

Curriculum Vitae

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Date and Place of Birth: 3 November, 1961; Boston, Mass.

Education

Princeton University	A.B.	1983	Neuroscience
University of Pennsylvania	Ph.D.	1989	Neuroscience

Positions

March 2014 – Present	Director, Provostial Institute for the Interdisciplinary Study of Decision Making
Sept 2012 – Present	Full Professor of Physiology and Neuroscience, NYU School of Medicine
Sept 2010 – Present	Julius Silver Professor of Neural Science
Sept 2007 – Present	Full Professor of Neural Science, Economics and Psychology.
Sept 2006 – Present	Associate Professor of Economics
Sept 2005 – Present	Director, Center for Neuroeconomics, New York University.
Jan 2001-Present	Associate Professor of Neural Science and Psychology, Center for Neural Science, New York University.
Sept. 1998-Dec 2000	Assistant Professor of Neural Science and Director of Undergraduate Studies, Center for Neural Science, New York University.
Jan. 1994 - Sept. 1998	Assistant Professor of Neural Science, Center for Neural Science, New York University.

1990 - 1993 Individual NRSA Postdoctoral Research Fellow,
Department of Psychology, University of Pennsylvania.

1989 - 1990 Research Associate, Department of Psychology,
University of Pennsylvania.

Awards:

Princeton University, Magna Cum Laude	1983
NEI-NIH Individual NRSA Fellowship	1990-1993
New York University Challenge Fund Awardee	1994-1995
Whitehall Foundation Fellow (J94-04)	1994-1997
Principal Investigator: National Eye Institute	1995-2003
McKnight Scholar	1996-1999
New York University "Golden Dozen" Teaching Award	1996
McKnight Technological Development Awardee	1999-2001
Klingenstein Foundation Fellow	2000-2003
McDonnell Foundation 21st Century Scholar	2002-2006
Margaret and Herman Sokol Faculty Award in the Sciences	2003
American Association of Publishers Medical Science Book of the Year to Decisions, Uncertainty and the Brain	2003
New York University "Golden Dozen" Teaching Award	2005
New York University "Distinguished Teaching Award"	2006
American Association for the Advancement of Science Fellow	2008
American Association of Publishers Economic Science Book of the Year to: Neuroeconomics	2009
American Association of Publishers Social Science Book of the Year to: Neuroeconomics	2009
Julius Silver Professor of Neural Science	2010

Named Lectures:

Jacobsen Lecture, University of Syracuse	2007
Jasper Lecture, McGill University	2008

Society Governance

2012-2015 Councilor, Society for Neuroeconomics
2006-2008 Councilor, Society for Neuroeconomics
2005-2006 Immediate Past-President, Society for Neuroeconomics
2004-2005 Founding President, Society for Neuroeconomics

Professional Memberships/Current University Activities:

Society for Neuroscience
American Economic Association
Society for Neuroeconomics

AAAS

Member, Faculty Steering Committee for Foundations of Scientific Inquiry
Chair, Neural Science Education Committee
Member, University Animal Welfare Committee
Member, Animal Faculty Advisory Committee
Member, Center for Brain Imaging Steering Committee
Seminar Organizer for: Neural Science Colloquium, Neuroeconomics Seminar
DANA Foundation Fellow

Current Support

Neural Mechanisms of Cost and Benefit Integration During Decision-Making.
National Institutes of Health. Years 1-5. Role: PI

Cognitive Bases of Risk-taking Over the Lifespan: Psychophysics & Brain Imaging.
National Institutes of Health. Years 1-5 Role Co-PI with Ifat Levy.

Intracranial Electrical Control of Cognitive Preferences. National Institutes of
Health. Years 1-2 Role: PI

Peer-Reviewed Publications

Glimcher, P. W., Margolin, D. and Hoebel, B. G. (1982) Rewarding effects of
neurotensin in the brain. *Ann. NY Acad. Sci.*400: 422-424.

Glimcher, P.W., Margolin, D. H., Giovino, A. A. and Hoebel, B. G. (1984)
Neurotensin: a new 'reward peptide'. *Brain Res.* 291: 119-124.

Glimcher, P. W., Giovino, A. A., Margolin, D. H. and Hoebel, B. G. (1984)
Endogenous opiate reward induced by an enkephalinase inhibitor, thiorphan,
injected into the ventral midbrain. *Behavioral Neurosci.* 98: 262-268.

Glimcher, P. W., Giovino, A. A. and Hoebel, B. G. (1987) Neurotensin self-injection
in the ventral tegmental area. *Brain Res.* 403: 147-150.

Glimcher, P. W. and Sparks, D. L. (1992) Movement selection in advance of action in
the superior colliculus. *Nature*, 355:542-545.

Glimcher, P. W. and Sparks, D. L. (1993) The effects of low-frequency stimulation of
the superior colliculus on spontaneous and visually guided saccades. *J Neurophysiol.*
69: 953-964.

Glimcher, P. W. and Sparks, D. L. (1993) Averaging saccades are represented as single movements by the saccade related bursters of the superior colliculus. *Exp. Brain Res.* 95: 429-435.

Platt, M. L. and Glimcher, P. W. (1997) Responses of intra-parietal neurons to saccadic targets and visual distractors. *J. Neurophysiol.* 78: 1574-1589.

Handel, A. and Glimcher, P. W. (1997) Response properties of saccade-related burst neurons in the central mesencephalic reticular formation. *J. Neurophysiol.* 78: 2164-2175.

Platt, M. L. and Glimcher, P. W. (1998) Response fields of intra-parietal neurons quantified with multiple saccadic targets. *Exp. Brain Res.* 121: 65-75.

Platt, M.L. and Glimcher, P.W. (1999) Neural correlates of decision variables in parietal cortex. *Nature.* 400: 233-238.

Handel, A. and Glimcher, P.W. (1999) A quantitative analysis of substantia nigra pars reticulata activity during a visually-guided saccade task. *J. Neurophysiol.* 82:3458-75.

Handel, A. and Glimcher, P. W. (2000) Contextual modulation of substantia nigra pars reticulata neurons. *J. Neurophysiol.* 83: 3042–3048.

Platt, M.L. and Glimcher, P. W. (2000) Short-term changes in movement frequency do not alter the spatial tuning of saccade-related neurons in intraparietal cortex. *Experimental Brain Research.* 132:279-86.

Ciaramitaro, V.M. and Glimcher, P.W. (2001) Stimulus probability redirects spatial attention: an enhancement of sensitivity in humans and monkeys. *Vision Research.* 41:57-75.

Glimcher, P.W. et al. (2001) Application of Neurosonography to Experimental Physiology. *J Neurosci Methods* 108: 131-144.

Bayer, H.M. and Glimcher, P. W. (2004) Saccadic signals in the substantia nigra are coded in oculocentric coordinates. *Experimental Brain Research.* 154:428-441.

Dorris, M. C. and Glimcher, P. W. (2004) Activity in posterior parietal cortex is correlated with the relative subjective desirability of action. *Neuron.* 44:365-378.

Glimcher, P.W., Dorris, M.C. and Bayer, H.M. (2005) Physiological Utility Theory and the Neuroeconomics of Choice. *Games and Economic Behavior.* 52: 213-256.

Bayer, H.M, and Glimcher, P.W. (2005) Midbrain dopamine neurons encode a quantitative reward prediction error signal. *Neuron.* 47:129-141.

Schluppeck, D., Glimcher, P. W. and Heeger, D.J. (2005) Topographic organization for delayed saccades in human posterior parietal cortex, *J Neurophysiol.* 94:1372-1384.

Glimcher, P.W (2005) The Heart of Medicine. *PLoS Biology.* 3:12-14.

Lau, B. and Glimcher, P.W. (2005) Dynamic response-by-response models of matching behavior in rhesus monkeys. *Journal of the Experimental Analysis of Behavior,* 84: 555-79, 2005.

Glimcher, P.W. and Kanwisher, N. (2006) Cognitive neuroscience Editorial overview. *Current Opinion in Neurobiology.* 16: 127-129.

Garland, B. and Glimcher, P.W. (2006) Cognitive neuroscience and law. *Current Opinion in Neurobiology.* 16:130-134.

Kaysar, DA. et al. (2006) Are heuristics a problem or a solution. In: Engel, C and Gigerenzer, G. (eds.) *Heuristics and the Law.* Cambridge, MA: MIT Press.

Schluppeck, D., Curtis, C.E., Glimcher, P.G. and Heeger, D.J. (2006) Sustained Activity in Topographic Areas of Human Posterior Parietal Cortex during Memory-Guided Saccades. *J. Neurosci.* 26: 5098-5108.

Glimcher PW, Kable J, Louie K. Neuroeconomic Studies of Impulsivity: Now or Just as Soon as Possible? *American Economic Review.* 97 (2007).

Levy I, Schluppeck D, Heeger DJ, Glimcher PW. Specificity of human cortical areas for reaches and saccades. *The Journal of Neuroscience.* (2007).

Kable JW and Glimcher PW. (2007) The neural correlates of subjective value during intertemporal choice. *Nat Neurosci.* 10:1625-1633.

Lau, B. and Glimcher, PW. (2007) Action and outcome encoding in the primate caudate nucleus. *The Journal of Neuroscience.* 27: In press.

Lau, B. and Glimcher, P.W. (2007) Action and Outcome Encoding in the Primate Caudate Nucleus. *The Journal of Neuroscience.* 27(52): 14502 - 14514.

Bayer, H., Lau, B., and Glimcher, P.W. (2007). Statistics of Midbrain Dopamine Neuron Spike Trains in the Awake Primate. *The Journal of Neurophysiology.* 98(3): 1428-1439.

Lau, B. and Glimcher, P.W. (2008) Value Representations in the Primate Striatum during Matching Behavior. *Neuron.* 58: 451-463.

Levy, I., Snell, J., Nelson, A.J., Rustichini, A., and Glimcher, P.W. (2009). The neural representation of subjective value under risk and ambiguity. *Journal of Neurophysiology.*

Rutledge, R.B., Lazzaro, S.C., Lau, B., Myers, C.E., Gluck, M.A., and Glimcher, P.W. (2009). Dopaminergic drugs modulate learning rates and perseveration in Parkinson's patients in a dynamic foraging task. *The Journal of Neuroscience*, 29(48): 15104-15114.

Rutledge, R.B., Dean, M., Caplin, A., & Glimcher, P.W. (2010). Testing the reward prediction error hypothesis with an axiomatic model. *Journal of Neuroscience*, 30(40): 13525-13536

Caplin, A., Dean, M., Glimcher, P.W., & Rutledge, R.B. (2010). Measuring beliefs and rewards: A neuroeconomic approach. *The Quarterly Journal of Economics*, 125(3): 923-960

Kable, J.W. and Glimcher, P.W. (2010), An "as soon as possible" effect in human intertemporal decision making: Behavioral evidence and neural mechanisms. *Journal of Neurophysiology*, 103: 2513-2531.

Louie, K., and Glimcher, P.W. (2010). Separating value from choice: Delay discounting activity in the lateral intraparietal area. *Journal of Neuroscience*, 30(16): 5498-5507.

Yamada, H., Louie, K., and Glimcher, P.W. (2010). Controlled water intake: a method of objectively evaluating thirst and hydration state in monkeys by the measurement of blood osmolality. *Journal of Neuroscience Methods*, 191(1) 83-89.

Levy, I., Snell, J., Nelson, A.J., Rustichini, A., and Glimcher, P.W. (2010). Neural representation of subjective value under risk and ambiguity. *Journal of Neurophysiology*. 103(2):1036-47.

Levy I., Lazzaro S., Rutledge R.B., & Glimcher P.W. (2011). Choice from non-choice: Predicting consumer preferences from blood oxygenation level-dependent signals obtained during passive viewing. *J Neurosci* 31(1): 118-125. PMID: 21209196

Louie K., Grattan L.E., and Glimcher P.W. (2011). Reward value-based gain control: Divisive normalization in parietal cortex. *J Neurosci* 31(29): 10627-10639. PMID: 21775606

Levy, D.J. & Glimcher, P.W. (2011). Comparing apples and oranges: Using reward-specific and reward-general subjective value representation in the brain. *J Neurosci*, 31(41): 14693-14707

Glimcher P.W. (2011). Understanding dopamine and reinforcement learning: The dopamine reward prediction error hypothesis. *Proc Natl Acad Sci*, 108 Suppl 3: 15647-15654

Louie, K. & Glimcher, P.W. (2012). Efficient coding and the neural representation of value. *Ann. N.Y. Acad. Sci*, 1251: 13-32.

Levy, D.J., Glimcher, P.W. (2012). The Root of All Value: a neural common currency

for choice. *Current Opinion in Neurobiology*

Levy, I., Rosenberg Belmaker, L., Manson, K., Tymula, A., Glimcher, P.W. (2012) Measuring the Subjective Value of Risky and Ambiguous Options using Experimental Economics and Functional MRI Methods. *Journal of Visualized Experiments*. , Exp. (67), e3724,DOI: 10.3791/3724

Tymula, A., Rosenberg Belmaker, L.A, Roy, A.K, Ruderman L.,Manson, K., Glimcher, P.W, and Levy, I. (2012) Adolescents' Risk Taking Behavior is Driven by Tolerance to Ambiguity. *Proceedings of the National Academy of Sciences of the United States of America*, 109 (42): 17135-17140

Tymula, A., Rosenberg Belmaker, L.A., Ruderman, L., Glimcher, P.W., Levy, I. (2013). Like cognitive function, decision making across the life span shows profound age-related changes. *PNAS*.

Yamada,H., Tymula, A., Louie, K., Glimcher,P.W. (2013).Thirst-dependent risk preferences in monkeys identify a primitive form of wealth. *PNAS*.

Newsome, W.T., Glimcher, P.W., Gottlieb, J., Lee, D., Platt, M.L. (2013). Comment on "In Monkeys Making Value-Based Decisions, LIP Neurons Encode Cue Salience and Not Action Value". *Science*, 340, 430.[full text pdf]

Burghart, D.R., Glimcher, P. W., and Lazzaro, S.C. (2013). An Expected Utility Maximizer Walks Into A Bar... *Journal of Risk and Uncertainty*, 46(3).

Louie, K., Khaw, M.W., & Glimcher, P.W. (2013). Normalization is a general neural mechanism for context-dependent decision making. *Proc Natl Acad Sci U S A*, 110: 6129-6144.

Levy, D., Thavikulwat, A., Glimcher, P.W. (2013). State Dependent Valuation: The Effect of Deprivation on Risk Preferences. *PLoS One*,

Gilaie-Dotan, S., Tymula, A., Cooper, N., Kable, J., Glimcher, P., Levy, I. (2014). Neuroanatomy predicts individual risk attitudes. *The Journal of Neuroscience*.

Hart, A.S., Rutledge, R.B., Glimcher, P.W., Phillips, P.E.M. (2014). Phasic dopamine release in the rat nucleus accumbens symmetrically encodes a reward prediction error term. *The Journal of Neuroscience*.

LoFaro, T., Louie, K., Webb, R., Glimcher, P.W. (2014) The Temporal Dynamics of Cortical Normalization Models of Decision-making. *Letters in Biomathematics*.

Grattan, L.E., Glimcher, P.W. (2014) Absence of Spatial Tuning in the Orbitofrontal Cortex. *PLoS ONE*

Glimcher, P.W. (2015) Understanding the Hows and Whys of Decision-Making: From Expected Utility to Divisive Normalization *Cold Spring Harbor Laboratory Press*

Chapters/Reviews/Books

Hoebel, B. G., Hernandez, L., McLean, S., Stanley, B. G., Aulissi, E. F., Glimcher, P. W. and Margolin, D. (1982) Catecholamines, enkephalin and neurotensin in feeding and reward. In: Hoebel, B. G. and Novin, D. (eds.) *The Neural Basis of Feeding and Reward*. Haer Institute: Brunswick, Maine.

Glimcher, P. W. (1998) Eye Movements. In: (Zigmond, et al., eds.) *Fundamental Neuroscience*. Academic Press: New York.

Glimcher, P. W. (1998) Oculomotor Control. In: (Wilson and Kiel, eds.) *MIT Encyclopedia of Cognitive Science*. MIT Press: Cambridge.

Ciaramitaro, V. M. and Glimcher, P. W. (2000) Attending to Contrast. *Neuron*. 26: 548-550.

Glimcher, P. W. (2001) Control of Eye Movement. In: (Smelser and Baltes, eds.) *International Encyclopedia of the Social and Behavioral Sciences*. Pergamon: Oxford.

Glimcher, P.W. (2001) Making Choices: The Neurophysiology of Visual-Saccadic Decision Making. *Trends Neurosci* 24: 654-659.

Glimcher, P. W. (2002) Decisions, Decisions, Decisions. Choosing a Neural Theory of Choice. *Neuron* 36: 323-333.

Glimcher, P. W. (2002) Eye Movements. In: (Zigmond, et al., eds.) *Fundamental Neuroscience, 2nd ed.* Academic Press: New York.

Glimcher, P. W. (2003) *Decisions, Uncertainty and the Brain*. The Science of Neuroeconomics. Cambridge, MA.: MIT Press.

Platt, M. L., Lau, B. and Glimcher, P. W. (2003) Situating the Superior Colliculus within the Orienting Movement Control Network. *The Oculomotor System: New Approaches for Studying Sensorimotor Integration*. W. C. Hall and A. K. Moschovakis. Boca Raton, FL, CRC Press.

Glimcher, P. W. (2003) The Neurophysiology of Primate Decision-Making. *Annual Reviews of Neuroscience*. 26:133-179.

Glimcher, P. W., Dorris, M. A. and Lau, B. (2004) Neuronal Studies of Decision Making in the Visual-Saccadic System. In: Gazzaniga, M. (ed.) *The Cognitive Neurosciences 3*. MIT Press. *In Press*.

Glimcher, P.W. and Rustichini, A. (2004) Neuroeconomics: The Consilience of Brain and Decision. *Science*. 306:447-452.

Glimcher, P. W. (2005) Indeterminacy in Brain and Behavior. *Annual Review of Psychology*. 56:25-56.

Glimcher, P.W. and Lau, B. (2005) Rethinking the thalamus. *Nat Neurosci*. 8:983-984.

Glimcher, P.W. (2008). The Neurobiology of Individual Decision Making, Dualism, and Legal Accountability. In: Engel, C., and Singer, W. (eds.) *Better Than Conscious? Implications for Performance and Institutional Analysis*. Strüngmann Forum Report 1. Cambridge, MA: MIT Press.

Glimcher, P.W. (2008). Understanding risk: A guide for the perplexed. *Cognitive, Affective, & Behavioral Neuroscience*. 8(4): 348-354.

Glimcher, P.W., Camerer, C. F., Fehr, E. and Poldrack, R. A. (2009) *Neuroeconomics. Decision Making and the Brain*. New York: Academic Press.

Glimcher, P.W. (2009) Towards a Back-pocket Model of Choice. In: Glimcher, P.W. et al. (eds) *Neuroeconomics. Decision Making and the Brain*. New York: Academic Press.

Kable, J.W. and Glimcher, P.W. (2009). The Neurobiology of Decision: Consensus and Controversy. *Neuron*. 63(6): 733-745.

Trommershaeuser, J.T., Glimcher, P.W., and Gegenfurtner, K.R. (2009). Visual processing, learning and feedback in the primate eye movement system. *Trends in Neurosciences*. 32(11): 583-590.

Glimcher, P.W. (2009). Neuroeconomics and the Study of Valuation. In: Gazzaniga, M.S. (ed.) *The Cognitive Neurosciences, Fourth Edition*. Cambridge, MA: The MIT Press, pp. 1085-1092.

Glimcher, P.W. (2009). Neuroscience, Psychology, and Economic Behavior: The Emerging Field of Neuroeconomics. In: Tommasi, L., Peterson, M.A., and Nadel, L. (eds.) *Cognitive Biology: Evolutionary and Developmental Perspectives on Mind, Brain, and Behavior*. Cambridge, MA: The MIT Press, pp. 261-278.

Glimcher, P.W. (2011) *Foundations of Neuroeconomic Analysis*. New York: Oxford University Press.

Seed, A., Clayton, N., Carruthers, P., Dickinson, A., Glimcher, P.W., Gunturkun, O., Hampton, R. R., Kacelnik, A., Shanahan, M, Stevens, J.R., & Tebbich, S. (2011). Planning, memory, and decision making. In Randolph Menzel & Julia Fischer (Eds.), *Animal thinking: Contemporary issues in comparative cognition* (121-147). Cambridge, MA: MIT Press.

Louie, K.L. & Glimcher, P.W. (2012). Set-size effects and the neural representation of value. In Raymond J. Dolan & Tali Sharot (Eds.), *Neuroscience of preference and choice: Cognitive and neural mechanisms* (143-169). London: Academic Press.

Levy, I., Glimcher, P.W. (2013). Neuroeconomics. In H. Pashler (Ed.), *Encyclopedia of the mind* (vol. 14, pp.565-569). Thousand Oaks, Ca: SAGE Publications.