations of social behavior. New York: Guilford Press, pp. 157-175.
8. **Knutson, B.**, Bhanji, J. (2006). Neural substrates for emotional traits: The case of extraversion. In Canli, T. (Ed.). Biology of Personality and Individual Differences. New York: Guilford Press, pp. 116-132.
9. **Knutson, B.**, Heinz, A. (2003). Psychobiology of personality disorders. In J. Panksepp (Ed.), Textbook of Biological Psychiatry. New York: John Wiley and Sons, pp. 145-165.
10. Panksepp, J., **Knutson, B.**, Pruitt, D. (1998). Toward a neuroscience of emotion: Epigenetic foundations of emotional development. In M. F. Mascolo & S. Griffin (Eds.), What Develops in Emotional Development. New York: Plenum, pp. 53-84.

*Books*

1. Preston, S. D., Kringelbach, M. L., & **Knutson, B.** (2014) (Editors). The interdisciplinary science of consumption. MIT Press: Cambridge, MA.

*Films (Screenplay + Narration)*

1. **Knutson, B.** (2010). The emotional brain: An introduction to affective neuroscience. San Luis Obispo CA: Davidson Films.

*Commentary*

2. **Knutson, B.** (2016). Deep science. Edge World Question Center (<http://www.edge.org/response-detail/26758>).
3. **Knutson, B.** (2015). The robot with a hidden agenda. Edge World Question Center (<http://www.edge.org/response-detail/26196>). [Reprinted in Brockman, J. (Ed), What to think about machines that think. New York: Harper.]
4. **Knutson, B.** (2014). Emotion is peripheral? Edge World Question Center (<http://www.edge.org/response-detail/25466>). [Reprinted in Brockman, J. (Ed), This idea must die. New York: Harper.]
5. **Knutson, B.** (2013). Neuroeconomics and emotion. Experts in Emotion Video Series (<http://www.youtube.com/watch?v=qcv7extWFHU>).
6. **Knutson, B.** (2013). Metaworry. Edge World Question Center (<http://www.edge.org/response-detail/23757>). [Reprinted in Brockman, J. (Ed), What should we be worried about? New York: Harper.]
7. **Knutson, B.** (2012). Expected value (and beyond). Edge World Question Center (<http://www.edge.org/response-detail/2941/what-is-your-favorite-deep-elegant-or-beautiful-explanation>).
8. **Knutson, B.** (2011). (Anti)complementarity. British Psychology Society Research Digest. November 3 (<http://bps-research-digest.blogspot.com/2011/11/brian-knutson-anticomplementarity.html>).
9. **Knutson, B.** (2011). Probing the investor's brain. Global Investor. May 11.
10. **Knutson, B.** (2011). Replicability. Edge World Question Center ([http://www.edge.org/q2011/q11\\_14.html#knutson](http://www.edge.org/q2011/q11_14.html#knutson)). [Reprinted in Brockman, J. (Ed), This will make you smarter. New York: Harper.]
11. **Knutson, B.** (2010). The objective study of subjectivity. The Chronicle Review, August 29.
12. **Knutson, B.** (2010). Hijacking the future self. Edge World Question Center ([http://www.edge.org/q2010/q10\\_7.html#knutson](http://www.edge.org/q2010/q10_7.html#knutson)) [Reprinted in Brockman, J. (Ed), How is the internet changing the way you think? New York: Harper.]
13. **Knutson, B.** (2009). Neurophenomics+targeted stimulation=Psychological optimization? Edge World Question Center ([http://www.edge.org/q2009/q09\\_7.html#knutson](http://www.edge.org/q2009/q09_7.html#knutson)) [Reprinted in Brockman, J. (Ed), What will change everything? New York: Harper.]
14. **Knutson, B.** (2009). When waiting is the hardest part. Edge ([http://www.edge.org/3rd\\_culture/brown08/brown08\\_index.html#knutson](http://www.edge.org/3rd_culture/brown08/brown08_index.html#knutson))
15. **Knutson, B.,** Cooper, J. C. (2006). The lure of the unknown. Neuron, 51, 280-282.
16. **Knutson, B.,** Adcock, R. A. (2005). Remembrance of rewards past. Neuron, 45, 331-332.

17. **Knutson, B.** (2004). Sweet revenge? Science, 305, 1246-1247.

## Talks

- 2016
- Invited talk: From the brain to the internet: Neuroforecasting funding outcomes. Neuroeconomics Workshop, Department of Economics, University of Zurich, Zurich, Switzerland.
  - Invited talk: Neuroforecasting. Social Sciences Workshop, Society for Neuroeconomics Conference, Berlin, Germany.
  - Keynote address: Optogenetic fMRI: Implications for understanding human brain activity. Emotional Neuroscience Conference, Charite Hospital, Humboldt University, Berlin, Germany.
  - Invited address: The rise of the neurophenotype. 2016 Wisconsin Symposium on Emotion, University of Wisconsin – Madison, Madison, WI.
  - Invited talk: From the brain to the internet: Neuroforecasting funding outcomes. Journal of Investment Management Conference Series: Behavioral Finance, Rohnert Park, CA.
  - Invited talk: Introducing the AIns-NAcc tract (and its association with positive skew preference). Institute for Financial Management Neurofinance Conference, Campus Hotel Hertenstein, Weggis, Switzerland.
  - Invited colloquium: Neural valuation of environmental resources. Cognitive Science, University of California Merced, Merced, CA.
  - Invited talk: Neuroforecasting internet market success. World Economic Forum, Davos, Switzerland.  
(<https://www.youtube.com/watch?v=IfGLZeEWYR0>)
  - Discussant: What if: Your brain confesses? Panel at the World Economic Forum, Davos, Switzerland.  
(<https://www.youtube.com/watch?v=YaTbISZPIMQ>).
- 2015
- Invited talk: Anticipatory affect and the neural prediction of choice. Ebay, San Jose, CA.
  - Moderator: Neuroscience and physiology in business schools. Panel at Fourth Consumer Neuroscience Symposium, University of Miami, FL.
  - Invited talk: The risk matrix: Functional and structural characterization. Fifth Symposium on the Biology of Decision Making, Hospital Pitie-Saltpetriere,
- 2014
- Invited talk: The risk matrix: Predicting financial risk taking with fMRI. Financial Education and Investor Behavior Conference, Rio de Janeiro, Brazil.
  - Invited talk: The science of storytelling / the storytelling of science. MediaX Seminar, Stanford University, Stanford, CA.
  - Selected talk: Brain-wide imaging of a dopaminergic reward-seeking state with optogenetic fMRI. Society for Neuroeconomics Conference, Miami, FL.
  - Invited talk: Nucleus accumbens activity: Information or affect? Summer Institute on Cognitive Neuroscience, University of California Santa Barbara, Santa Barbara, CA.
  - Invited talk: The risk matrix: Predicting financial risk taking with fMRI. Interdisciplinary Symposium for Decision Neuroscience, Stanford CA.
  - Invited talk: The risk matrix: Predicting financial risk taking with fMRI. Association for Psychological Science Conference, San Francisco CA.
  - Invited talk: Neural predictors of purchases: Progress and perils. Neuroeconomics Summit, Stanford Institute on Economic Policy Research, Stanford CA

- Colloquium: Anticipatory affect and the neural prediction of choice. Psychology Department, Dartmouth College, Hanover NH.
  - Invited talk: Controlling the nucleus accumbens. Decision Making for Wealth and Health Conference, Vitznau, Switzerland.
  - Colloquium: The risk matrix: Predicting financial risk taking with FMRI. Department of Economics, University of Zurich, Zurich, Switzerland.
  - Colloquium: Applying neuroeconomic probes to psychiatric disorders. Neuroscience Program, George Washington University, Washington, DC.
  - Colloquium: Applying neuroeconomic probes to psychiatric disorders. Neuroscience Program, NIDA Intramural Program, Baltimore, MD.
- 2013
- Keynote address: The subcortical spark of charity. Society for Social Neuroscience Conference, San Diego, CA.
  - Keynote address: The neural headwaters of stress and their relevance for risk taking. Symposium on Stress, Brain, and Behavior, EPFL, Lausanne, Switzerland.
  - Invited talk: The Monetary Incentive Delay Task as a neurophenotypic probe. Research Society on Alcoholism, Orlando, FL.
  - Invited talk: The promise and peril of neuromarketing. Ninth Annual Meeting on Choice, Noordwijk, Netherlands.
  - Colloquium: The promise and peril of neuromarketing. Department of Marketing, Fox School of Business, Temple University, Philadelphia, PA.
  - Colloquium: Anticipatory affect and the neural prediction of choice. Center on Cognitive Neuroscience, University of Pennsylvania, Philadelphia, PA.
  - Invited Talk: Predicting choice with brain activity. Computational Social Science Conference, Stanford University, Stanford, CA.  
(<https://www.youtube.com/watch?v=abrpKLnsmsk>)
- 2012
- Grand Rounds: Applying neuroeconomic probes to psychiatric disorders. Psychiatry Department, University of California San Francisco Veteran's Administration, San Francisco, CA.
  - Paduano Symposium: The promise and peril of neuromarketing. Stern School of Management, New York University, New York, NY.
  - Invited talk: Anticipation of reward and risk across the lifespan. Neuroscience Area, New York University, New York, NY.
  - Invited talk: Leveraging neuroeconomic tools to explore environmental valuation. Behavior, Energy, and Climate Change Conference, Sacramento, CA.
  - Invited talk: Anticipation of reward and risk across the life span. Conference on Decision Making and Emotion Regulation in Life-Span Transitions, University of California Berkeley, Berkeley, CA  
([http://www.youtube.com/watch?v=haVtIB\\_UZxc](http://www.youtube.com/watch?v=haVtIB_UZxc)).
  - Keynote address: Anticipatory affect and the neural prediction of choice. Third International Conference on Neuroeconomics and Neuromanagement, University of Zhejiang, Hangzhou, China.
  - Invited talk: The Future(s) of Consumer Neuroscience. Consumer Neuroscience Symposium, University of Miami, Miami, FL.
  - Colloquium: Anticipatory affect and the neural prediction of choice. Neuroscience Department, Washington State University, Pullman, WA.
  - Panel Chair: Neural substrates of compassion. Science of Compassion Conference, Telluride, CO.
  - Colloquium: Anticipatory affect and the neural prediction of choice

Neuroeconomics Consortium, National Yang Ming University, Taipei, Taiwan.  
 • Colloquium: Anticipatory affect and the neural prediction of choice.  
 Department of Psychology, Ohio State University, Columbus, OH.  
 • Invited talk: Neural substrates of positive arousal: From animal models to human neuroimaging. Genentech, San Francisco, CA.  
 • Invited talk: Anticipatory affect and financial risk taking. World Economic Forum Teleconference on the Impact of Emotions on Globalized Financial Risks, Swissnex, San Francisco, CA.

- 2011
- Invited talk: Affective processing and financial decision making. Society for Social Neuroscience Conference, Washington, DC.
  - Keynote address: Neuroimaging probes of reward anticipation: Links to (an)hedonia. Japan Neuroscience Society, Yokohama, Japan.
  - Keynote address: Reward processing in attention deficit hyperactivity and affective disorders. Emotional Neuroscience Conference, Charite Hospital, Berlin, Germany.
  - Invited talk: From animal models to human neuroimaging: The neural basis of positive arousal. Roche Symposium on Motivation, Arc de Triomphe Hilton, Paris, France.
  - Grand rounds: Individual differences in reward circuit recruitment: Clinical implications. Department of Neurology, University of California San Francisco, San Francisco, CA.
  - Invited talk: Neural prediction of nonsocial and social rewards. Social Neuroscience Meeting, Medical Research Council, Cambridge University, Cambridge, U.K.
  - Invited talk: Distinct roles of mesolimbic dopamine projection areas in purchasing. Cognitive Neuroscience Society Meeting, San Francisco, CA.
  - Colloquium: Predicting choice with fMRI. Cognitive Science Department, University of California San Diego, La Jolla, CA.

- 2010
- Invited talk (to the Dalai Lama): Tracking compassion. Compassion, Science, and Society Conference, Stanford University, Stanford CA.
  - Keynote address: Anticipatory affect and the prediction of financial choice. Inauguration of the Spinoza Center for Neuroimaging, University of Amsterdam, Amsterdam, The Netherlands.
  - Invited seminar: Neuroeconomics. The Summer Institute on Cultural Neuroscience, University of Michigan, Ann Arbor, MI.
  - Invited talk: fMRI reward probes and psychiatric anhedonia. Academy of Behavioral Medicine Research Convention, Sonoma, CA.
  - Invited talk: This is your brain on money. Cafe Scientifique Silicon Valley, SRI International, Menlo Park, CA (highest recorded attendance).
  - Invited talk: The battle in your brain between reward and risk. Association for Psychological Science Conference, Boston, MA.
  - Invited talk: The affective core of acquisition. Interdisciplinary Science of Consumption Conference, University of Michigan, Ann Arbor, MI.
  - Colloquium: Anticipatory affect and the neural prediction of purchases. Department of Marketing, University of California Business School, Berkeley, CA.
  - Colloquium: Predicting choice with fMRI. Cognitive, Brain, and Behavior Section, University of California Psychology Department, Berkeley, CA.

- 2009
- Colloquium: Predicting choice with fMRI. Center for Neural Science, University of Pennsylvania, Philadelphia, PA.
  - Invited talk: Anticipation of reward and risk across the lifespan. National Institute of Aging Neuroeconomics of Aging Workshop, Kellogg School of Management, Northwestern University, Evanston, IL.
  - Invited talk: Predicting choice with fMRI. Multimodal Neuroimaging Training Program Symposium on Decision Making, Mellon Institute, Pittsburgh, PA.
  - Selected talk: Sparse penalized discriminant analyses improve neural prediction of financial decisions. Organization for Human Brain Mapping Conference, San Francisco, CA.
  - Invited talk: Decision making in aging: Emerging insights from affective neuroscience and neuroeconomics. Workshop on Advancing Integrative Psychological Research on Adaptive and Healthy Aging, University of California Berkeley, Berkeley, CA.
  - David Bodian Seminar: Anticipatory affect: Neural correlates and consequences for choice. Neuroscience Program, Johns Hopkins University, Baltimore, MD.
  - Invited talk: Psychological studies of financial risk taking. Council for National Science Funding, Capitol Hill, Washington, DC.
  - Colloquium: Neural antecedents of financial decisions. Center for Decision Research, University of Chicago Booth Business School, Chicago, IL.
  - Keynote address: Neural antecedents of financial decisions. Campus for Finance New Year's Conference 2009, WHU Otto Beisheim School of Management, Vallendar, Germany.
- 2008
- Selected talk: Neural antecedents of the endowment effect. Society for Neuroscience Conference, Washington, DC.
  - Invited talk: Distinguishing impulse from impulse control with fMRI. NIDA Frontiers in Addiction Research Mini-Conference, Washington, DC.
  - Invited talk: Watching the brain make choices. National Association of Science Writers, New Horizons in Science Conference, Palo Alto, CA.
  - Invited talk: This is your brain on money. Beyond Belief III Conference, Salk Institute, San Diego, CA. [video.google.com/videoplay?docid=-5145313645738206463]
  - Colloquium: Neural representation of expected value. Department of Psychology, National Taiwan University, Taipei, Taiwan.
  - Invited talk: Emotion in thought, action, and law. Gruter Institute Seminar on Law and Neuroscience, Stanford Law School, Stanford, CA.
  - Invited talk: Brain, decision, and debt. Interdisciplinary Academic Symposium on Debt, University of Illinois Law School, Champaign-Urbana, IL.
  - Colloquium: Neural representation of expected value. Department of Psychology, Vanderbilt University, Nashville, TN.
  - Invited talk: Nucleus accumbens activation mediates the influence of reward cues on financial risk-taking. Cognitive Neuroscience Society Meeting, San Francisco, CA.
  - Colloquium: Neural representation of expected value. College of Liberal Arts, University of Minnesota, Minneapolis, MN.
  - Invited talk: Expected value and the neural prediction of decisions. Department of Neurology, UCSF Medical School, San Francisco, CA.
  - Invited talk: What is the science of value? Colloquium on Law and Behavior



Stanford Law School, Stanford, CA.

- Invited talk: What is the science of value? Conference on Legal Institutions and Entrepreneurship, Center for the Advanced Studies in the Behavioral Sciences, Stanford, CA.

- Invited talk: Representation of subjective value in the striatum. Society for Neuroeconomics Conference, New York, NY.

- Invited talk: Neural predictors of purchases. American Economics Association Convention, New Orleans, LA.

2007

- Invited talk: Expected value and the neural prediction of decisions. Uses of Functional Neuroimaging in Neuroscience Symposium, Department of Neurology, University of California San Francisco, San Francisco, CA.

- Invited talk: Predicting choice with fMRI. Stanford Neuroscience Institute Colloquium, Stanford, CA.

- Invited talk: Neural representation of expected value. Palo Alto Research Center Forum, Palo Alto, CA.

- Invited talk: Expected value and the neural prediction of decisions. Neurofinance Symposium, University of Zurich, Zurich, Switzerland.

- Selected talk: Exogenous manipulation of nucleus accumbens activation and financial risk-seeking. Organization of Human Brain Mapping, Chicago, IL.

- Colloquium: Neural representation of expected value. Departments of Economics and Psychology, University of Oregon, Eugene, Oregon.

- Invited talk: Neural representation of expected value. “Brain reward systems: from molecular signaling pathways to neuronal networks” workshop, Fondation des Treilles, Provence, France.

- Invited talk: Neural predictors of purchases. Functional Imaging Lab, University College of London, London, United Kingdom.

- Invited talk: Neural predictors of purchases. Emotion Research Group, Point Reyes, CA.

- Invited talk: Neural representation of expected value. Major Speakers in Neuroeconomics Research Series, Department of Neuroscience, Duke University, Durham, NC

2006

- Keynote address: Neuroeconomics. Council of Scientific Society Presidents, Washington, DC.

- Colloquium: Neural representation of expected value. Montreal Neurological Institute, McGill University, Montreal, CA.

- Invited talk: fMRI probes of reward prediction in adolescents and adults. Assessment of Reward Function During Development Minisymposium, Society for Neuroscience Conference, Atlanta, GA.

- Selected talk: Neural predictors of purchases. Motivation and Emotion: Decision-Making Session (Chair), Society for Neuroscience Conference, Atlanta, GA.

- Selected talk: Neural predictors of purchases. Society for Neuroeconomics Conference, Park City, UT.

- Invited talk: Neural antecedents of financial risk taking. Working Group on Cognition and Decision Making, National Institute of Aging Intramural Program, Bethesda, MD.

- Keynote address: Neural representation of expected value. Division 3 of the American Psychological Association, New Orleans, LA.

- Invited talk: Neural representation of expected value. Neuroeconomics Summer School Stanford University Stanford CA

- Invited talk: Neural antecedents of financial risk-taking. Mood and Anxiety Disorders Program, National Institutes of Health, Bethesda, MD.
- Invited talk: Affective neuroscience studies of reward processing: Implications for addiction. Office of Behavior and Social Science Research Tenth Anniversary Celebration, National Institutes of Health, Bethesda, MD.
- Invited talk: FMRI of reward processing: An ascending difference model. Reward and decision making in cortico-basal ganglia networks conference, UCLA Conference Center, Lake Arrowhead, CA.
- Invited talk: Neural basis of expected value. Sackler Institute for Developmental Psychobiology, Weill Medical College, New York, NY.
- Keynote address: New findings from neurofinance. Institutional Investor Trader Forum, San Diego, CA.
- Invited talk: Can motivation move memory? Emotion Research Group, Miami, FL.
- Colloquium: Neural antecedents of financial risk-taking. Department of Marketing, University of California Business School, Berkeley, CA.
- Invited talk: Neural antecedents of financial risk-taking. Affective Sciences Emerging Conference, Swissnex, San Francisco, CA.
- Colloquium: Neural antecedents of financial risk-taking. Department of Neurobiology and Anatomy, University of Texas at Houston, Houston, TX.
- Invited talk: Neural antecedents of financial risk-taking. Human Neuroimaging Laboratory, Baylor College of Medicine, Houston, TX.
- Colloquium: Neural antecedents of financial risk-taking. Department of Psychology, University of Arizona, Tucson, AZ.
- Invited talk: Neural antecedents of financial risk-taking. Judgment and Decision Making Preconference (SPSP), Palm Springs, CA.
- Invited talk: Neural antecedents of financial risk-taking. Alpine Brain Imaging Meeting, Champéry, Switzerland.
- Colloquium: Neural antecedents of financial risk-taking. Institute for Empirical Research in Economics, Zurich, Switzerland.
- Invited talk: Reward expectation in schizophrenics and healthy volunteers. Schizophrenia in Berlin Conference, Charite Medical School, Berlin, Germany.

2005

- Colloquium: Neural antecedents of financial risk-taking. Stanford Graduate School of Business, Stanford, CA.
- Selected talk: Neural antecedents of financial risk-taking. Society for Neuroscience Conference, Washington, D.C.
- Invited talk: Craving, Suffering, and Choice. Conference with the Dalai Lama, Stanford Medical School, Stanford, CA.
- Invited talk: Addiction, neurobiology, and evolution. Frontiers of Science Symposium, National Academy of Science, Irvine, CA.
- Invited talk: FMRI of reward: Clinical applications. Health Psychology Program, UCSF Medical School, San Francisco, CA.
- Colloquium: Irrational exuberance. Department of Psychology, Boston College, Boston, MA.
- Invited talk: FMRI of expected value. Brain and Cognitive Sciences Department, Massachusetts Institute of Technology, Boston, MA.
- Invited talk: Irrational exuberance. Economics Department, New York University, New York, NY.
- Colloquium: FMRI of expected value. Department of Social and Decision Sciences, Carnegie Mellon University, Pittsburgh, PA.
- Invited talk: FMRI of expected value. Department of Neurology UCSF

Medical School, San Francisco, CA.

- Invited talk: Neurally reconstructing expected utility. American Economics Association, Philadelphia, PA.

- Invited commentary: Hedonic metrics and recipes (on Kahneman et al (2004)). American Economics Association, Philadelphia, PA.

2004

- Invited talk: Modeling reward processing: FMRI validation and psychopharmacological application. American College of Neuropsychopharmacology, San Juan, PR.

- Colloquium: FMRI of expected value. Anderson School of Management, University of California, Los Angeles, CA.

- Selected talk: FMRI of expected value. Society for Neuroscience Conference, San Diego, CA.

- Invited talk: Brain imaging of the reward system. Second Emotional Neuroscience Conference, Humboldt University, Berlin, Germany.

- Selected talk: Neural responses to money: Theme and variations. Society for Neuroeconomics Conference, Kiawah Island, SC.

- Invited talk: FMRI of expected utility. Computational Neuroimaging Workshop, Stanford University, Stanford, CA.

- Invited talk: Neural substrates for emotional traits. Biological Basis of Individual Differences Conference, SUNY-Stony Brook, Long Island, NY.

- Invited talk: Pharmacological modulation of mood. New York Academy of Sciences, New York City, NY.

- Invited talk: Role of the mesial prefrontal cortex in reward processing. American Psychological Society, Chicago, IL.

- Invited talk: New frontiers in the conceptualization and visualization of impulsivity. National Clinical Drug Evaluation Unit, Phoenix, AZ.

- Invited talk: Neurally reconstructing expected utility. Economics Department, University of California, Berkeley, CA.

- Colloquium: Visualizing desire. Center for Neural Science, California Institute of Technology, Pasadena, CA.

2003

- Colloquium: FMRI of human reward processing. Department of Psychology, University of Michigan, Ann Arbor, MI.

- Invited talk: Visualizing desire. Great Schools Series, Smithsonian Institute, Washington, DC.

- Selected talk: Amphetamine modulates reward processing in humans: FMRI evidence. Society for Neuroscience Conference, New Orleans, LA.

- Invited talk: Anticipation of reward: An FMRI approach. NIDA Frontiers in Addiction Mini-Conference, New Orleans, LA.

- Invited talk: Searching for the neural basis of expected utility. Society for Neuroeconomics Conference, Martha's Vineyard, MA.

- Invited talk: What can FMRI tell us about human reward processing? First Emotional Neuroscience Conference, Humboldt University, Berlin, Germany.

- Invited talk: FMRI activation of striatum and cerebellum by anticipation of reward. Pediatric Neuroscience Network on ADHD, New York, NY.

- Colloquium: FMRI of human reward circuitry. NIDA Intramural Research Program, Baltimore, MD.

- Invited talk: FMRI of human reward circuitry. Baylor College of Medicine Theoretical and Computational Neuroscience Group, Houston, TX.

- Invited talk: Ultrasonic vocalizations as indices of affect in rats. Society for Biological Psychiatry Conference, San Francisco, CA.

- Colloquium: Visualizing Desire. Department of Psychology, University of California, Santa Cruz, CA.
  - Colloquium: What is the science of value?. Stanford Graduate School of Business, Stanford, CA.
  - Invited talk: Affect dynamics: What's the difference between anticipation and outcome? Emotion Research Group, Point Reyes, CA.
- 2002
- Colloquium: Do rats laugh? Scientific fact is stranger than media fiction. Department of Psychology, University of California, Berkeley, CA.
  - Colloquium: Visualizing Desire. Department of Psychology, University of California, Davis, CA.
  - Invited talk: Dissociation of reward anticipation and outcome with event-related fMRI. First Conference on Neuroscience and Economics at the Carleton School of Management, University of Minnesota, Minneapolis, MN.
  - Grand Rounds: Visualizing Desire. Psychiatry Department, San Mateo County Health Service, San Mateo, CA.
  - Keynote address: fMRI of human reward circuitry. Ernest Gallo Research Center Retreat, Tahoe, CA.
  - Invited talk: fMRI characterization of a region of mesial prefrontal cortex that tracks rewarding outcomes. Society for Psychophysiological Research, Washington, DC.
  - Invited talk: Deconstructing human reward processing with fMRI. Stanford Institute for Theoretical Economics, Palo Alto, CA.
  - Invited talk: Valence in the brain?: fMRI explorations of human reward circuitry. International Society for Research in Emotion Conference, Cuenca, Spain.
  - Invited talk: A neural substrate for reward anticipation: Emerging evidence from neuroscience. Academy of Behavioral Medicine Research, Key West, FL.
  - Invited talk: Ultrasonic vocalizations as indices of affect in rats. Emotion Research Group, Glen Mills, PA.
  - Colloquium: Ultrasonic vocalizations as markers of affect in rats. CNS Division of Roche Pharmaceuticals, Palo Alto, CA.
- 2001
- Colloquium: What can fMRI tell us about human reward processing?. Wheeler Center for the Neurobiology of Addiction, University of California, San Francisco, CA.
  - Colloquium: What can fMRI tell us about human reward processing?. Brain Imaging Group, Department of Psychiatry, Columbia University, New York, NY.
  - Invited talk: fMRI models for assessing cue response in alcoholism. Seventh World Congress on Biological Psychiatry, Berlin, Germany.
  - Colloquium: Where does affect dwell?: Forays into the brain. Department of Psychology, American University, Washington, DC.
  - Colloquium: Where does affect dwell?: Forays into the brain. Department of Psychology, American University, Washington, DC.
- 2000
- Colloquium: Where does affect dwell?: Forays into the brain. Department of Psychology, Stanford University, Stanford, CA.
  - Colloquium: Where does affect dwell?: Forays into the brain. Departments of Psychology, University of California Los Angeles and University of Southern California, Los Angeles, CA.

- Selected talk: Anticipation of monetary reward activates nucleus accumbens. Organization of Human Brain Mapping, San Antonio, TX.
- 1999 • Colloquium: Brain activation for monetary incentives: anticipation versus response. Intramural Program of the National Institute on Drug Abuse Extramural Program, Bethesda, MD.
- 1998 • Colloquium: Functional neuroanatomy of approach and active avoidance. Krasnow Institute for Advanced Studies, George Mason University, Manassas, VA.  
• Grand rounds: Listening to paroxetine: What can it tell us about personality? Department of Psychiatry, University of California, San Francisco, CA.
- 1997 • Colloquium: Effects of serotonergic manipulations on affect and social behavior. Center for Group Dynamics, University of Michigan, Ann Arbor, MI.
- 1996 • Invited talk: What is the function of serotonin in emotion regulation? Human Behavior and Evolution Society, Chicago, IL.  
• Invited talk: Personality effects of paroxetine in healthy humans. American Psychiatric Association Conference, New York, NY.
- 1989 • Selected talk: Tengboche in transition: Tourism's psychological impact on a Himalayan monastic community. Southwest Religion Conference, Dallas, TX.

### Courses Taught

Affective Neuroscience, Stanford University  
 Amines and Affect, Stanford University  
 Brain and Decision, Stanford University  
 Introduction to Personality, Stanford University, Johns Hopkins University  
 Introduction to Psychology, Stanford University  
 Frontiers of Personality, Stanford University  
 Psychology of Emotion, Stanford University  
 Reward and the Brain, Stanford University  
 Neuroeconomics, Stanford University\*  
 Medical Applications of fMRI, National Institute of Health\*  
 Neuroscience Approaches to Emotion, U. C. Berkeley\*  
 \*team-taught

### Graduate Students

Alex Genevsky (Current, Stanford U.)  
 Josiah Leong (Current, Stanford U.)  
 Bo Kyung Park (Current, Stanford U.)  
 Lester Tong (Current, Stanford U.)  
 Nik Sawe, Ph.D. (Current, Stanford U.)  
 Kelly Zalocusky, Ph.D. (Postdoctoral Fellow, UCSF)  
 Charlene C. Wu, Ph.D. (Industry, Uber Laboratories)  
 Kacey Ballard, Ph.D. (Industry, Google Laboratories)  
 Jeffrey C. Cooper, Ph.D. (Industry, Disney Laboratories)  
 Hal E. Hershfield, Ph.D. (Associate Professor, Marketing, UCLA)

Camelia M. Kuhnen, Ph.D. (Associate Professor, Finance, U. North Carolina)  
 Gregory R. Samanez-Larkin, Ph.D. (Assistant Professor, Psychology, Yale U.)

### Post-doctoral Fellows

Kelly Hennigan, Ph.D. (Current, Stanford U.)  
 Mirre Stallen, Ph.D. (Current, Stanford U.)  
 Uma Karmarkar, Ph.D. (Assistant Professor, Marketing, Harvard U.)  
 R. Alison Adcock, M.D., Ph.D. (Assistant Professor, Psychiatry, Duke U.)  
 Lisbeth Nielsen, Ph.D. (Extramural Funding, National Institute of Aging)  
 Richard Peterson, M.D. (MarketPsych LLC, Los Angeles CA)

### University Service

2009-present *Executive Committee*, Center for Compassion and Altruism Research and Education, School of Medicine, Stanford University  
 2009-present *Member*, Graduate Education Committee  
*Member*, Space Committee  
 2009-2011 *Steering Committee*, Center for Cognitive and Neurobiological Imaging, Department of Psychology, Stanford University  
 2009 *Organizer*, Brain and Decision at Stanford Conference, Bio-X, Stanford University  
 2006-2013 *Co-Director*, Brain Imaging Center, Stanford University  
*Representative*, Institutional Review Board, Stanford University  
 2009-2012 *Steering Committee*, Brain Imaging Analysis Center, Department of Psychology, Stanford University  
 2007-2009 *Member*, Graduate Admissions Committee, Stanford University  
*Member*, Developmental Search Committee, Stanford University  
 2001-present *Guest Lecturer*, Biological Basis of Behavior, Cognitive Neuroscience, Human Behavioral Biology, Introduction to Psychology, Introduction to Neuroscience, Introduction to Personality, Symbolic Systems Forum  
 2001-2005 *Member*, Graduate Admissions Committee, Stanford University  
*Member*, Undergraduate Education Committee, Stanford University  
*Member*, Computer/Shop/Library Committee, Stanford University

### Professional Activities

2015 *Co-Organizer*, Consumer Neuroscience Symposium, School of Business, University of Miami  
 2012-present *Consultant*, Roche Pharmaceuticals, Pfizer Pharmaceuticals, National Broadcasting Corporation  
 2007-present *Advisory Board*, Express Scripts, Stanford Center for Compassion and Altruism Research and Education  
 2009-2011 *Co-Founder / Advisory Board*, NeuroCompass, LLC  
 2008-2011 *Member*, National Science Foundation Decision & Risk Management Science Review Panel  
 2005-present *Reviewer*, National Science Foundation Grant Proposals  
 2005 *Advisor*, Neuroeconomics and Aging Teleconference, Neuroeconomics and Aging Conference, Decision Making and Aging Conference: NIA  
 2002-present *Core Training Faculty*, Bay Area Training Consortium in Affective Science; Stanford Personality Psychology Training Grant; Stanford Cognitive Psychology Training Grant; Stanford Neuroscience Training Grant

2002-present *Reviewer*, National Institute of Health R21, R24, and T32 Grant Proposals  
1999-2000 *Instructor*, Johns Hopkins University Psychology Department

### **Editorial Activities**

*Consulting Editor:*

Social, Cognitive, and Affective Neuroscience

*Reviewer (selected):*

American Journal of Psychiatry; Archives of General Psychiatry; Alcoholism: Clinical and Experimental Research; Behavioral Neuroscience; Biological Psychiatry; Brain and Behavioral Sciences; Brain Research; Cerebral Cortex; Current Biology; Cognitive, Affective, and Behavioral Neuroscience; Developmental Science; Emotion; eLife; European Journal of Neuroscience; Games and Economic Behavior; Journal of Finance, Journal of Neurophysiology; Journal of Neuroscience; Journal of Cognitive Neuroscience; Journal of Personality and Social Psychology; **Nature**; Nature Neuroscience; Nature Reviews Neuroscience; NeuroImage; Neuron; NeuroReport; Neuropsychopharmacology; Physiology and Behavior; PLoS Biology; PLoS One; Proceedings of the National Academy of Science; Psychological Science; Psychopharmacology; Psychophysiology; **Science**; Trends in Cognitive Science

*Press Coverage (selected):*

American Broadcasting Corporation; Associated Press; Bloomberg; British Broadcasting Corporation; Economist; Forbes; Nature; New Scientist; New York Times; National Public Radio; People; Reuters; Time; Science; Wall Street Journal