Brian Knutson
Associate Professor of Psychology

CONTACT INFORMATION
• Personal Information
  Email knutson@psych.stanford.edu

Bio

ACADEMIC APPOINTMENTS
• Associate Professor, Psychology
• Member, Bio-X
• Member, Stanford Neurosciences Institute
• Affiliate, Stanford Woods Institute for the Environment

LINKS
• spanlab: http://www-psych.stanford.edu/~span

Research & Scholarship

CURRENT RESEARCH AND SCHOLARLY INTERESTS
My lab and I seek to elucidate the neural basis of emotion (affective neuroscience), and explore implications for decision-making (neuroeconomics) and psychopathology (neurophenomics).

Teaching

COURSES
2015-16
• Affective Neuroscience: PSYCH 251 (Spr)
• Brain and Decision Making: PSYCH 232 (Spr)
• Predicting aggregate choice: PSYCH 4N (Win)

2014-15
• Affective Neuroscience: PSYCH 251 (Spr)
• Amines and Affect: PSYCH 16N (Win)
• Brain and Decision Making: PSYCH 232 (Spr)

2013-14
• Affective Neuroscience: PSYCH 251 (Spr)
• Amines and Affect: PSYCH 16N (Win)
• Brain and Decision Making: PSYCH 232 (Spr)

2012-13
• Affective Neuroscience: PSYCH 251 (Spr)
• Brain and Decision Making: PSYCH 232 (Spr)
• Introduction to Psychology: PSYCH 1 (Win)
• Practicum in Teaching PSYCH 1: PSYCH 282 (Win)

STANFORD ADVISEES

Postdoctoral Faculty Sponsor
Mirre Stallen

Doctoral Dissertation Co-Advisor (AC)
Nikhil Sawe

Doctoral Dissertation Reader (AC)
Matthew Sacchet

Publications

PUBLICATIONS
• NEURAL CIRCUITS Prefrontal cortical regulation of brainwide circuit dynamics and reward-related behavior  SCIENCE
  Etkin, A., Knutson, et al
  2016; 351 (6268): 41-U59

• Neural valuation of environmental resources.  NeuroImage
  Sawe, N., Knutson, B.
  2015; 122: 87-95

• Neural Affective Mechanisms Predict Market-Level Microlending  PSYCHOLOGICAL SCIENCE
  Genevsky, A., Knutson, B.
  2015; 26 (9): 1411-1422

• Cost Conscious? The Neural and Behavioral Impact of Price Primacy on Decision Making  JOURNAL OF MARKETING RESEARCH
  Karmarkar, U. R., Shiv, B., Knutson, B.
  2015; 52 (4): 467-481

• Decision making in the ageing brain: changes in affective and motivational circuits  NATURE REVIEWS NEUROSCIENCE
  Samanez-Larkin, G. R., Knutson, B.
  2015; 16 (5): 278-289

• Advancing consumer neuroscience  MARKETING LETTERS
  T., Stallen, et al
  2014; 25 (3): 257-267

• Control of nucleus accumbens activity with neurofeedback  NEUROIMAGE
  Greer, S. M., Trujillo, A. J., Glover, G. H., Knutson, B.
  2014; 96: 237-244

• Inferring affect from fMRI data  TRENDS IN COGNITIVE SCIENCES
  Knutson, B., Katovich, K., Suri, G.
• Adult age differences in frontostriatal representation of prediction error but not reward outcome. *Cognitive Affective & Behavioral Neuroscience*
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• Dissociating Motivation from Reward in Human Striatal Activity. *Journal of Cognitive Neuroscience*
  Miller, E. M., Shankar, M. U., Knutson, B., McClure, S. M.
  2014; 26 (5): 1075-1084

• Affective traits link to reliable neural markers of incentive anticipation. *Neuroimage*
  Wu, C. C., Samanez-Larkin, G. R., Katovich, K., Knutson, B.
  2014; 84: 279-289

• Neural Underpinnings of the Identifiable Victim Effect: Affect Shifts Preferences for Giving. *Journal of Neuroscience*
  Genevsky, A., Vastfjall, D., Slovic, P., Knutson, B.
  2013; 33 (43): 17188-17196

• Interpretable whole-brain prediction analysis with GraphNet. *Neuroimage*
  Grosenick, L., Klingenberg, B., Katovich, K., Knutson, B., Taylor, J. E.
  2013; 72: 304-321

• Spatial smoothing systematically biases the localization of reward-related brain activity. *Neuroimage*
  Sacchet, M. D., Knutson, B.
  2013; 66: 270-277

• Serotonergic Genotypes, Neuroticism, and Financial Choices. *PLOS One*
  Kuhnen, C. M., Samanez-Larkin, G. R., Knutson, B.
  2013; 8 (1)

• SPATIAL SMOOTHING AND THE FUNCTIONAL LOCALIZATION OF NUCLEUS ACCUMBENS ACTIVITY
  Sacchet, M., Knutson, B.
  MIT PRESS 2013: 231-232

• BRAIN TO BANK: NEURAL PREDICTORS OF FINANCIAL RISK TAKING
  Wu, C., Knutson, B.
  MIT PRESS 2013: 265-265

• Frontostriatal White Matter Integrity Mediates Adult Age Differences in Probabilistic Reward Learning. *Journal of Neuroscience*
  Samanez-Larkin, G. R., Levens, S. M., Perry, L. M., Dougherty, R. F., Knutson, B.
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• Interactivity and Reward-Related Neural Activation during a Serious Videogame. *PLOS One*
  Cole, S. W., Yoo, D. J., Knutson, B.
  2012; 7 (3)

• Toward an affective neuroscience account of financial risk taking. *Frontiers in neuroscience*
  Wu, C. C., Sacchet, M. D., Knutson, B.
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• Toward an affective neuroscience account of financial risk taking. *Frontiers in Neuroscience*
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• Spatial smoothing systematically biases the localization of reward-related brain activity. *Neuroimage*
  Sacchet, M. D., Knutson, B.
• Gain and Loss Learning Differentially Contribute to Life Financial Outcomes  *PLOS ONE*
  Knutson, B., Samanez-Larkin, G. R., Kuhnen, C. M.
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• The Influence of Affect on Beliefs, Preferences, and Financial Decisions  *JOURNAL OF FINANCIAL AND QUANTITATIVE ANALYSIS*
  Kuhnen, C. M., Knutson, B.
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• Expected value information improves financial risk taking across the adult life span  *SOCIAL COGNITIVE AND AFFECTIVE NEUROSCIENCE*
  Samanez-Larkin, G. R., Wagner, A. D., Knutson, B.
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  Wu, C. C., Bossaerts, P., Knutson, B.
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• REINFORCEMENT LEARNING AND AGE-RELATED CHANGES IN RELATIVE CODING IN MESOLIMBIC BRAIN REGIONS
  Samanez-Larkin, G. R., Worthy, D. A., McClure, S. M., Knutson, B.
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• When Giving Is Good: Ventromedial Prefrontal Cortex Activation for Others' Intentions  *NEURON*
  Cooper, J. C., Kreps, T. A., Wiebe, T., Pirkle, T., Knutson, B.
  2010; 67 (3): 511-521

• Variability in Nucleus Accumbens Activity Mediates Age-Related Suboptimal Financial Risk Taking  *JOURNAL OF NEUROSCIENCE*
  Samanez-Larkin, G. R., Kuhnen, C. M., Yoo, D. J., Knutson, B.
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• Available alternative incentives modulate anticipatory nucleus accumbens activation  *SOCIAL COGNITIVE AND AFFECTIVE NEUROSCIENCE*
  Cooper, J. C., Hollon, N. G., Wimmer, G. E., Knutson, B.
  2009; 4 (4): 409-416

• Correction. "Affect dynamics, affective forecasting, and aging".  *Emotion*
  Nielsen, L., Knutson, B., Carstensen, L. L.
  2009; 9 (5): ii-?

• Don’t stop thinking about tomorrow: Individual differences in future self-continuity account for saving  *JUDGMENT AND DECISION MAKING*
  Ersner-Hershfield, H., Garton, M. T., Ballard, K., Samanez-Larkin, G. R., Knutson, B.
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• Saving for the future self: Neural measures of future self-continuity predict temporal discounting  *SOCIAL COGNITIVE AND AFFECTIVE NEUROSCIENCE*
  Ersner-Hershfield, H., Wimmer, G. E., Knutson, B.

• Anticipatory affect: neural correlates and consequences for choice  *PHILOSOPHICAL TRANSACTIONS OF THE ROYAL SOCIETY B-BIOLOGICAL SCIENCES*
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• Incentive-elicted striatal activation in adolescent children of alcoholics  *ADDICTION*
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  Knutson, B., Wimmer, G. E., Rick, S., Hollon, N. G., Prelec, D., Loewenstein, G.
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- Affect dynamics, affective forecasting, and aging *EMOTION*
  Nielsen, L., Knutson, B., Carstensen, L. L.
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- Individual differences in insular sensitivity during loss anticipation predict avoidance learning *PSYCHOLOGICAL SCIENCE*
  Samanez-Larkin, G. R., Hollon, N. G., Carstensen, L. L., Knutson, B.
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  Cooper, J. C., Knutson, B.
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- Neural antecedents of financial decisions *JOURNAL OF NEUROSCIENCE*
  Knutson, B., Bossaerts, P.
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- Anticipation of monetary gain but not loss in healthy older adults *NATURE NEUROSCIENCE*
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  Winkielman, P., Knutson, B., Paulus, M., Trujillo, J. L.
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  Knutson, B., Gibbs, S. E.
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- Neural predictors of purchases *NEURON*
  Knutson, B., Rick, S., Wimmer, G. E., Prelec, D., Loewenstein, G.
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- Splitting the difference - How does the brain code reward episodes? *REWARD AND DECISION MAKING IN CORTICOBASAL GANGLIA NETWORKS*
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  Knutson, B., Cooper, J. C.
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- Reward-motivated learning: Mesolimbic activation precedes memory formation *NEURON*
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- Cultural variation in affect valuation *JOURNAL OF PERSONALITY AND SOCIAL PSYCHOLOGY*
  Tsai, J. L., Knutson, B., Fung, H. H.
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  Kuhnen, C. M., Knutson, B.
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• Functional magnetic resonance imaging of reward prediction *CURRENT OPINION IN NEUROLOGY*
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• Neuraly reconstructing expected utility *GAMES AND ECONOMIC BEHAVIOR*
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  Knutson, B., Taylor, J., Kaufman, M., Peterson, R., Glover, G.
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  Knutson, B., Bjork, J. M., Fong, G. W., Hommer, D., Mattay, V. S., Weinberger, D. R.
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• The role of brain emotional systems in addictions: a neuro-evolutionary perspective and new 'self-report' animal model *ADDITION*
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  Knutson, B., Fong, G. W., Adams, C. M., Varner, J. L., Hommer, D.
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  Knutson, B., Momenan, R., Rawlings, R. R., Fong, G. W., Hommer, D.
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- **Nucleus accumbens amphetamine microinjections unconditionally elicit 50-kHz ultrasonic vocalizations in rats** *BEHAVIORAL NEUROSCIENCE*
  Burgdorf, J., Knutson, B., Panksepp, J., Ikemoto, S.
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- **Evaluation of rat ultrasonic vocalizations as predictors of the conditioned aversive effects of drugs** *PSYCHOPHARMACOLOGY*
  Burgdorf, J., Knutson, B., Panksepp, J., Shippenberg, T. S.
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- **FMRI visualization of brain activity during a monetary incentive delay task** *NEUROIMAGE*
  Knutson, B., Westdorp, A., Kaiser, E., Hommer, D.

- **Anticipation of rewarding electrical brain stimulation evokes ultrasonic vocalization in rats** *BEHAVIORAL NEUROSCIENCE*
  Burgdorf, J., Knutson, B., Panksepp, J.
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  Knutson, B., Burgdorf, J., Panksepp, J.

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