

Aaron David Redish

Department of Neuroscience
University of Minnesota
Minneapolis MN 55455
(612) 626-3738 **PHONE**
(612) 626-5009 **FAX**

Email
redish AT umn.edu

Website
<http://umn.edu/~redish/>

Education

BA 1991	The Johns Hopkins University Baltimore MD 21218	Double major: Computer Science (honors) The Writing Seminars (honors)
MS 1995	Carnegie Mellon University Pittsburgh PA 15213	Computer Science
PhD 1997	Carnegie Mellon University Pittsburgh PA 15213	Computer Science, Advisor: Dr. D. S. Touretzky
Oct 1997 - Jul 2000	University of Arizona Tucson AZ 85724	Post-doctoral research associate with Dr. C. A. Barnes

Employment history

2000-2006 Assistant Professor, Department of Neuroscience, University of Minnesota
2006-2012 Associate Professor with Tenure, Department of Neuroscience, University of Minnesota
2012-present Professor with Tenure, Department of Neuroscience, University of Minnesota

Current Status

Distinguished McKnight Professor, Department of Neuroscience, University of Minnesota.

Full member, Neuroscience Graduate Training Faculty
Full member, Biomedical Engineering Training Faculty
Full Member, Center for Cognitive Science
Core Member, Neuroengineering Center
Member, Biomedical Engineering Institute
Adjunct associate professor, Department of Psychology

Member, IGERT Computational Neuroscience Training Faculty
Member, NIH Roadmap Computational Neuroscience Training Faculty
Member, NIDA Training Grant Training Faculty

Member, CCS Training Grant Training Faculty [Center for Cognitive Science]
Member, CNBD Training Grant Training Faculty [Center for Neurobehavioral development]

Awards and Fellowships

2014 Distinguished McKnight University Professorship
2011 Outstanding Postdoctoral Mentor Award (UMN)
2010-2013 Human Frontiers Science Program Project Award
2005-2007 TTURC [Transdisciplinary Tobacco Use Research Center] Career Development Award
2004-2006 McKnight Land-Grant Professorship
2003-2005 Alfred P. Sloan Fellow
2002-2004 McKnight Technology Innovation in Neuroscience Award
2002 Young investigator award, Spring Brain Conference

1997-2000 NIH National Research Service Award (NRSA)
1998 Distinguished Thesis Award: Computer Science Department, Carnegie Mellon University
1994 Participated in NSF Telluride Workshop
1991-1993 National Science Foundation Fellowship,
1991 IBM Outstanding Achievement award: Computer Science Department, Johns Hopkins University

Technical Publications

Books

A. D. Redish (2013) *The Mind within the Brain: How we make decisions and how those decisions go wrong*, Oxford University Press.
A.D. Redish (1999) *Beyond the Cognitive Map: From Place Cells to Episodic Memory*, MIT Press.

Journal Articles

J. J. Stott, A. D. Redish (in press) “A functional difference in information processing between orbitofrontal cortex and ventral striatum during decision-making behavior” *Philosophical Transactions of the Royal Society B*.

- W. Bickel, R. D. Landes, Z. Kurth-Nelson, A. D. Redish (in press) “A Quantitative Signature Of Self-Control Repair: Rate-Dependent Effects Of Successful Addiction Treatment” *Clinical Psychological Science*.
- M. Takahashi, H. Nishida, A. D. Redish, J. Lauwereyns (in press) “Theta Phase Shift in Spike Timing and Modulation of Gamma Oscillation: A Dynamic Code for Spatial Alternation during Fixation in Rat Hippocampal Area CA1” *J. Neurophysiology*.
- N. J. Powell, A. D. Redish (2014) “Complex neural codes in rat prelimbic cortex are stable across days on a spatial decision task” *Frontiers in Behavioral Neuroscience* 8:00120.
- A. D. Redish (2013) “The Dangers of Dualism: Implications of the multiple decision-making system theory for Free Will and Responsibility” *Cognitive Critique* 7:1-28.
- B. J. Schmidt, A. D. Redish (2013) “Navigation with a cognitive map” *Nature* 497:42-43. [Commentary on Pfeiffer & Foster 2013 *Nature*.]
- A. M. Wikenheiser, D. W. Stephens, A. D. Redish (2013) “Subjective costs drive overly-patient foraging strategies in rats on an intertemporal foraging task” *PNAS* 110(20):8308-8313.
- B. J. Schmidt, A. E. Papale, A. D. Redish, E. J. Markus (2013) “Conflict between Place and Response Navigation Strategies: Effects on Vicarious Trial and Error (VTE) Behaviors” *Learning and Memory* 20:130-138.
- A. M. Wikenheiser, A. D. Redish (2013) “The balance of forward and backward hippocampal sequences shifts across behavioral states” *Hippocampus* 23:22-29.
- Z. Kurth-Nelson and A. D. Redish (2012) “Don’t let me do that! – models of precommitment” *Frontiers in Neuroscience* 6:138. doi: 10.3389/fnins.2012.00138.
- A. P. Steiner, A. D. Redish (2012) “The road not taken: neural correlates of decision making in orbitofrontal cortex” *Frontiers in Decision Neuroscience* 6:131 doi:10.3389/fnins.2012.00131.
- A.E. Papale, J. J. Stott, N. J. Powell, P. S. Regier, A. D. Redish (2012) “Interactions between Deliberation and Delay-Discounting in Rats” *Cognitive, Affective, and Behavioral Neuroscience* 12(3):513-526.
- M. A. A. van der Meer, Z. Kurth-Nelson, A. D. Redish (2012) “Information processing in decision-making systems” *The Neuroscientist* 18(4):342-359.
- Z. Kurth-Nelson, W. K. Bickel, A. D. Redish (2012) “A theoretical account of cognitive effects in delay discounting” *European Journal of Neuroscience* 35:1052-1064,
- A.S. Gupta, M.A.A. van der Meer, D.S.Touretzky, A.D. Redish (2012) “Segmentation of spatial experience by hippocampal theta sequences” *Nature Neuroscience* 15:1032-1039.
- J. E. Ferguson, C. Boldt, J. G. Puhl, T. W. Stigen, J. C. Jackson, K. M. Crisp, K. A. Mesce, T. I. Netoff, A. D. Redish (2012) “Nanowires precisely grown on the ends of microwire electrodes permit the recording of intracellular action potentials within deeper neural structures” *Nanomedicine* 7(6):847-854.

- A. M. Wikenheiser, A. D. Redish (2012) “Hippocampal sequences link past, present and future” *TICS* (Spotlight).
- A. M. Wikenheiser, A. D. Redish (2011) “Changes in reward contingency modulate the trial to trial variability of hippocampal place cells” *J Neurophysiology* 106(2):589-598.
- J. E. Ferguson, A. D. Redish (2011) “Wireless communication with implanted medical devices using the conductive properties of the body” *Expert Reviews of Medical Devices* 8(4):427-33.
- W. Bickel, R. Landes, D. Christensen, L. Jackson, B. Jones, Z. Kurth-Nelson, A. D. Redish (2011) “Single- and Cross-Commodity Discounting Among Cocaine Addicts: The Commodity and Its Temporal Location Determine Discounting Rate” *Psychopharmacology* 217(2):177-187.
- M. A. A. van der Meer, A. D. Redish (2011) “Ventral striatum: a critical look at models of learning and evaluation” *Current Opinion in Neurobiology* 21(3):387-392
- J. E. Ferguson, J. C. Jackson, A. D. Redish (2011) “An inside look at hippocampal silent cells” *Neuron* 70:3-5.
- A. Blumenthal, A. P. Steiner, K. D. Seeland, A. D. Redish (2011) “Effects of pharmacological manipulations of NMDA-receptors on deliberation in the Multiple-T task” *Neurobiology of Learning and Memory* 95:376-384.
- M. A. A. van der Meer, A. D. Redish (2011) “Theta phase precession in rat ventral striatum links place and reward information” *Journal of Neuroscience* 31(8):2843-2854.
- Z. Kurth-Nelson, A. D. Redish (2010) “A Reinforcement Learning Model of Precommitment in Decision Making” *Frontiers in Behavioral Neuroscience* 4:184. doi: 10.3389/fnbeh.2010.00184
- M. A. A. van der Meer, T. Kalensher, C. S. Lansink, C. M. A. Pennartz, J. Berke, A. D. Redish (2010) “Integrating early results on ventral striatal gamma oscillations in the rat” *Frontiers in Neuroscience* 4(28):1-12.
- M. A. A. van der Meer, A. Johnson, N. C. Schmitzer-Torbert, A. D. Redish (2010) “Triple dissociation of information processing in dorsal striatum, ventral striatum, and hippocampus on a learned spatial decision task” *Neuron* 67:25-32.
- M. A. A. van der Meer, A. D. Redish (2010) “Expectancies in decision making, reinforcement learning, and ventral striatum” *Frontiers in Neuroscience* doi:10.3389/neuro.01.006.2010.
- A. S. Gupta, M. A. A. van der Meer, D. S. Touretzky, A. D. Redish (2010) “Hippocampal replay is not a simple function of experience” *Neuron* 65(5):695-705.
- J. E. Ferguson, C. Boldt, A. D. Redish (2009) “Creating low-impedance tetrodes by electroplating with additives” *Sensors and Actuators: A. Physical* 156:338-393.

- C. Pennartz, J. D. Berke, A. Graybiel, R. Ito, C. Lansink, M. van der Meer, A. D. Redish, K. Smith, and P. Voorn (2009) “Cortico-striatal Interactions during Learning, Memory Processing, and Decision Making.” *Journal of Neuroscience*. 29(41):12831-12838.
- Z. Kurth-Nelson, A. D. Redish (2009) “Temporal-difference reinforcement learning with distributed representations” *PLoS ONE* 4(10): e7362.
- A. D. Redish (2009) “Implications of the multiple-vulnerabilities theory of addiction for craving and relapse” *Addiction*. 104:1940-1941.
- M. A. A. van der Meer, A. D. Redish (2009) “Low and high gamma oscillations in rat ventral striatum have distinct relationships to behavior, reward, and spiking activity on a learned spatial decision task” *Frontiers in Integrative Neuroscience* 3:9. doi:10.3389/neuro.07.009.2009.
- J. Lisman, A. D. Redish (2009) “Prediction, sequences, and the hippocampus” *Philosophical Transactions of the Royal Society B* 364:1193-1201.
- M. A. A. van der Meer, A. D. Redish (2009) “Covert expectation-of-reward in rat ventral striatum at decision points” *Frontiers in Integrative Neuroscience* 3(1):1-15.
- A. Johnson, A. Fenton, C. Kentros, A. D. Redish (2009) “Looking for cognition in the structure in the noise” *Trends in Cognitive Sciences* 13(2):55-64.
- A. D. Redish, S. Jensen, A. Johnson (2008) “A unified framework for addiction: vulnerabilities in the decision process” *Behavioral and Brain Sciences* 31:415-437 with discussion pp. 437-487.
- N. C. Schmitzer-Torbert, A. D. Redish (2008) “Task-dependent encoding of space and events by striatal neurons is dependent on neural subtype” *Neuroscience* 153(2):349-360.
- A. Johnson, M. A. A. van der Meer, A. D. Redish (2007) “Integrating hippocampus and striatum in decision making” *Current Opinion in Neurobiology* 17(6):692-697.
- A. Johnson, A. D. Redish (2007) “Neural ensembles in CA3 transiently encode paths forward of the animal at a decision point” *Journal of Neuroscience* 27(45):12176-12189.
- J. C. Jackson, A. D. Redish (2007) “Network dynamics of hippocampal cell-assemblies resemble multiple spatial maps within single tasks” *Hippocampus* 17:1209-1229.
- A. D. Redish, S. Jensen, A. Johnson, Z. Kurth-Nelson (2007) “Reconciling reinforcement learning models with behavioral extinction and renewal: implications for addiction, relapse, and problem gambling.” *Psychological Review* 114(3): 784-805.
- A. D. Redish, A. Johnson (2007) “A computational model of craving and obsession” *Annals of the New York Academy of Sciences* 1104: 324-339. doi:10.1196/annals.1390.014
- A. D. Redish (2007) “A window on cognition” *Scientific American Mind*. (Originally published as the part of the initial ScienceBlog on the Scientific American website, as “Through the Grid, a Window on Cognition” 23 January 2007, *Scientific American Mind*. <http://blog.sciam.com/>)

- J.C. Jackson, A. Johnson, A.D. Redish (2006) “Hippocampal sharp waves and reactivation during awake states depend on repeated sequential experience” *Journal of Neuroscience* 26:12415-12426.
- B. Masimore, N.C. Schmitzer-Torbert, J. Kakalios, A.D. Redish (2005) “Striatal local field potentials signal initiation of movement in rats” *NeuroReport* 16(18):2021-2024.
- R. Venkateswaran, C. Boldt, J. Parthasarathy, B. Ziaie, A. G. Erdman, A. D. Redish (2005) “A motorized microdrive for recording of neural ensembles in awake behaving rats” *Journal of Biomechanical Engineering* 127:1035-1040
- A. Johnson, A.D. Redish (2005) “Hippocampal replay contributes to within session learning in a temporal difference reinforcement learning model” *Neural Networks* 18(9):1163-1171.
- N.C. Schmitzer-Torbert, J.C. Jackson, D. Henze, K.D. Harris, A.D. Redish (2005) “Quantitative measures of cluster quality for use in extracellular recordings” *Neuroscience* 131:1-11.
- A. Johnson, K. D. Seeland, A. D. Redish (2005) “Reconstruction of the postsubiculum head direction signal from neural ensembles” *Hippocampus* 15:86-96.
- A.D. Redish (2004) “The addiction compulsion: a computational process gone awry” *Science* 306:1944-1947.
- B. Masimore, J. Kakalios, A.D. Redish (2004) “Measuring fundamental frequencies in local field potentials” *Journal of Neuroscience Methods* 138(1-2):97-105.
- N. C. Schmitzer-Torbert and A. D. Redish (2004) “Neuronal activity in the rodent dorsal striatum on a sequential navigation task: Separation of responses to sequence and reward on the multiple T task”, *Journal of Neurophysiology* 91(5):2259-2272.
- J. C. Jackson, A.D. Redish (2004) “Measuring ensemble consistency without measuring tuning curves”, *Neurocomputing* 58-60C: 91-99.
- J.C. Jackson, A.D. Redish (2003) “Detecting dynamical changes within a simulated neural ensemble using a measure of representational quality” *Network: Computation in Neural Systems*, 14:629-645.
- E. S. Rosenzweig, A. D. Redish, B. L. McNaughton, C. A. Barnes (2003) “Hippocampal map realignment and spatial learning”, *Nature Neuroscience*, 6(6):609-615.
- N.C. Schmitzer-Torbert, A.D. Redish (2002) “Development of path-stereotypy in a single day in rats on a multiple-T maze” *Archives Italiennes Biologie* 140:295-301.
- A.D. Redish (2001) “The hippocampal debate: Are we asking the right questions?” *Behavioural Brain Research* 127:81-98.
- A.D. Redish, F.P. Battaglia, M.K. Chawla, A.D. Ekstrom, J.L. Gerrard, P. Lipa, E.S. Rosenzweig, P.F. Worley, J.F. Guzowski, B.L. McNaughton, C.A. Barnes (2001) “Hippocampal pyramidal cells located near each other anatomically do not show related spatial firing correlates”, *Journal of Neuroscience* 21(RC134):1-6.

- A. D. Redish, E. S. Rosenzweig, J. D. Bohanick, B. L. McNaughton, C. A. Barnes (2000) “Hippocampal ensemble activity realignment: Time vs. space”, *Journal of Neuroscience*, 20(24):9289-9309.
- A. D. Redish, B. L. McNaughton, C. A. Barnes (2000) “Place cell firing shows an inertia-like process”, *Neurocomputing*, 32–33: 235–241.
- J. P. Goodridge, A. D. Redish, and D. S. Touretzky (1999) “A model of the rodent head direction system that accounts for unique properties of anterior thalamic head direction cells”, *Neurocomputing* 26–27(1–3):705-711.
- A. D. Redish, B. L. McNaughton, and C. A. Barnes (1998) “Reconciling Barnes et al. (1997) and Tanila et al. (1997a, 1997b)”, *Hippocampus* 8(5): 438-443.
- A.D. Redish and D.S. Touretzky (1998) “The Role of the Hippocampus in Solving the Morris Water Maze”, *Neural Computation* 10(1): 73-112.
- A.D. Redish and D.S. Touretzky (1997) “Cognitive Maps beyond the Hippocampus”, *Hippocampus*. 7(1): 15-35.
- A.D. Redish, A.N. Elga, and D.S. Touretzky (1996) “A Coupled Attractor Model of the Rodent Head Direction System”, *Network: computation in neural systems*. 7(4):671-685.
- D.S. Touretzky and A.D. Redish (1996) “A Theory of Rodent Navigation Based on Interacting Representations of Space”, *Hippocampus* 6(3): 247-270.
- A.D. Redish and D.S. Touretzky (1994) “The Reaching Task: Evidence for vector subtraction in the motor system” *Biological Cybernetics* 71(4): 307-317.
- D.S. Touretzky, A.D. Redish, and H.S. Wan (1993) “Neural Representation of Space Using Sinusoidal Arrays”, *Neural Computation*, 5(6): 869-884.

PhD Dissertation

- A.D. Redish (1997) Beyond the Cognitive Map: Contributions to a Computational Theory of Rodent Navigation, Computer Science Department, Carnegie Mellon University.

Book Chapters and Conference Articles

- A. D. Redish, A. D. Ekstrom (2012) “Hippocampus and related areas: What the place cell literature tells us about cognitive maps in rats and humans” In *Handbook of Spatial Cognition*, D. Waller and L. Nadel, eds. APA. Chapter 1, pages 13-34.
- A. E. Papale, R. Mork, C. Boldt, J. C. Jackson, J. E. Ferguson, A. D. Redish (in press) “Wireless Galvanic transmission through neural tissue via modulation of a carrier signal by a passive probe” *Journal of Medical Devices*.

- C. A. Winstanley, T. W. Robbins, B. W. Balleine, J. W. Brown, C. Büchel, R. Cools, D. Durstewitz, J. P. O'Doherty, C. M. A. Pennartz, A. D. Redish, J. K. Seamans (2012) in *Cognitive Search: Evolution, Algorithms, and the Brain*, P. M. Todd, T. T. Hills, T. W. Robbins (eds). Strüngmann Forum Reports, MIT Press. Chapter 9, pages 125-156.
- A.D. Redish (2012) "Search processes and hippocampus" in *Cognitive Search: Evolution, Algorithms, and the Brain*, P. M. Todd, T. T. Hills, T. W. Robbins (eds). Strüngmann Forum Reports, MIT Press. Chapter 6, pages 81-95.
- Z. Kurth-Nelson and A. D. Redish (2012) "Modeling decision-making systems in addiction" in *Computational Neuroscience of Drug Addiction*. B. Gutkin, S. Ahmed (eds). Springer. Chapter 6, pages 163-188.
- A. D. Redish (2010) "Addiction as a breakdown in the machinery of decision-making" in *what is addiction?* D. Ross, H. Kincaid, D. Spurrett, P. Collins (eds). MIT Press. Chapter 4 Pages 99-130.
- A. D. Redish and Z. Kurth-Nelson (2010) "Neural models of temporal discounting" in *Impulsivity: Theory, Science, and Neuroscience of Discounting*. G. Madden and W. Bickel (eds). APA books. Chapter 5. Pages 123-158.
- A. Johnson, J. Jackson, A. D. Redish (2009) "Measuring distributed properties of neural representations beyond the decoding of local variables – implications for cognition" in *Mechanisms of information processing in the Brain: Encoding of information in neural populations and networks*. Holscher and Munk (Eds), Cambridge University Press, Cambridge UK. Chapter 5. Pages 95-119.
- KM Al-Ashmouny, C Boldt, JE Ferguson, AG Erdman, AD Redish, E Yoon (2009) "IBCOM (Intra-Brain Communication) Microsystem: Wireless Transmission of Neural Signal within The Brain", (366) *31st Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC'09)* .
- JE Ferguson, C Boldt, AD Redish (2009) "Creating low-impedance coatings for neural recording electrodes using electroplating inhibitors" *J. Med. Devices* June 2009. 3(2):027523 (1 pages). DOI:10.1115/1.3147086
- KM Al-Ashmouny, C Boldt, JE Ferguson, AG Erdman, AD Redish, E Yoon (2009) "The neural nanoprobe: Physically decoupling the neural recording site from the headstage" *J. Med. Devices* June 2009. 3(2):027524 (1 pages) DOI:10.1115/1.3147087
- J. Parthasarathy, J. Hogenson, A.G. Erdman, A.D. Redish, B. Ziaie (2006) "Battery-operated High-bandwidth Multi-channel Wireless Neural Recording System using 802.11b" *28th IEEE EMBS Annual International Conference*. 1:5989-5992.
- J. Parthasarathy, A.G. Erdman, A.D. Redish, B. Ziaie (2006) "An Integrated CMOS Bio-potential Amplifier with a Feed-Forward DC Cancellation topology" *28th IEEE EMBS Annual International Conference*. 1:2974-2977.

- B. Masimore, J. Kakalios and A. D. Redish (2003) “Measuring neural coupling from non-Gaussian power spectra of voltage traces taken from awake, behaving animals”, Proceedings of SPIE vol. 5110, *Fluctuations and Noise in Biological, Biophysical, and Biomedical Systems*, edited by Sergey M. Bezrukov, Hans Frauenfelder and Frank Moss. (SPIE, Bellingham, WA), pages 224-234.
- A.D. Redish and D.S. Touretzky (1999) “Separating Hippocampal Maps”, *Spatial Functions of the Hippocampal Formation and the Parietal Cortex*, edited by N. Burgess, K. Jeffery, and J. O’Keefe, Oxford University Press, Chapter 11, pages 203-219
- M.C. Fuhs, A.D. Redish, and D.S. Touretzky (1998) “A Visually Driven Hippocampal Model”, *Computational Neuroscience: Trends in Research*, edited by J. M. Bower, Kluwer Academic Press.
- A.D. Redish and D.S. Touretzky (1998) “The Role of the Hippocampus in Solving the Morris Water Maze”, *Computational Neuroscience: Trends in Research*, edited by J. M. Bower, Kluwer Academic Press.
- A.N. Elga, A.D. Redish, and D.S. Touretzky (1997) “A Model of the Rodent Head Direction System”, *Computational Neuroscience: Trends in Research*, edited by J. M. Bower, Kluwer Academic Press
- A.D. Redish and D.S. Touretzky (1997) “Computing Goal Locations from Place Codes”, in *Symbolic Visual Learning*, Katsu Ikeuchi and Manuela Veloso eds., Oxford University Press, Chapter 12 , pages 325-351.
- A.D. Redish and D.S. Touretzky (1996) “Modeling Interactions of the Rat’s Place and Head Direction Systems”, *Advances in Neural Information Processing Systems 8*, D. S. Touretzky, M. C.. Mozer and M. E.. Hasselmo, eds., MIT Press, pages 61-67.
- D. S. Touretzky and A. D. Redish (1995) “Landmark Arrays and the Hippocampal Cognitive Map”, *Current trends in connectionism - Proceedings of the 1995 Swedish Conference on Connectionism*, L. Niklasson and M. Boden eds., pp 1-13, Lawrence Erlbaum.
- A. D. Redish, D. S. Touretzky, and H. S. Wan (1994) “The Sinusoidal Array: A Theory of Representation for Spatial Vectors”, *Computation in Neurons and Neural Systems*, F. H. Eeckman, ed., pp. 269-275, Kluwer Academic Publishers.
- D. S. Touretzky, H. S. Wan, and A. D. Redish (1994) “Neural representations of space in rats and robots”, *Computational Intelligence: Imitating Life*, J. M. Zurada, R. J. Marks II, and C. J. Robinson eds., pp. 57-68, IEEE Press.
- H. S. Wan, D. S. Touretzky, and A. D. Redish (1994) “Computing Goal Locations from Place Codes”, *Proceedings of the 16th annual conference of the Cognitive Science society*, pp 922-927, Lawrence Earlbaum Associates.
- H. S. Wan, D. S. Touretzky, and A. D. Redish (1994) “Towards a Computational Theory of Rat Navigation”, *Proceedings of the 1993 Connectionist Models Summer School*, M. Mozer, P. Smolensky, D. Touretzky, J. Elman, and A. Weigerd, eds., pp 11-19, Lawrence Earlbaum Associates.

Abstracts

- Y. A. Breton, K. D. Seeland, A. D. Redish (2013) "Delay-discounting, aging, and vicarious trial and error (VTE) behaviors". *SFN 2013*.
- N. J. Powell, A. D. Redish (2013) "Spatial and strategic representations in the medial prefrontal cortex of the rat on an intertemporal choice task". *SFN 2013*.
- P. S. Regier, A. D. Redish (2013) "Representational changes in anterior dorsolateral and posterior dorsomedial striatum on an automating decision-making task". *SFN 2013*.
- J. J. Stott, A. D. Redish (2013) "Differences in the covert representation of reward in ventral striatum and orbitofrontal cortex". *SFN 2013*.
- A. M. Wikenheiser, A. D. Redish (2013) "Hippocampal theta sequences transiently represent goal locations as rats perform an intertemporal foraging task". *SFN 2013*.
- A. P. Steiner, A. D. Redish (2012) "The road not taken: Neural correlates of decision-making in orbitofrontal cortex". *SFN 2012*.
- N. J. Powell, A. D. Redish (2012) "Rat medial prefrontal cortical responses on a spatial decision-making task". *SFN 2012*.
- A. S. Gupta, M. A. A. van der Meer, D. S. Touretzky, A. D. Redish (2012) "Hippocampal theta sequences segment spatial experience on a decision-making task". *SFN 2012*.
- A. M. Wikenheiser, A. D. Redish (2012) "The balance of forward and backward hippocampal sequences shifts across behavioral states". *SFN 2012*.
- A. D. Redish, A. P. Steiner (2012) "Revealed preferences in the rat: Restaurant Row". *SFN 2012*.
- A. E. Papale, P. S. Regier, J. J. Stott, N. J. Powell, A. D. Redish (2012) "Vicarious trial and error (VTE) behaviors on a spatial delay-discounting task". *SFN 2012*.
- B. J. Schmidt, A. E. Papale, E. J. Markus, A. D. Redish (2012) "Vicarious trial and error (VTE) behaviors on a task that puts place and response strategies into conflict". *SFN 2012*.
- P. S. Regier, A. D. Redish (2012) "What is the role of decision-making systems in contingency management?" *SFN 2012*
- A. Blumenthal, A. Steiner, K. Seeland, A. D. Redish (2010) "Involvement of NMDA-receptors in vicarious-trial-and-error behaviors on a spatial task". *SFN 2010*.
- M. A. van der Meer, A. D. Redish (2010) "Ventral striatal anticipatory "ramp" cells phase precess relative to the hippocampal theta rhythm" *SFN 2010*.
- A. S. Gupta, A. D. Redish, D. S. Touretzky (2010) "Exploiting the hippocampal theta phase gradient to learn cognitive maps" *SFN 2010*.
- A. Steiner, A. D. Redish (2010) "Orbitofrontal cortical ensembles during deliberation and learning on a spatial decision-making task" *SFN 2010*.
- Z. Kurth-Nelson, A. D. Redish (2010) "A reinforcement-learning model of pre-commitment to decisions" *SFN 2010*.

- A. Papale, J. E. Ferguson, C. Boldt, A. D. Redish (2010) “Seps toward decoupling ensemble recording sites from the headstage” *SFN 2010*.
- J. E. Ferguson, C. Boldt, A. D. Redish (2010) “Nanoelectrodes for intracellular recordings” *SFN 2010*.
- A. S. Gupta, M. van der Meer, D. S. Touretzky, A. D. Redish (2009) Cognitive influences on sequence replay and construction in the rodent hippocampus. *SFN 2009*.
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- M van der Meer, A Johnson, N. Schmitzer-Torbert, A D Redish (2009) “Dissociations in ensemble dynamics between rat dorsal striatum, ventral striatum, and hippocampus” *CoSyne, 2009*.
- AD Redish, NC Schmitzer-Torbert, A Johnson, MAA van der Meer (2008) “Lost in thought? Pausing behavior at the high-cost choice point on the multiple-T task” *SFN 2008*.
- A Johnson, AA Fenton, C Kentros, AD Redish (2008) “Identifying structure in the noise - covert variables and cognition” *SFN 2008* 684.3.
- MAA van der Meer, AD Redish (2008) “Non-local reward processing in rat ventral striatum” *SFN 2008* 684.2
- AD Redish, A Johnson, M van der Meer (2008) “Search and expectancies on the Multiple-T task” *ICCNS 2008*.
- A. D. Redish (2007) A novel framework for addiction: Vulnerabilities in the decision-making system *Society for Neuroscience* 610.1.
- A. Johnson, P. Schrater, A. D. Redish (2007) Use of multiple generative models for identifying and decoding spatial memory in the hippocampus *CoSyne 2007*.
- S. L. Jutila, A. D. Redish (2006) “The NMDA-receptor antagonist CPP, given systemically, impairs exploration but not ability to complete a modified Hebb-Williams Maze” *Society for Neuroscience Abstracts* 31.
- A. Johnson, A. D. Redish (2006) “Neural ensembles in CA3 transiently encode paths forward of the animal at a decision point: a possible mechanism for the consideration of alternatives” *Society for Neuroscience Abstracts* 31.
- A. D. Redish (2005) “Implications of the Temporal Difference Reinforcement Learning Model for Addiction and Relapse” *Neuropsychopharmacology* 30(Suppl 1):S27-28.
- G.P. Cortese, M. Little, A. Johnson, A.D. Redish (2005) “Opposite effects of inactivations of dorsal hippocampus or dorsal striatum on maze learning” *Society for Neuroscience Abstracts* 30.
- N.C. Schmitzer-Torbert, A.D. Redish (2005) “Identification and behavioral correlates of putative striatal interneurons in rodents” *Society for Neuroscience Abstracts* 30.
- A.D. Redish, S. Jensen, A. Johnson, Z. Kurth-Nelson (2005) “Reward loss does not produce unlearning: Implications for TDRL” *Society for Neuroscience Abstracts* 30.

- A. Johnson, N.C. Schmitzer-Torbert, J.C. Jackson, A.D. Redish (2005) “Differential changes in neural activity in the dorsal hippocampus and dorsal striatum during performance of a Multiple-T task” *Society for Neuroscience Abstracts* 30.
- J.C. Jackson, A. Johnson, A.D. Redish (2005) “Sharp-wave events and correlated neuronal activity increase during behavior” *Society for Neuroscience Abstracts* 30.
- A.D. Redish, A. Johnson, S. Jensen, J. Jackson (2005) “Latent Learning requires multiple value functions within TDRL” *Computational Neural Systems*2005*.
- A. Johnson, A.D. Redish (2005) “Hippocampal replay contributes to within session learning in a temporal difference reinforcement learning model” *Computational Neural Systems*2005*.
- J.C. Jackson, A. Johnson, A.D. Redish (2005) “Hippocampal sharp wave events increase during behavior with experience within session” *Computational Neural Systems*2005*.
- N.C. Schmitzer-Torbert, A.D. Redish (2004) “Task-dependent spatial encoding in the dorsal striatum” *Society for Neuroscience Abstracts* 30.
- B. Masimore, N.C. Schmitzer-Torbert, J.C. Jackson, J. Kakalios, A.D. Redish (2004) “Synchronous oscillations in striatal local field potentials correlate with movement initiation” *Society for Neuroscience Abstracts* 30.
- A.D. Redish (2004) “The addiction process: a computational process gone awry” *Society for Neuroscience Abstracts* 30.
- Z. Kurth-Nelson, A.D. Redish (2004) “uAgents: Action-selection in temporally-dependent phenomena using temporal difference learning over a collective belief structure” *Society for Neuroscience Abstracts* 30.
- A. Johnson, K.D. Seeland, A.D. Redish (2003) “Head-direction ensembles recorded from awake, behaving rats in an open field under cue-conflict situations” *Society for Neuroscience Abstracts* 29.
- N.C. Schmitzer-Torbert, S. Rao, J.C. Jackson, A.D. Redish (2003) “Changes in patterns of neural firing in the rodent dorsal striatum precede development of a regular route” *Society for Neuroscience Abstracts* 29.
- B. Masimore, J. Kakalios, A.D. Redish (2003) “Correlations between frequencies of local field potential oscillations indicate specific components in the theta, gamma, and high frequency (hfo) ranges in dorsocentral striatum” *Society for Neuroscience Abstracts* 29.
- J.C. Jackson, N.C. Schmitzer-Torbert K.D. Harris, A.D. Redish (2003) “Quantitative assessment of extracellular multichannel recording quality using measures of cluster separation” *Society for Neuroscience Abstracts* 29.
- A. D. Redish, N. C. Schmitzer-Torbert, and J. C. Jackson (2002) “Classification of dorsal striatal neurons from extracellular recordings in awake behaving rats” *Society for Neuroscience Abstracts* 28.

- N. C. Schmitzer-Torbert, J. C. Jackson, A. D. Redish (2002) “Behavioral correlates of neuronal activity in the rodent dorsal striatum: The Multiple-T task” *Society for Neuroscience Abstracts* 28.
- J. C. Jackson, N. C. Schmitzer-Torbert, A. D. Redish (2002) “Behavioral correlates of neuronal ensemble in dorsal striatum on a conditioned response task” *Society for Neuroscience Abstracts* 28.
- E.S. Rosenzweig, A.D. Redish, B.L. McNaughton, and C.A. Barnes (2002) “Age-related changes in hippocampal map realignment” *Society for Neuroscience Abstracts* 28.
- J.L. Gerrard, H.K. Kudrimoti, S.L. Cowen, A.D. Redish, E.S. Rosenzweig, C.A. Barnes, and B.L. McNaughton (2002) “Dissociation of pattern and sequence reactivation efficiency in the aged rat hippocampus” *Society for Neuroscience Abstracts* 28.
- A. D. Redish, F. P. Battaglia, A. D. Ekstrom, J. L. Gerrard, P. Lipa, E. S. Rosenzweig, B. L. McNaughton, C. A. Barnes (2000) “Hippocampal pyramidal cells located near each other anatomically do not show related spatial firing correlates”, *Society for Neuroscience Abstracts* 26:982
- E. S. Rosenzweig, A. D. Ekstrom, A. D. Redish, B. L. McNaughton, C. A. Barnes (2000) “Phase precession as an experience-independent process: Hippocampal pyramidal cell phase precession in a novel environment and under NMDA-receptor blockade”, *Society for Neuroscience Abstracts* 26:982.
- J. L. Gerrard, S. L. Cowen, H. S. Kudrimoti, E. S. Rosenzweig, A. D. Redish, B. L. McNaughton, C. A. Barnes (2000) “Equivalent reactivation of hippocampal memory traces for a novel experience in young adult and aged rats”, *Society for Neuroscience Abstracts* 26:981.
- A.D. Redish, E.S. Rosenzweig, J.D. Bohanick, B.L. McNaughton, and C.A. Barnes (1999) “Dynamics of Hippocampal Map Realignment”, *Society for Neuroscience Abstracts* 25:2165.
- E.S. Rosenzweig, A.D. Redish, J.D. Bohanick, B.L. McNaughton, and C.A. Barnes (1999) “Behavioral Correlates of Hippocampal Map Realignment”, *Society for Neuroscience Abstracts* 25:2165.
- M.C. Fuhs, A.D. Redish, and D.S. Touretzky (1997) “Place Cell-like Location Specific Activity may be Generated without Complex Landmark Identification Processes”, *Society for Neuroscience Abstracts*, 23:502.
- J.P. Goodridge, A.D. Redish, H.T. Blair, P.E. Sharp, and D.S. Touretzky (1997) “Lateral Mamillary Input Explains Distortions in Tuning Curve Shapes of Anterior Thalamic Head Direction Cells”, *Society for Neuroscience Abstracts*, 23:503
- A.D. Redish and D.S. Touretzky (1997) “Implications of Attractor Networks for Cue Conflict Situations”, *Society for Neuroscience Abstracts*, 23:1601
- A.D. Redish and D.S. Touretzky (1996) “Details of a comprehensive theory of rodent navigation”, *Society for Neuroscience Abstracts* 22:678.

D.S. Touretzky, S.J.C. Gaulin, and A.D. Redish (1996) “Gerbils regularly return to their entry point when exploring a novel environment”, *Society for Neuroscience Abstracts* 22:449.

A.D. Redish and D.S. Touretzky (1995) “Revisiting the Papez Circuit: The Role of Hippocampus and its Afferent and Efferent Structures in Rodent Navigation”, *Society for Neuroscience Abstracts* 21:942.

L.M. Saksida, A.D. Redish, C.R. Milberg, S.J.C. Gaulin, and D.S. Touretzky (1995) “Landmark-based Navigation in Gerbils Supports Vector Voting”, *Society for Neuroscience Abstracts* 21:1939.

H.S. Wan, D.S. Touretzky, and A.D. Redish (1994) “A Rodent Navigation Model that Combines Place Code, Head Direction, and Path Integration Information”, *Society for Neuroscience Abstracts* 20:1205.

D.S. Touretzky, A.D. Redish, H.S. Wan, and B.L. McNaughton (1993) “Sinusoidal Arrays: A theory of representation in parietal and motor cortices”, *Society for Neuroscience Abstracts* 19:794.

Products

A. D. Redish (version 2.0, 2000; version 3.0, 2002, version 3.2–3.4, 2003, version 3.5, 2008; version 4.0, 2013) “MClust: A spike-sorting toolbox”, available from <http://umn.edu/~redish/MClust>

Grants

In Progress

A. D. Redish (award) 2014-2019 *Distinguished McKnight Professorship*

A. D. Redish (PI) 2008-2013 “A hippocampal mechanism for considering possibilities”
R01-MH080318

A. D. Redish (PI), Ichiro Tsuda (Japan), Jan Lauwereyens (New Zealand), Emma Wood (UK), Paul Dudchenko (UK) “Deliberative decision-making in rats” 2010-2013 *HFSP (Human Frontiers Science Program)*

A. D. Redish (PI) 2012-2017 “The covert expectation of reward during deliberation”
R01-DA030672

A. D. Redish (PI), Mark Masino [UMN], Kevin Crisp [St. Olaf] 2012-2015 “Decoupling the recording site from the headstage” *NSF/IOS-1146243*

A. D. Redish (PI) 2012-2014 “Temporal discounting and decision-making in aged rats”
R03-AG041734

Completed

W. Bickel (PI), A. D. Redish 2008-2013 “Executive Function Therapy for Stimulant Addiction” *R01 DA024080* (subcontract)

- A. D. Redish (PI) 2011-2012 “Nanowire Tetrodes” *Wallin Fund*
- A. D. Redish (PI), B. Ziaie, A. G. Erdman, "Wireless recordings in awake, behaving rodents". 2002-2005 *McKnight Foundation*.
- A. D. Redish (PI), “CRCNS: Coherency --- measuring representational quality” 2002-2005 *NIMH R01-MH68029*.
- A. D. Redish (award), 2003-2005 *Sloan Fellowship*.
- A. D. Redish (award), 2004-2006 *McKnight Land-Grant Professorship*.
- J. Kakalios (PI), A. D. Redish “Transient oscillations in Local Field Potentials” 2005-2006 *Grant-in-aid of Research, Artistry, and Scholarship*.
- B. Ziaie (PI), A. D. Redish “Electronically Reconfigurable Microfabricated Tetrodes” 2005-2007 *NIBIB R21-EB005019*. (subcontract)
- A. D. Redish (PI) “Rodent footprint tracking in runways and large mazes” 2005 *MMF*.
- A. D. Redish (PI) “Implications of the TDRL computational model of addiction on smoking” 2005-2007 *TTURC Faculty Career Development Award*.
- G. Havey (PI), A. D. Redish “Wireless System-On-A-Chip EEG IC for Animal Studies” 2007-2009 *NIBIB R44-NS052066* (subcontract)
- H. Jacobs, B. Ziaie, A. D. Redish “3D neural recording system: self-assembly tools and test” 2006-2008 *NIBIB R21-EB005351* (subcontract)
- E. Yoon (PI), A. D. Redish, A. G. Erdman “Individual research support” 2006 *Biomedical Engineering Institute, University of Minnesota*.
- A. D. Redish (PI) “A hippocampal mechanism for considering possibilities” 2007-2008 *Grant-in-aid of Research, Artistry, and Scholarship*..
- A. D. Redish, E. Yoon, A. G. Erdman (PI) “Steps toward the neural nanoprobe: Ensembles without the wires”2007-2010 *IEM (Institute for Engineering in Medicine (formerly, Biomedical Engineering Institute), University of Minnesota*.
- J. Grant, M. Kushner, K. Winters, R. Stinchfield, A. D. Redish, S. W. Kim 2008-2011 “Center for Excellence” *Institute for Research on Pathological Gambling and Related Disorders*.
- A. D. Redish (PI) “Purchasing a 128-channel neural ensemble recording system” 2010 *Equipment grant (ARRA Supplement request for MH080318)*.

Invited talks, presentations, and participations in conferences

External

2014 Emory University, Atlanta GA

2014 Neurobiology of Learning and Memory Conference, Park City UT

2013 Institute Champalimaud, Lisbon, Portugal
2013 HFSP Meeting, Strasbourg, France.
2013 University of Washington Addiction Symposium, Seattle WA
2013 University of Washington (Psychology Department), Seattle WA
2013 Caltech, Pasadena CA
2013 Eastern Psychological Association, New York NY
2013 Georgia Regents University, Augusta GA
2012 University of St. Thomas, Minneapolis MN.
2012 Gordon Research Conference, Il Ciocco, Lucca, Italy.
2012 Symposium on Biology of Decision-Making, Institut du Cerveau et de la Moelle
Epiniere (ICM), Hopital Pitie-Salpetriere, Paris, France.
2012 Ecole Normale Superieure, Paris France
2012 College de France, Paris France
2012 Northwestern, Chicago IL
2012 CEAR, Georgia State University, Atlanta GA
2012 University of British Columbia, Vancouver CA
2012 Boston University
2012 Brandeis University
2011 International Symposium on Learning, Memory and Cognitive Function.
Mechanisms, Pathology and Therapeutics, Valencia Spain
2011 Dynamic Brain Forum (Part of ICCNN, Hokkaido, Japan)
2011 Summer School in Computational & Cognitive Neuroscience, China
2011 Concordia University, Montreal Canada [Keynote speaker for workshop on the
interpretation of electrophysiological data as a function of behavior]
2011 Janelia Farm workshop: Neural Circuits and Decision-Making in Rodents II
2011 Ernst Struengmann Forum, Frankfurt Germany
2010 Yale University Schwartz Symposium, New Haven CT
2010 APA meeting, New Orleans LA
2010, Janelia Farm workshop: Challenges in Extracellular Electrophysiology: Data
Extraction, Janelia Farm VA
2010, Midbrains, Northfield MN
2009, Goal-Directed Decision Making: Behavior, Neuroscience and Computation
(Princeton NJ).
2009, ICARUS project, Intelligence Advanced Research Projects Agency (IARPA).

2009 Okinawa Computational Neuroscience Course (Okinawa Japan).
2009 Princeton University, Princeton NJ.
2009 Dynamic Brain Forum (Atami, Japan)
2009 University of Pennsylvania, Philadelphia PA
2008 University of Michigan, Ann Arbor MI
2008 University of Arkansas, Little Rock AR
2008 MBL, WoodsHole MA. [Neural Systems & Behavior, Scholar in Residence]
2008 Conference on Learning and Memory, Spitsbergen Norway [Session chair]
2008 Brandeis University, Waltham MA
2008 Conference on Cognitive and Neural Systems [Invited Speaker]
2008 University of Waterloo, Waterloo Canada
2008 Janelia Farm, Washington DC.
2008 Yale
2008 NIDA Conference on Addiction
2007 Okinawa Institute of Science and Technology, Okinawa Japan
2007 Mechanism of Mind and Brain Workshop, Sapporo Hokkaido Japan [Invited speaker, Special English section, Annual Meeting of Japanese Physiology Society,]
2007 Columbia University
2007 Mind and World Conference on Addiction
2007 MidBrains Conferences
2007 NYAS Symposium on Orbitofrontal Function [Session chair]
2007 University of Chicago
2007 Baylor College of Medicine
2006 Center for the Neural Basis of Cognition, Carnegie Mellon University & Univ Pittsburgh, Alumni Lecture
2006 University of Texas, San Antonio
2006 Conference on Decision Making Systems, Lake Arrowhead, UCLA
2006 University of Edinburgh, Edinburgh UK
2006 Mathematical Biosciences Institute, Ohio State Univ, Columbus OH
2006 Knox college, Galesburg IL
2006 Macalaster college, St. Paul MN
2005 (ACNP) American College of Neuropsychopharmacology, Waikoloa, HI
2005 University of Oregon, Eugene OR

2005 McKnight Endowment Fund for Neuroscience annual meeting, Aspen CO
2005 Cold Spring Harbor, NY
2005 CRCNS PI meeting, NSF, Washington DC
2004 Methods in Computational Neuroscience (MCN) @ Marine Biological Laboratory (MBL)
2004 Minnesota State University, Mankato.
2003 Design of Medical Devices conference, Minneapolis MN [Session chair]
2003 Joint UMN-Karolinska conference, Karolinska, Stockholm, Sweden
2002 UCSD, San Diego CA
2002 Spring Brain, Sedona AZ [Session chair]
2002 NSMA, Univ AZ
2001 Conference in memory of Carlo Terzuolo, Brainerd MN
2001 Joint Karolinska-UMN conference, Minnesuing acres MN
2000 University of Illinois, Urbana-Champaign IL
2000 Univeristy of Wisconsin, Madison WI
2000 Brandeis University, Boston MA
2000 Brown Univeristy, Providence RI
2000 University of Minnesota, Minneapolis MN
1999 University of Iowa, Iowa City IA
1999 Memory Disorders Research Symposium, Tucson AZ
1999 Computational Neural Systems conference, Pittsburgh PA
1999 Carnegie Mellon University (Distinguished dissertation award talk), Pittsburgh PA
1998 University of New Mexico, Albuquerque NM
1997 Dartmouth, Hannover NH
1997 NSMA, University of Arizona, Tucson AZ
1996 NIPS Workshop, Snowmass CO
1994 NSF Telluride Workshop, Telluride CO
1994 NSMA, University of Arizona, Tucson AZ
1992 ConnectFest, Bloomington IN

Internal

2014 Institute for Advanced Study (Univ Minnesota)
2012 Consortium on Law and Values in the Health, Environment, and Life Sciences (Univ Minnesota)

2012 Medical Device Center (Univ Minnesota)
2012 Center for Cognitive Sciences (Univ Minnesota)
2011 Center for Neuroengineering Symposium (Univ Minnesota)
2009 Center for Cognitive Sciences (Univ Minnesota)
2009 Center for Neuroengineering Symposium (Univ Minnesota)
2009 UMN MD/PhD program noon seminars (Univ Minnesota)
2006 Neurosci Graduate Program (Univ Minnesota)
2005 TTURC (Univ Minnesota)
2005 Pharmaceuticals (Univ Minnesota)
2005 NIDA Training Grant Retreat (Univ Minnesota)
2004 Graduate Program in Neuroscience (Univ Minnesota)
2003 Center for NeuroBehavioral Development (Univ Minnesota)
2002 Graduate Program in Neuroscience (Univ Minnesota)
2002 Center for Cognitive Science (Univ Minnesota)
2002 Mathematics Department (Univ Minnesota)
2002 Neuroscience Graduate Retreat (Univ Minnesota)
2001 BME lecture series (Univ Minnesota)
2001 Itasca summer program (Univ Minnesota)
2001 EEB (Univ. Minnesota)
2001 Psychology Dept (Univ. Minnesota)
2000 Itasca summer program (Univ. Minnesota)

Professional Activities

2012-present, Editorial Board, *JEAB (Journal of the Experimental Analysis of Behavior)*
2012-present, Member, Canadian College of Reviewers
2012-present, Member Program Committee, *Society for Neuroeconomics*
2012-present, Editorial Board, *Frontiers in Decision Neuroscience* (Review Editor)
2011-present, Editorial Board, *Network: Computation in Neural Systems*
2011-2015 Member, NIH LAM study section (R01/R21)
2011 Ad-hoc Member, NIH LAM study section (R01/R21)
2011 Member, NIDA BSTART SEP study section (R03)
2010 Member, NIDA CEBRA study section (R21)

2010 Ad-hoc Member, NIH LAM study section (R01/R21).
2008, 2009, 2010 Ad-hoc Member, NIH ZRG01 F02A study section (NRSA)
2009 Mail-in Reviewer, NIH ZRG1 ETTN-A study section (RC1)
2008 Ad-hoc Member, NIH SEP study section ZRG1 IFCN-L
2007- *Frontiers in Integrative Neuroscience*, (Review Editor)
2007- *Frontiers in Behavioral Neuroscience*, Review Board (identified referee)
2005-2008 Member, board of directors, *Computational Neural Systems (CNS)* conference
2003-present Editorial board, *Hippocampus* (reviewing editor).
2006 Member, NSF Computational Neuroscience Panel
2005-2006 Ad-hoc member, NIH ZRG1 F02B NIH Study Section
2004 Ad-hoc member, SEP ZMH1 ERB-S 03S NIH Study Section
2003 Member, NASA review panel for NRA 03-OBPR-04

2010-2012 Member, Executive Committee, Center for Cognitive Sciences, UMN
2008-2013 Chair, Admissions committee, Graduate Training Program in Neuroscience,
UMN
2006 Member, Ford Foundation lecture series selection committee
2006 Admissions committee, Graduate Training Program in Biomedical Engineering,
UMN
2005-2006 Member, Presidential Symposium on Neuroscience planning committee
2004- Admissions committee, Graduate Training Program in Neuroscience, UMN
2002 UMN Academic Health Center Seed Grant review committee

2007- Member, MIMTeC, Minimally Invasive Medical Technologies Center (U
Minnesota and U. Cincinnati)

2007- Member, Spatial Intelligence and Learning Center, wider network

2010- Member, Society for Neuroeconomics
2006- Member, American Physiological Society
2006- Member, Sigma Xi
2006- Member, Faculty for Undergraduate Neuroscience
1994- member Society for Neuroscience

1992-1997 Center for the Neural Basis of Cognition (CNBC) Graduate Training Program
(originally Neural Processes in Cognition Graduate Training Program (NPC))
WebMaster, NPC 1993-1995 CNBC 1994-1997

1994-1997 Maintainer, Cognitive Neuroscience sites on the Internet

1996 Neural Information Processing Systems (NIPS) Organizing Committee

1994-1997 WebMaster, NIPS

1992-1994 Co-Maintainer, Connectionists Mailing List

Journal paper reviews (1 in 1995, 3 in 1998, 3 in 1999, 6 in 2000, 8 in 2001, 14 in 2002, 7 in 2003, 21 in 2004, 15 in 2005, 33 in 2006, 24 in 2007, 27 in 2008, 48 in 2009, 28 in 2010).

Ad-hoc and study section grant reviews (1 in 1997, 3 in 1998, 2 in 2000, 8 in 2003, 5 in 2004, 12 in 2005, 24 in 2006, 4 in 2007, 11 in 2008 [attended 2 study sections], 20 in 2009 [attended 3 study sections], 29 in 2010 [attended 3 study sections])

TEACHING AND MENTORING ACTIVITIES

Teaching

2014 Mind and Brain (Nsci 3100)

2004-2005 Supervisor, Advanced design (ME 4054)

2001-2013 Theoretical Neuroscience (NSc 5202, course-director)

2001-present

Learning and Memory (Psychiatry Residents, ADPY7975)

Behavioral Neuroscience Journal Club

Behavioral Neuroscience (NSc 5661)

Principles of Drug Abuse (Nsci 5461)

Neurostatistics (Nsci 8320)

2001-2006 Itasca Sensorimotor Neurobiology Laboratory (Nsc 5551)

Mentoring (directly advised students)

Post-doc

2013-present Evan C. Carter (Post-doc, co-advised with David Stephens)

2013-present Nathan Schultheiss (Post-doc)

2012-present Yannick Breton (Post-doc)

2012-present Seiichiro Amemiya (Post-doc)

2012-present Brandy Jane Schmidt (Post-doc)

- 2010-2011 Jadin Jackson (Post-doc)
[Current position: Principal Algorithm Scientist, Medtronic]
- 2009-2011 Zeb Kurth-Nelson (Post-doc)
[Current position: Post-doc, University College London]
- 2007-2010 Matthijs van der Meer PhD (Post-doc)
[Current position: Assistant Professor, University of Waterloo]
- 2001 Pratibha Aia MD (Health Informatics, postdoc)
[Current position: Assistant Professor of Neurology, Emory University Hospital]

PhD Students

- 2014-present Brian Sweis (MD/PhD, Neuroscience, co-advised with Mark Thomas)
- 2012-present Samantha Abram (Psychology [CCS], co-advised with Angus MacDonald)
- 2010-present Paul Regier (Graduate Program in Neuroscience)
- 2009-present Andrew Wikenheiser (Graduate Program in Neuroscience)
- 2009-present Andrew Papale (Graduate Program in Neuroscience)
- 2009-present Nate Powell (Graduate Program in Neuroscience)
- 2009-2010 Adam Vogel (Graduate Program in Neuroscience)
- 2008-present Adam Steiner (Graduate Program in Neuroscience)
- 2008-2011 Anoopum Gupta (Robotics, PhD, Carnegie Mellon University, primary advisor: David Touretzky)
[Current position: residency, University of Pittsburgh]
- 2007, 2009-present Jeffrey Stott (Graduate Program in Neuroscience)
- 2006-2011 John Ferguson (BME, PhD)
[Current position: Research Associate, Minnesota VA]
- 2003-2008 Beth Masimore (Physics, primary advisor: Jim Kakalios, PhD)
[current position, Technical Scientist, AVIAN Engineering]
- 2002-2005 Jayant Parthasarathy (ECE, PhD, primary advisor: Babak Ziaie)
[current position, Director, Innovation and R&D, United Health Group]
- 2002-2008 Adam Johnson (Graduate Program in Neuroscience, PhD)
[current position, Professor with Tenure, Bethel University]
- 2001-2006 Jadin Jackson (Graduate Program in Neuroscience, PhD)
- 2000-2005 Neil Schmitzer-Torbert (Graduate Program in Neuroscience, PhD)
[Current position, Associate Professor with Tenure (Chair), Wabash College, Crawford IN]

Masters Students

2002-2005 Rahul Venkateswaran (MechE, Masters student, primary advisor: Art Erdman) [current position, researcher, Hutchinson Technical Institute]

2002-2004 Saumya Rao (ECE, Masters student)
[Current position, graduate student, Plymouth University, Plymouth UK]

Undergraduate, rotation, and non-degree track students

2013 Brian Sweiss (MD/PhD, rotation, co-with Mark Thomas)
2013 Chris Cline (BME, rotation)
2013 Ayaka Sheehan (Undergraduate, Macalaster)
2013 Joseph Griffin (Undergraduate)
2013 Patrick Crowe (Undergraduate)
2013 Vadim Petruk (Graduate Program in Neuroscience, rotation)
2012 Nate Pasmanter (CCS REU)
2012 Soren Knutson (undergraduate, St. Olaf)
2012 Christopher Weeks (undergraduate, St. Olaf)
2011 Brittini Peterson (Graduate Program in Neuroscience, rotation)
2011 Vivek Nagaraj (Graduate Program in Neuroscience, rotation)
2010 Abbey Holt (Graduate Program in Neuroscience, rotation)
2009 Anna Blumenthal (CCS REU, from Drew University)
2009 Katrina Schrode (Graduate Program in Neuroscience, rotation)
2009 Nancy Staffend (Graduate Program in Neuroscience, rotation)
2006-2007 Meghan Masrud (undergraduate, directed study 2006)
2006 Kristin Bohnhorst (undergraduate)
2006 Seth Mastous (undergraduate)
2005 Daniel Smith (undergraduate, LSSURP 2005, UROP 2006)
2005-2006 Morgan Little (undergraduate, UROP 2005, 2006)
2005 Alex Colvin (undergraduate)
2005 Maniezheh Firouzi (undergraduate)
2005-2006 Mandy Huber (undergraduate)
2005-2006 Sarah Jutila (undergraduate)
2005 Josh Puhl (Graduate Program in Neuroscience, rotation)
2005 Patrick Rothwell (Graduate Program in Neuroscience, rotation)
2004 Zeb Kurth-Nelson (Graduate Program in Neuroscience, rotation)

2004-2006 Giuseppe Cortese (undergraduate, UROP 2005)
2004-2005 Monica Kumar (undergraduate)
2003-2004 Susan Nwoke (undergraduate)
2002 Chris Baker (Biomedical Engineering, rotation)
2002 Jon Waataja (Graduate Program in Neuroscience, rotation)
2000-2004 Mallika Arudi (undergraduate, UROP 2004)
2000-2005 Deborah Bang (undergraduate, MFA Music)
2000-2006 Dan Bernal (undergraduate, directed research 2003)
2000-present Chris Boldt (undergraduate 2000-2005, directed research 2003,
currently full-time technician)
2000-2003, 2009-present Kelsey Seeland (undergraduate 2000-2003, currently full-
time technician)

Visitors hosted

2012 Michael Milford, Queensland University of Technology
2012 Tom Abrams, University of Maryland Baltimore
2011 Paul Cisek, University of Montreal
2010 Len Maler, University of Ottawa
2010 HFSP Workshop (Ichiro Tsuda + 5 students, Jan Lauwereyns + 1 student, Emma Wood + 1 student, + 9 students from my lab)
2009 Menno Witter, Kavli Institute, Trondheim Norway
2009 Eric Hargreaves, NYU (postdoc)
2009 Josh Berke, U Michigan
2008 Peter Brown, UCL (coordinated with Medtronic)
2008 Yael Niv, Princeton
2008 Geoff Schoenbaum, U MD.
2007 Cliff Kentros, U Oregon.
2006 Loren Frank, UCSF.
2003 Reza Shadmehr, Johns Hopkins.
2002 Andre Fenton, SUNY Downstate and Czech Academy of Sciences.
2001 Carol Barnes, NSMA, Univ Arizona Tucson.

Community Outreach

- 2001 Written up in Palmer, K. "Meeting of the Minds", Minnesota Medicine, 84(5):20ff.
- 2003 Showed lab to Governor Pawlenty.
- 2001 BrainU: 24 Middle School Teachers shown lab.
- 2003 Showed lab to 24 eighth graders.
- 2003 Showed lab to Public-Relations companies (for D. Zorn, AHC Dean's office) (Colle & McVoy, Padilla Speer Beardsley, Weber-Shandwick).

- 2003 Showed lab to State Senators (for AHC Dean's office).
- 2004 "Cracking the neural code", to venture capitalists through Venture-Med.\
- 2004 BrainU tours.
- 2004 Discussion and demo to Fairview-University Marketing group (for AHC Dean's office).
- 2004 Showed lab and tour Julie Philp, aide to Congressman Gil Gutknecht.
- 2004 Discussion and demo to Fairview-University Executive group (including CEO David Page [Dan Anderson, Mark Larson, Loie Lenarz, David Page, Heather Swenson, Carol Bouillard]) (for AHC Dean's office).
- 2004 Presented lab tour to State Senators (Sen. Wes Skoglund, Sen. Geoff Michel, Sen. Cal Larson, Sen. Michelle Fischbach, Alicia Spencer, staffer for Sen. Koering).
- 2004 Interviewed by CBS radio (WCCO AM 830, also sent to CBS radio in NY).
- 2004 Presented lab tour to Lobbyists (for AHC Dean's office).
- 2004 Presented lab tour to PR office (for AHC Dean's office).
- 2005 Written up in Pictures of Health "Triggering addiction".
- 2005 Presented lab tour to Members of Mark Dayton's staff .
- 2005 BrainU tours.
- 2005 Written up in *Discovery: The Graduate School Magazine* (U of M) article by Kate Tyler.
- 2006 Did interview/video for Wes Thomsen doing a project on memory and scrapbooking. Included in his documentary movie *Scrapped* (2006).
- 2007 Presented first grade class (Falcon Heights Elem School, Ms. Nelson and Ms. Plath).
- 2007 "Through the Grid, a Window on Cognition" Redish, 23 January 2007, Scientific American Mind <http://blog.sciam.com/>
- 2008 Participated in Steve Kelley/Elizabeth Wilson Outreach Course, including visiting Legislature, encounters with TV, Radio, and News reporters.
- 2008 Presented to second grade class (Falcon Heights Elem School, Ms. Kakaloris).
- 2008 Presented lab tour to Andover High School seniors.
- 2008 Presented lab tour to Augsburg College Biopsychology class.
- 2009 Continuing Education (150 local doctors, addiction social workers) "Addictions and Co-occurring Disorders: Recent Advances in Research and Practice" *U of M College of Continuing Education and the Addiction Studies Certificate Program*.
- 2009 ADR presented lab tour to students from St. Olaf
- 2009 BrainU tours
- 2010 ADR presented outreach talk to Ms. Kakalouris' 2nd grade class
- 2010 ADR written up in Center for Neuroengineering newsletter ("Of Rats and Math")
- 2010 Presented talk with brains and demos to ISD #271 Dimensions Academy from Ridgeview Elementary in Bloomington
- 2010 BrainU tours
- 2010 Interviewed for "Found in Space" episode of "Are we alone?" [NPR, podcast]

- presented talk ("Vulnerabilities in the decision-making machinery... understanding addiction and problem gambling" 1 hr) plus answered questions (+2 hrs) to 40 people at *Gambler's Relief*
- 2010 Interviewed for "Found in Space" episode of "Are we alone?" [NPR, podcast]
- 2010 BrainU remote presentation to Duluth
- 2011 presented as part of the Science Museum of Minnesota's Beaker and Brush program titled "Creative Memory" w/ Chris Faust (photographer). At the Black Dog Cafe, St. Paul MN
- 2012 Written up as part of article on the Wallin Fund (Jim Walsh, *Star Tribune*)
- 2012 Presented talk, brains, and demos to ISD #271 Dimensions Academy from Ridgeview Elementary in Bloomington
- 2012 Presented lab tours and presentations to BrainU program
- 2012 Participated in MMF Discovery Showcase
- 2013 Interviewed by BBC 2 for *Science Club*
- 2013 Written up in discussion in *Science*, "Can animals envision the future? Scientists spar over new data" (Michael Balter, *Science*)
- 2013 Presented talk to Oak Grove Middle School students
- 2013 Interviewed for AHC Health Talk Blog Post
<http://www.health.umn.edu/healthtalk/2013/07/15/new-book-peers-deep-into-the-brain-to-understand-how-we-make-decisions/>
- 2013 Presented lab tour to BrainU
- 2013 Joined art/science roster of "The Gymnasium"
- 2013 Book Reading/Discussion/Signing at UMN Bookstore

Non-technical publications, awards, etc.

Poetry

untitled poem ("Our relationship is stretched thin...")
published 1989 *Late Knocking*.

Standing on an unsafe balcony, night and morning
published 1991 *Baltimore City Paper*.

Plays

Beth (one-act)

1988 (full production), produced by E. Albee, directed by M. Kupritz.

Kalypso (one-act)

1989 (full production), produced and directed by E. Albee.

1992 (reading), directed by A. Eaves.

In the Balance (full-length)

1994 (reading), directed by T. Bannister.

1998 (full production), *Changing Scene Theater*, Denver CO
produced by A. Brooks, directed by T. Oakley.

2001 (reading), *Playwright's Roundtable*.

The Pilate Dialogues (full-length)
1995 (reading), produced by S. Sickles.

Medea (full-length)
1998 (reading), directed by V. Baugh.

The Stone at the Heart (full-length)
1999 (reading), directed by K. Kellner.
2000 (staged reading), directed by D. Sewell

Modern Art (short work)
1999 (staged reading), *GOCAIA*, Tucson AZ
Produced by the Old Pueblo Playwrights, directed by L. Andresano.

Professional Activities

Member, Dramatists Guild, (New York NY)
1996-2002

Member, Old Pueblo Playwrights, (Tucson AZ)
1998-2000

Member, Playwright's Center, (Minneapolis MN)
2000-2005