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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
2014-present Distinguished McKnight University Professor, Department of Neuroscience, University of Minnesota
2014-2019 Director of Graduate Studies, Graduate Program in Neuroscience, University of Minnesota
2016-present J. B. Johnston Land Grant Chair in Neuroscience, University of Minnesota

Current Status

Distinguished McKnight University Professor,
J. B. Johnston Land Grant Chair in Neuroscience,
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 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

2018 Visiting Scholar, Dept of Finance (Brain, Minds, Markets group), University of Melbourne, Melbourne Australia.

2018 Dean's Distinguished Research Lectureship, University of Minnesota

2018 Roger Loucks Lecture, University of Washington

2016 J. B. Johnston Chair in Neuroscience

2015 Hebb Lecturer, McGill University

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, J. A. Gordon [eds] (2016) *Computational Psychiatry: New Perspectives on Mental Illness. A Strungmann Forum Report*. MIT Press.

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

S. V. Abram, M. Hanke, A. D. Redish, A. W. MacDonald (in press) “Neural signatures underlying deliberation in human foraging decisions” *Cognitive, Affective, and Behavioral Neuroscience*.

S. V. Abram, A. D. Redish, A. W. MacDonald (in press) “Learning from loss after risk: Dissociating reward pursuit and reward valuation in a naturalistic foraging task” *Frontiers in Psychiatry*.

B. Schmidt, A. A. Duin, A. D. Redish (in press) “Disrupting the medial prefrontal cortex alters hippocampal sequences during deliberative decision making” *Journal of Neurophysiology*.

A. D. Redish, R. Kazinka, A. B. Herman (in press) “Taking an engineer’s view: Implications of network analysis for computational psychiatry” (Commentary on Borsboom et al. “Brain disorders? Not really: why network structures block reductionism in psychopathology research”) *Behavioral and Brain Sciences*.

C. J. Walters, J. Jubran, A. Sheehan, M. T. Erickson, A. D. Redish (2019) “Avoid-approach conflict behaviors differentially affected by anxiolytics: implications for a computational model of risky decision-making” *Psychopharmacology* 236(8):2513-2525.

B. M. Sweis, M. J. Thomas, A. D. Redish (2018) “Beyond simple tests of value: Measuring addiction as a heterogeneous disease of computation-specific valuation processes” *Learning and Memory* 25:501-512.

B. M. Sweis, S. V. Abram, B. J. Schmidt, K. D. Seeland, A. W. MacDonald, M. J. Thomas, A. D. Redish (2018) “Sensitivity to ‘sunk costs’ in mice, rats, and humans” *Science* 361:178-181.

B. M. Hasz, A. D. Redish (2018) “Behavioral Correlates of Model-based and Model-free Uncertainty are Revealed by a Two-step Decision Task for Rats” *Frontiers in Integrative Neuroscience* doi: 10.3389/fnint.2018.00030.

B. M. Sweis, A. D. Redish, M. J. Thomas (2018) “Prolonged abstinence from cocaine or morphine disrupts separable valuations during decision conflict” *Nature Communications* 9(1):2521.

A. D. Redish, E. Kummerfeld, R. L. Morris, A. Love (2018) “Opinion: Reproducibility failures are essential to scientific inquiry” *PNAS* 115(20):5042-5046.

- B. M. Sweis, E. B. Larson, A. D. Redish, M. J. Thomas (2018) “Altering gain of the infralimbic to accumbens shell circuit alters economically dissociable decision-making algorithms” *PNAS* 115(27):E6347-6355.
- L. K. McLoon, A. D. Redish (2018) “Demystifying graduate school: Navigating a PhD in neuroscience and beyond” *Journal of Undergraduate Neuroscience Education* 16(3):A203-A209.
- A. D. Redish, R. Kazinka, A. B. Herman (in press) “Taking an engineer’s view: Implications of network analysis for computational psychiatry (Commentary on Borsboom et al)” *Behavioral and Brain Sciences*.
- B. Sweis, M. J. Thomas, A. D. Redish (2018) “Mice learn to avoid regret” *PLoS Biology* 16(6): e2005853.
- A. D. Redish, M. W. Howard (2018) “The legacy of Adam Johnson”. *Hippocampus* 28(6):453-454.
- M. Ferrante, A. D. Redish, M. Oquendo, B. Averbeck, M. Kinnane, J. Gordon (in press) “Computational Psychiatry: A report from the 2017 NIMH Workshop on opportunities and challenges”. *Molecular Psychiatry*.
- S. Amemiya, A. D. Redish (2018) “Hippocampal theta-gamma coupling reflects state-dependent information processing in decision making”. *Cell Reports* 22(12):3328-3338.
- J. Lisman, G. Buzsáki, H. Eichenbaum, L. Nadel, C. Ranganath, A. D. Redish (2017) “Viewpoints: how the hippocampus contributes to memory, navigation and cognition” *Nature Neuroscience* 20:1434-1447.
- K. J. Friston, A. D. Redish, J. A. Gordon (2017) “Computational Nosology and Precision Psychiatry” *Computational Psychiatry*. doi: 10.1162/CPSY_a_00001.
- Z. Kurth-Nelson, A. D. Redish (2017) “Precommitment: A way around temptation” *Frontiers for Young Minds* 5:26. doi:10.3389/frym.2017.00026.
- A. E. Papale, M. C. Zielinski, L. Frank, S. Jadhav, A. D. Redish (2016) “Interplay between hippocampal sharp wave ripple events and vicarious trial and error behaviors in decision making” *Neuron* 92(5):975-982.
- N. J. Powell, A. D. Redish (2016) “Representational changes of latent strategies in rat medial prefrontal cortex precede changes in behavior” *Nature Communications* 7:12830.
- E. C. Carter, A. D. Redish (2016) “Rats value time differently on equivalent foraging and delay-discounting tasks” *Journal of Experimental Psychology: General* 145(9):1093-1101.
- S. V. Abram, Y. A. Breton, B. Schmidt, A. D. Redish, A. W. MacDonald III (2016) “The Web-Surf Task: A translational model of human decision-making” *Cognitive, Affective, and Behavioral Neuroscience* 16(1):37-50.
- A. D. Redish (2016) “Vicarious Trial and Error” *Nature Reviews Neuroscience* 17:147-159.

- S. Amemiya, A. D. Redish (2016) “Manipulating Decisiveness in Decision Making - Effects of Clonidine on Hippocampal Search Strategies” *The Journal of Neuroscience* 36(3):814-827.
- P. S. Regier, S. Amemiya, A. D. Redish (2015) “Hippocampus and subregions of the dorsal striatum respond differently to a behavioral strategy change on a spatial navigation task” *Journal of Neurophysiology* 114(3):1399-1416.
- A. D. Redish, N. W. Schultheiss, E. C. Carter (in press) “The computational complexity of valuation and motivational forces in decision-making processes”, *Current Topics in Behavioral Neuroscience*.
- J. J. Stott, A. D. Redish (2015) “Representations of value in the brain: an embarrassment of riches?” *PLOS Biology* 13(6):e1002174.
- P. S. Regier, A. D. Redish (2015) “Contingency Management and deliberative decision-making processes” *Frontiers in Psychiatry* 6:0076 doi:10.3389/fpsy.2015.00076
- N. W. Schultheiss, A. D. Redish (2015) “The compass within” *Nature Neuroscience*, 18:482-483. [Commentary on Peyrache & Buzsaki 2015 *NNsci.*]
- Y. A. Breton, K. D. Seeland, A. D. Redish (2015) “Aging impairs deliberation and behavioral flexibility in inter-temporal choice” *Frontiers in Aging Neuroscience* 10.3389/fnagi.2015.00041.
- A. M. Wikenheiser, A. D. Redish (2015) “Hippocampal theta sequences reflect current goals” *Nature Neuroscience* 18:289-294.
- A. D. Redish, S. J. Y. Mizumori (2015) “Memory and Decision Making” *Neurobiology of Learning and Memory* 117:1-3. (Introductory article to special issue on Memory and Decision Making, edited by SJYM and ADR.)
- T. T. Hills, P. M. Todd, D. Lazer, A. D. Redish, I. D. Couzin, and the Cognitive Search Research Group* (*M. Bateson, R. Cools, R. Dukas, L. Giraldeau, M. W. Macy, S. E. Page, R. M. Shiffrin, D. W. Stephens, B. Uzzi, J. W. Wolfe) (2015) “Exploration versus Exploitation in Space, Mind, and Society” *Trends in Cognitive Sciences*. 19(1):46-54.
- A. M. Wikenheiser, A. D. Redish (2015) “Decoding the cognitive map: ensemble hippocampal sequences and decision making” *Current Opinion in Neurobiology* 32:8-15.
- W. Bickel, R. D. Landes, Z. Kurth-Nelson, A. D. Redish (2014) “A Quantitative Signature Of Self-Control Repair: Rate-Dependent Effects Of Successful Addiction Treatment” *Clinical Psychological Science* 2(6):685-695.
- J. J. Stott, A. D. Redish (2014) “A functional difference in information processing between orbitofrontal cortex and ventral striatum during decision-making behavior” *Philosophical Transactions of the Royal Society B* 2013.0472.
- M. Takahashi, H. Nishida, A. D. Redish, J. Lauwereyns (2014) “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* 111:1601-1614.

- A. P. Steiner, A. D. Redish (2014) “Behavioral and neurophysiological correlates of regret in rat decision-making on a neuroeconomic task” *Nature Neuroscience* 17:995-1002.
- 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

- B. Schmidt, A. M. Wikenheiser, A. D. Redish (2018) “Goal-directed sequences in the hippocampus” in *Goal-Directed Decision Making: Computations and Neural Circuits* R. Morris, A. Bornstein, A. Shenhav (eds), Academic Press, Elsevier, Chapter 6, pgs. 125-151.
- C. J. Walters, A. D. Redish (2018) “A case study in computational psychiatry: addiction as failure modes of the decision-making system” in *Computational Psychiatry: Mathematical modeling of mental illness*, (A. Anticevic and J. Murray, eds). Elsevier.
- J. A. Gordon, A. D. Redish (2016) “On the cusp: Current Challenges and Promises in Psychiatry” in *Computational Psychiatry: New Perspectives on Mental Illness* Redish and Gordon (eds), Strüngmann Forum Reports, vol. 20, series ed. J. Lupp. Cambridge MA: MIT Press, Chapter 1, pages 3-14.
- A. D. Redish, J. A. Gordon (2016) “Breakdowns and failure modes: An Engineer’s View” in *Computational Psychiatry: New Perspectives on Mental Illness* Redish and Gordon (eds), Strüngmann Forum Reports, vol. 20, series ed. J. Lupp. Cambridge MA: MIT Press, Chapter 2, pages 15-29.

- S. B. Fligel, D. S. Pine, S. E. Ahmari, M. B. First, K. J. Friston, C. Mathys, A. D. Redish, K. Schmack, J. W. Smoller, A. Thapar (2016) “A Novel Framework for Improving Psychiatric Diagnostic Nosology” in *Computational Psychiatry: New Perspectives on Mental Illness*” Redish and Gordon (eds), Strüngmann Forum Reports, vol. 20, series ed. J. Lupp. Cambridge MA: MIT Press, Chapter 10, pages 169-199.
- A. D. Redish, J. A. Gordon (2016) “From Psychiatry to Computation and Back Again” in *Computational Psychiatry: New Perspectives on Mental Illness*” Redish and Gordon (eds), Strüngmann Forum Reports, vol. 20, series ed. J. Lupp. Cambridge MA: MIT Press, Chapter 17, pages 319-329.
- A. D. Redish (2015) “Addiction as a symptom of failure modes in the machineries of decision-making” (Book chapter for *The Wiley Handbook on the Cognitive Neuroscience of Addiction*, S. J. Wilson, ed.) Wiley. Chapter 7, pages 151-172.
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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

- S. Vinogradov, A. D. Redish (co-PIs) 2019-2022 *P50 preparation* Internal AIRP/AHC grant, \$500,000/yr.

A. Widge, AW MacDonald, A. D. Redish (co-PIs) 2019-2021 *Parametrically Detailed Computational Analyses of Human Foraging Behavior* (\$231k/yr)

A. D. Redish (PI) 2018-2023 *Predoctoral Training of Neuroscientists* T32 \$353,5994/yr 1 (8GS).

A. D. Redish (PI) 2018-2023 *Using Computation to Achieve Breakthroughs in Neuroscience* T32 \$196,354/yr 1 (3GS + 1PD), \$348,910 yr2-5 (5 GS + 2 PD).

A. D. Redish (award) 2016-present *J. B. Johnston Chair in Neuroscience* (varies, but approximately \$100k/year)

A. D. Redish (award) 2014-2019 *Distinguished McKnight Professorship* (\$20,000/year).

K. Cullen (PI), A. D. Redish (Co-I) 2017-2018 A Longitudinal Study Examining Three RDoC Constructs in Adolescents with Non-Suicidal Self-Injury *R01-MH107394-02S1* (\$92,823 direct)

A. D. Redish (PI) 2017-2022 “Resolving conflicts between decision-making algorithms” *R01-MH112688* (\$292,000/year direct).

A. D. Redish (PI) 2016-2021 “Relating episodic memory and episodic future thinking in hippocampus” *R01-MH080318* (\$289,000/year direct).

A. Araque (PI), A. D. Redish (Co-I) 2016-2021 “Astrocyte-neuron interaction in behavior driven by striatal information processing” *R01-NS097312* (\$305,990/year direct)

Completed

A. D. Redish (PI) 2012-2017 “The covert expectation of reward during deliberation” *R01-DA030672* (\$225,000/year direct)

A. D. Redish (PI) 2014-2016 “Relating episodic memory and episodic future thinking in hippocampus” *R01/R56-MH080318* (\$250,000/year direct).

A. D. Redish (PI), Mark Masino [UMN], Kevin Crisp [St. Olaf] 2012-2015 “Decoupling the recording site from the headstage” *NSF/IOS-1146243* (\$200,000/year total)

A. D. Redish (PI) 2012-2014 “Temporal discounting and decision-making in aged rats” *R03-AG041734* (\$50,000/year direct)

A. D. Redish (PI) 2008-2013 “A hippocampal mechanism for considering possibilities” *R01-MH080318* (\$180,000/year direct).

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)* (\$400,000/year, my share is \$105,500)

W. Bickel (PI), A. D. Redish 2008-2013 “Executive Function Therapy for Stimulant Addiction” *R01 DA024080* (subcontract worth \$92,000/year direct)

A. D. Redish (PI) 2011-2012 “Nanowire Tetrodes” *Wallin Fund* (\$90,000)

- A. D. Redish (PI), B. Ziaie, A. G. Erdman, "Wireless recordings in awake, behaving rodents". 2002-2005 *McKnight Foundation* (\$200,000 total).
- A. D. Redish (PI), "CRCNS: Coherency --- measuring representational quality" 2002-2005 *NIMH 1-R01-MH68029-01* (\$519,713 total).
- A. D. Redish (award), 2003-2005 *Sloan Fellowship* (\$40,000 total).
- A. D. Redish (award), 2004-2006 *McKnight Land-Grant Professorship*. (\$75,000 total)
- J. Kakalios (PI), A. D. Redish "Transient oscillations in Local Field Potentials" 2005-2006 *Grant-in-aid of Research, Artistry, and Scholarship*. (\$22,238 total)
- B. Ziaie (PI), A. D. Redish "Electronically Reconfigurable Microfabricated Tetropdes" 2005-2007 *NIBIB R21-EB005019*. (subcontract worth \$50,000 direct costs)
- A. D. Redish (PI) "Rodent footprint tracking in runways and large mazes" 2005 *MMF* (\$25,000 total).
- A. D. Redish (PI) "Implications of the TDRL computational model of addiction on smoking" 2005-2007 *TTURC Faculty Career Development Award*. (\$45,000 total)
- G. Havey (PI), A. D. Redish "Wireless System-On-A-Chip EEG IC for Animal Studies" 2007-2009 *NIBIB R44-NS052066* (subcontract worth \$25,000 direct costs)
- H. Jacobs, B. Ziaie, A. D. Redish "3D neural recording system: self-assembly tools and test" 2006-2008 *NIBIB R21-EB005351* (subcontract worth \$25,000 direct costs)
- E. Yoon (PI), A. D. Redish, A. G. Erdman "Individual research support" 2006 *Biomedical Engineering Institute, University of Minnesota* (\$50,000 total).
- A. D. Redish (PI) "A hippocampal mechanism for considering possibilities" 2007-2008 *Grant-in-aid of Research, Artistry, and Scholarship*. (\$19,017 total).
- 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*(\$280,000 total).
- 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)* (\$100,000 total).

Invited talks, presentations, and participations in conferences

External

2019 **External Keynote**, Eating Disorders Research Society, Chicago IL

2019 Dartmouth MIND Summer Workshop, Dartmouth College, Hanover NH

2019 Sloan-Nomis Meeting on Attention (Neuroeconomics), Vitznau SWITZERLAND

2019 **External Keynote**, Fetal Alcohol Syndrome Disorders Annual Meeting,
Minneapolis MN

2019 Dusseldorf decision making symposium, Dusseldorf GERMANY

2019 Society for Quantitative Analysis of Behavior, Chicago IL

2019 Conference on learning and memory, UT Austin, Austin TX

2019 NYU, NY NY

2019 Loyola, Chicago IL

2019 CSHL, New York NY

2019 UCSF, San Francisco CA

2019 Marquette University, Milwaukee WI

2018 Dept Psychology, UniMelbourne, Melbourne AUSTRALIA

2018 Dept Finance, UniMelbourne, Melbourne AUSTRALIA

2018 LSU Health Sciences Center, New Orleans LA

2018 Hamline University, St. Paul MN

2018 Macalester, St. Paul MN

2018 NIH ACD BRAIN Initiative Working Group 2.0 Workshop #2, Chicago IL

2018 Neuroeconomics department, ETH, Zurich SWITZERLAND

2018 Computational Psychiatry Summer School, ETH, Zurich SWITZERLAND

2018 Methods in Computational Neuroscience, Woods Hole MBL

2018 EBPS Workshop: Using Computational approaches to build a two-way bridge,
Downing College, Cambridge, UK

2018 **Keynote** talk for Computational Psychiatry Summer Course, University College
London, London UK

2018 DeepMind, London, UK

2018 Sloan-Nomis Meeting on Attention (Neuroeconomics), Vitznau SWITZERLAND

2018 **Keynote** talk for NeuroFutures Conference, University of Washington, Seattle WA

2018 Roger Loucks Lecture, University of Washington, Seattle WA

2018 UCLA, LA CA

2018 University of MD School of Medicine, Baltimore MD

2018 Bodian seminar, Johns Hopkins Univ, Baltimore MD

2018 Sloan-Nomis Meeting on Attention (Neuroeconomics), NYU, New York NY.

2018 LMU, Munich GERMANY

2017 Washington University, St. Louis MO

2017 Howard University, Washington DC
2017 Faculty for Undergraduate Neuroscience Workshop, Dominican University Chicago IL
2017 UTSA Symposium on Neural Codes for Navigation (gave 30 minute intro + 50 minute full talk), University of Texas San Antonio, San Antonio TX.
2017 OIST Okinawa, JAPAN
2017 University of Alabama MSTP Retreat Keynote speaker
2017 Ruhr-Universität Bochum, GERMANY
2017 MetroState University, St. Paul MN
2017 University of MD for the EFRedish Symposium and Celebration
2017 UCSD, San Diego CA
2017 University of Toronto, Toronto CANADA
2017 NIMH
2016 Arrowhead + 10 years, Workshop on Decision-Making, Sydney AUSTRALIA
2016 Invited Speaker, Workshop on Internally Generated Sequences in Hippocampus, Ariccia ITALY
2016 Invited Speaker, EBPS Workshop on Computing with Neural Ensembles, Amsterdam NETHERLANDS
2016 Invited Kavli Workshop Speaker, Society for Neuroeconomics 2016 Meeting, Berlin GERMANY
2016 BCNI, Downing College, University of Cambridge, Cambridge UK
2016 “Addiction, In Theory” Meeting, University College London, London UK
2016 38th GRSNC, Université de Montréal, Montreal QB CANADA
2016 NYU, New York NY
2016 Cornell University, Ithaca NY
2016 UChicago, Chicago, IL
2015 Rutgers-Newark, Newark NJ.
2015 International Symposium on Prediction and Decision Making, Tokyo JAPAN.
2015 NIMH RDOC Unit, NIMH, NIH, Bethesda MD
2015 George Mason University, Fairfax VA
2015 Dresden Symposium on Cognitive Control (invited speaker), Dresden GERMANY
2015 UC Davis, Davis CA
2015 Baylor College of Medicine, Houston TX
2015 Hebb Lecture, McGill University, Montreal Canada

2014 CNBC 20th anniversary celebration (alumni speaker)
2014 PFC conference, Whistler Canada
2014 Hamline University, St. Paul MN
2014 Behavior, Cognition, Computation, and Technology Course, Barcelona Spain
2014 Methods in Computational Neuroscience Course, Woods Hole MA
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

2019 Applied Economics Department (Univ Minnesota)

2017 Psychiatry Review CME (Univ Minnesota)

2017 MINDS (Univ Minnesota)

2016 CCS Fall Symposium (Univ Minnesota)

2016 Psychiatry Grand Rounds (Univ Minnesota)

2014 UMN MD/PhD Students (Univ Minnesota)

2014 Library BootCamp (Univ Minnesota)

2014 TEDx UMN (Univ Minnesota)

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

2018-2021 Member, Executive Board of the Society for Neuroeconomics
2017-2019 Member, NIH NST-2 study section (K99)
2014-present, Editorial Board, *Neural Computation*
2014-present, Review Editor, *Frontiers in Neuropharmacology*
2014-present, Editorial Board, *Neurobiology of Learning and Memory*
2014 Edited special issue, *Neurobiology of Learning and Memory* on Memory and Decision Making with SJYM.
2012-present, Editorial Board, *JEAB (Journal of the Experimental Analysis of Behavior)*
2012-present, Member, Canadian College of Reviewers
2012-2013, 2019-2022 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

2017 Organized NIMH Meeting on *Computational Psychiatry: Opportunities and Challenges*

2015 Organized Strungmann Forum on *Computational Psychiatry*

2014-2019 Director of Graduate Studies (DGS), Graduate Program in Neuroscience (GPN)

2014-2019 Member, Basic Sciences Graduate Research Council (BSGC, UMN)

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, 22 in 2011, 21 in 2012, 20 in 2013, 16 in 2014, 19 in 2015, 20 in 2016, 22 in 2017, 20 in 2018).

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], 18 in 2011 [attended 3 study sections], 22 in 2012 [attended 3 study sections], 25 in 2013 [attended 2 study sections], 20 in 2014 [attended 2 study sections], 33 in 2015 [attended 2 study sections], 20 in 2016 [attended 3 study sections], 19 in 2017 [attended 3 study sections] 18 in 2018 [attended 2 study sections])

TEACHING AND MENTORING ACTIVITIES

Teaching

2014-2018 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

2019-present Olivia Calvin (post-doc)

2018-2019 Rachel Anderson (post-doc, co-mentored with Mark Thomas)
[Current position : assistant professor, Bethel University]

2018-present Geoffrey Diehl (Post-doc)

2013-2016 Evan C. Carter (Post-doc, co-advised with David Stephens)
[Current position: postdoc, Army Research Laboratory, Aberdeen MD]

2013-2015 Nathan Schultheiss (Post-doc)
[Current position: Research Scientist, Florida International University]

2012-2016 Yannick Breton (Post-doc)
[Current position: data scientist, Caprion Biosystems]

2012-2016 Seiichiro Amemiya (Post-doc)
[Current position: Research Scientist, Lab for Circuit and Behavioral Physiology,
RIKEN CBS (Center for Brain Science)]

2012-present Brandy Schmidt (Post-doc)
[Current position: researcher 6, University of Minnesota]

2010-2011 Jadin Jackson (Post-doc)
[Current position: Principal Algorithm Scientist, Medtronic]

2009-2011 Zeb Kurth-Nelson (Post-doc)
[Current position: Senior Research Scientist, DeepMind]

2007-2010 Matthijs van der Meer PhD (Post-doc)
[Current position: Assistant Professor, Dartmouth]

2001 Pratibha Aia MD (Health Informatics, postdoc)
[Current position: Assistant Professor of Neurology, Emory University Hospital]

PhD Students

2019-present Adrine Kocharian (Graduate Program in Neuroscience, co-advised with
Patrick Rothwell)

2018-present Zach Zeidler (Graduate Program in Neuroscience, co-advised with Esther
Krook-Magnuson)

2017-2018 Megan Monko (Graduate Program in Neuroscience)

2017-present Rebecca Kazinka (Psychology, co-advised with Angus MacDonald)

2016-present Cody Walters (Graduate Program in Neuroscience)

2014-present Brendan Hasz (Graduate Program in Neuroscience)

2014-2019 Caitlin Durkee (Graduate Program in Neuroscience, co-advised with Alfonso
Araque)

2014-2018 Brian Sweis (MD/PhD, Neuroscience, co-advised with Mark Thomas)
[Current position, medical student, University of Minnesota]

2012-2017 Samantha Abram (Psychology [CCS], co-advised with Angus MacDonald)
[Current position: clinical psychology resident, UCSF]

2010-2015 Paul Regier (Graduate Program in Neuroscience)
[Current position: postdoc with Anna-Rose Childress, UPenn]

2009-2014 Andrew Wikenheiser (Graduate Program in Neuroscience)
[Current position: Assistant Professor, UCLA]

2009-2015 Andrew Papale (Graduate Program in Neuroscience)
[Current position: postdoc with Bryan Hooks, University of Pittsburgh]

2009-2015 Nate Powell (Graduate Program in Neuroscience)
[Current position: postdoc with Jeremy Seamans, UBC]

2009-2010 Adam Vogel (Graduate Program in Neuroscience)

- 2008-2015 Adam Steiner (Graduate Program in Neuroscience)
[Current position: postdoc with Francis Shen, UMN law school]
- 2008-2011 Anoopum Gupta (Robotics, PhD, Carnegie Mellon University,
primary advisor: David Touretzky)
[Current position: Neurology Resident, Harvard/Mass General Hospital and Brigham
and Woman's Hospital, Boston MA]
- 2007, 2009-2015 Jeffrey Stott (Graduate Program in Neuroscience)
[Current position: postdoc with Kyle Smith, Dartmouth College, Hanover NH]
- 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

- 2019 David Maisson (GPN, rotation)
- 2018-present London Aman
- 2018 Adrina Kocharian (GPN, rotation)
- 2017-present Michael Adkins (post-bac)
- 2017-2018 Carrie Bell (Undergraduate, then post-bac)
- 2017-2018 Onni Rauhala (Undergraduate)
- 2017-2018 Matthew Cortese (Undergraduate)
- 2017-2019 Elizabeth Dean (Undergraduate)
- 2017-present Anneke Duin (Undergraduate)
- 2017 Emily Semaya (GPN, rotation)

2017, 2018, 2019- Matthew Erickson (Undergraduate, postbac)
2017-present Daniel Min (Undergraduate)
2017 Roberto Lopez-Cervera (MD/PhD rotation)
2016-2017 Sophie Sampson (Undergraduate)
2015-2017 Jerrius Jubran (Undergraduate)
2013 Brian Sweis (MD/PhD, rotation, co-with Mark Thomas)
2013 Chris Cline (BME, rotation)
2013 Ayaka Sheehan (Undergraduate, Macalaster)
2013 Joseph Griffin (Undergraduate)
2013-2014 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)

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
- 2014 Presented TEDx talk as part of University of Minnesota’s TEDx symposium
- 2014 TEDx talk is available at <https://www.youtube.com/watch?v=0Iuc5ufbirM>
- 2014 Interviewed by Sports Illustrated for article on why playbooks are so hard to memorize: “Your Brain on Playbooks: The neuroscience of bringing X’s and O’s to life” by Dan Treadway.
- 2014 Presented talk to BehaviorMN Meetup group
- 2015 Interviewed for University of Minnesota Medical School video “Exploring Mental Time Travel”. Won 2nd place AAMC Basic Science Research Video Awards. <https://youtu.be/WYkdX5qoy84>
- 2015 Skype discussion with students at St. Nicholas International School, Sao Paulo, Brazil.
- 2016 Camp Neuro ("Meet a neuroscientist")
- 2016 CBS Undergraduate tours
- 2017 LearningLifeSampler https://www.youtube.com/watch?v=CJFI7Sm2P_s
- 2017 LearningLife [UMN]
- 2017 McKnight Foundation
- 2017 MetroState Neuroscience
- 2017 Medical Bulletin, University of Minnesota "A well-balanced brain" by Kristine Mortensen <https://www.med.umn.edu/news-events/medical-bulletin/well-balanced-brain>
- 2017 Neuroscience News, University of Minnesota "Neuroscientist-playwright" <https://give.umn.edu/stories/neuroscientist-playwright>
- 2017 Dimensions Academy kids and teachers
- 2017 Minneapolis Federal Reserve
- 2017 Minneapolis Psychoanalytic Initiative working group
- 2018 Loucks Lecture, University of Washington
- 2018 GSN podcast released: <https://itunes.apple.com/nl/podcast/state-of-minds-podcast/id1373595195?l=en>
- 2018 UMN Inquiry: No Simple Decisions <https://research.umn.edu/inquiry/post/no-simple-decisions>
- 2018 Inside Science quoted and interviewed <https://www.insidescience.org/news/why-making-decisions-game-speed-can-lead-penalties-nfl-players>
- 2019 Behavioral Grooves Lecture, Q/A, and Discussion
- 2019 Interviewed for *The upgrade podcast* <https://podcasts.apple.com/us/podcast/how-to-be-better-decision-maker-neuroscientist-david/id508117781?i=1000449929703>

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*.

2016 (full production), *Collaborative Artists Ensemble*, Los Angeles CA
directed by Steve Jarrard

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