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Education

BA 1991	The Johns Hopkins University Baltimore MD 21218	Double major: Computer Science (honors) The Writing Seminars (honors) Computer Science
MS 1995	Carnegie Mellon University Pittsburgh PA 15213	
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

2016-present	J. B. Johnston Land Grant Endowed Professor of Neuroscience, Univ Minnesota
2014-present	Distinguished McKnight University Professor,
2012-present	Professor with Tenure, Dept Neuroscience, Univ Minnesota
2006-2012	Associate Professor with Tenure, Dept Neuroscience, Univ Minnesota
2000-2006	Assistant Professor, Dept Neuroscience, Univ Minnesota

Current Status

Distinguished McKnight University Professor,
J. B. Johnston Land Grant Endowed Professor of Neuroscience,
Department of Neuroscience
University of Minnesota.

Full member, Neuroscience Graduate Training Faculty
Full member, Biomedical Engineering Training Faculty
Full member, Psychology Graduate Training Faculty
Full Member, Center for Cognitive Science
Core Member, Center for Neuroengineering
Member, Biomedical Engineering Institute
Member, Workgroup on Reproducibility
Adjunct professor, Department of Psychology
Member, NIDA Training Grant Training Faculty
Member, MIDB

2014-2019 Director of Graduate Studies, Graduate Program in Neuroscience, Univ Minnesota

2017-present Co-director **NeuroPRMSH (NeuroPlasticity Research in Support of Mental Health) Center** with Dr. Sophia Vinogradov.

Awards and Fellowships

While at University of Minnesota

- 2024 American Psychiatry Association Nasrallah Award for Psychiatric Neuroscience
- 2023 Spence lecture, University of Iowa
- 2021 Academy of Excellence, University of Minnesota
- 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

Previous to University of Minnesota

- 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

Publications

Spatial navigation and decision-making

Addressing questions of the information processing underlying decisions.

Books

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

Integration and theory papers

3. **A. D Redish** (in press) Mental time travel: A retrospective. *Hippocampus*.
4. L. T. Hunt, N. D. Daw, P. Kaanders, M. A. Maclver, U. Mugan, E. Procyk, **A. D. Redish**, E. Russo, J. Scholl, K. Stachenfeld, C. R. E. Wilson, N. Kolling (2021) "Formalising planning and information search in naturalistic decision-making" *Nature Neuroscience*.
5. A.E. McLaughlin, G.W. Diehl, **A.D. Redish** (2021) Potential roles of the rodent medial prefrontal cortex in conflict resolution between multiple decision-making systems. *International Review of Neurobiology* 158:249-281.
6. **A. D. Redish** (2020) Beyond Replay: Introduction to the special issue on hippocampal replay *Hippocampus* 30(1):3-5.
7. 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.
8. **A. D. Redish** (2016) "Vicarious Trial and Error" *Nature Reviews Neuroscience* 17:147-159.
9. J. J. Stott, **A. D. Redish** (2015) "Representations of value in the brain: an embarrassment of riches?" *PLOS Biology* 13(6):e1002174.

10. N. W. Schultheiss, **A. D. Redish** (2015) "The compass within" *Nature Neuroscience*, 18:482-483. [Commentary on Peyrache & Buzsaki 2015 *NNsci*.]
11. **A. D. Redish**, S. J. Y. Mizumori (2015) "Memory and Decision Making" *Neurobiology of Learning and Memory* 117:1-3.
12. 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.
13. A. M. Wikenheiser, **A. D. Redish** (2015) "Decoding the cognitive map: ensemble hippocampal sequences and decision making" *Current Opinion in Neurobiology* 32:8-15.
14. B. J. Schmidt, **A. D. Redish** (2013) "Navigation with a cognitive map" *Nature* 497:42-43.
15. A. M. Wikenheiser, A. D. Redish (2012) "Hippocampal sequences link past, present and future" *TICS* (Spotlight).
16. 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
17. J. E. Ferguson, J. C. Jackson, **A. D. Redish** (2011) "An inside look at hippocampal silent cells" *Neuron* 70:3-5.
18. 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.
19. 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.
20. J. Lisman, **A. D. Redish** (2009) "Prediction, sequences, and the hippocampus" *Philosophical Transactions of the Royal Society B* 364:1193-1201.
21. 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.
22. 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.
23. **A. D. Redish** (2001) "The hippocampal debate: Are we asking the right questions?" *Behavioural Brain Research* 127:81-98.
24. **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.

Experimental papers (including modeling)

25. O. L. Calvin, M. T. Erickson, C. J. Walters, **A. D. Redish** (in press) Dorsal hippocampus represents locations to avoid as well as locations to approach during approach-avoidance conflict. *PLoS Biology*.
26. U. Mugan, S. L. Hoffman, **A. D. Redish** (2024) Environmental complexity modulates information processing and the balance between decision-making systems. *Neuron*.
[https://www.cell.com/neuron/abstract/S0896-6273\(24\)00698-6](https://www.cell.com/neuron/abstract/S0896-6273(24)00698-6)
27. C. Yan, V. Mercaldo, A.D. Jacob, E. Kramer, A. Mocle, A.I. Ramsaran, L. Tran, A. J. Rashid, S. Park, N. Insel, A. D. Redish, P. W. Frankland, S. A. Josselyn. (2024) Higher-order interactions between hippocampal CA1 neurons are disrupted in amnesic mice. *Nature Neuroscience*. <https://www.nature.com/articles/s41593-024-01713-4>
28. A. E. McLaughlin, **A. D. Redish** (2023) Optogenetic Disruption of the Prelimbic Cortex Alters Long-Term Decision Strategy but Not Valuation on a Spatial Delay Discounting Task. *Neurobiology of Learning and Memory*: 200: 107734
<https://doi.org/10.1016/j.nlm.2023.107734>
29. E.B. Lind, B.M. Sweis, A.J. Asp, M. Esgeurra, K.A. Silvis, **A.D. Redish**, M.J. Thomas (2023) A quadruple dissociation of reward-related behavior across excitatory inputs to the nucleus Accumbens shell. *Communications Biology*. **6**:119 <https://www.nature.com/articles/s42003-023-04429-6>
30. G. W. Diehl, **A. D. Redish** (2023) Differential processing of decision information in subregions of rodent medial prefrontal cortex. *eLife* **12**:e82833. <https://doi.org/10.7554/eLife.82833>
31. P.J. Cunningham, P.S. Regier, **A.D. Redish** (2021) “Dorsolateral striatal task-initiation bursts represent past experiences more than future action plans” *Journal of Neuroscience* **41**(38):8051-8064.
32. B. Schmidt, **A. D. Redish** (2021) “Disrupting the medial prefrontal cortex with DREADDs alters hippocampal sharp-wave ripples and their associated cognitive processes” *Hippocampus*. **31**(10):1051-1067.
33. A. A. Duin, L. Aman, B. Schmidt, **A. D. Redish** (2021) “Certainty and uncertainty of the future changes planning and sunk costs” *Behavioral Neuroscience*. **135**(4):469-486.
<https://doi.org/10.1037/bne0000460>
34. C.S.J. Chen, R.B. Ebitz, S. Bindas, **A.D. Redish**, B. Hayden, N.M. Grissom. (2021) Divergent strategies for learning in males and females. *Current Biology* **31**:1-12
35. B. M. Hasz, **A. D. Redish** (2020) Spatial encoding in dorsomedial prefrontal cortex and hippocampus is related during deliberation. *Hippocampus* **30**:1194-1208.
36. B. M. Hasz, **A. D. Redish** (2020) Dorsomedial prefrontal cortex and hippocampus represent strategic context even while simultaneously changing representation throughout a task session. *Neurobiology of Learning and Memory* **171**:107215.

37. S. V. Abram, M. Hanke, **A. D. Redish**, A. W. MacDonald (2019) Neural signatures underlying deliberation in human foraging decisions. *Cognitive, Affective, & Behavioral Neuroscience*, 19(6):1492-1508.
38. S. V. Abram, **A. D. Redish**, A. W. MacDonald (2019) "Learning from loss after risk: Dissociating reward pursuit and reward valuation in a naturalistic foraging task" *Frontiers in Psychiatry* 10.3389/fpsyt.2019.00359.
39. B. Schmidt, A. A. Duin, **A. D. Redish** (2019) "Disrupting the medial prefrontal cortex alters hippocampal sequences during deliberative decision making" *Journal of Neurophysiology* 121(6):1981-2000.
40. 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.
41. B. M. Hasz, **A. D. Redish** (2018) "Deliberation and Procedural Automation on a Two-Step Task for Rats" *Frontiers in Integrative Neuroscience* doi: 10.3389/fnint.2018.00030.
42. 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.
43. S. Amemiya, **A. D. Redish** (2018) "Hippocampal theta-gamma coupling reflects state-dependent information processing in decision making". *Cell Reports* 22(12):3328-3338.
44. 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.
45. 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.
46. 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.
47. 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.
48. 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.
49. 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.

50. 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.
51. A. M. Wikenheiser, **A. D. Redish** (2015) "Hippocampal theta sequences reflect current goals" *Nature Neuroscience* 18:289-294.
52. 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.
53. 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.
54. 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.
55. 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.
56. 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.
57. A. M. Wikenheiser, **A. D. Redish** (2013) "The balance of forward and backward hippocampal sequences shifts across behavioral states" *Hippocampus* 23:22-29.
58. 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.
59. 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.
60. 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.
61. 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.
62. 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.
63. 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.

64. 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.
65. 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.
66. 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.
67. 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.
68. 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.
69. 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.
70. J. C. Jackson, **A. D. Redish** (2007) "Network dynamics of hippocampal cell-assemblies resemble multiple spatial maps within single tasks" *Hippocampus* 17:1209-1229.
71. 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.
72. 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.
73. 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.
74. A. Johnson, K. D. Seeland, **A. D. Redish** (2005) "Reconstruction of the postsubiculum head direction signal from neural ensembles" *Hippocampus* 15:86-96.
75. 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.
76. 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.
77. 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.

78. **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.
79. **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.
80. **A. D. Redish**, B. L. McNaughton, C. A. Barnes (2000) "Place cell firing shows an inertia-like process", *Neurocomputing*, 32–33: 235–241.
81. 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.
82. **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.
83. **A.D. Redish** and D.S. Touretzky (1997) "Cognitive Maps beyond the Hippocampus", *Hippocampus*. 7(1): 15-35.
84. **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.
85. D.S. Touretzky and **A.D. Redish** (1996) "A Theory of Rodent Navigation Based on Interacting Representations of Space", *Hippocampus* 6(3): 247-270.
86. **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.
87. D.S. Touretzky, **A.D. Redish**, and H.S. Wan (1993) "Neural Representation of Space Using Sinusoidal Arrays", *Neural Computation*, 5(6): 869-884.

Preprints

88. A. Kocharian, **A.D. Redish**, P.E. Rothwell (2024) Individual differences in decision-making shape how mesolimbic dopamine regulates choice confidence and change-of-mind. *bioRxiv unreviewed preprint*. <https://www.biorxiv.org/content/10.1101/2024.09.16.613237v1>
89. P. J. Cunningham, **A. D. Redish** (2024) A triple dissociation across the medial, ventral, and lateral orbitofrontal cortex in rats making sequential foraging decisions. *bioRxiv unreviewed preprint*. <https://www.biorxiv.org/content/10.1101/2024.08.17.608409v1>
90. G. W. Diehl, A. D. Redish (2024) Measuring excitation-inhibition balance through spectral components of local field potentials. *bioRxiv unreviewed preprint*. <https://www.biorxiv.org/content/10.1101/2024.01.24.577086v1>

91. D. Surinach, M.L Rynes, K. Saxena, E. Ko, A. D. Redish, S. B. Kodandaramaiah (2023) Distinct mesoscale cortical dynamics encode search strategies during spatial navigation. *bioRxiv unreviewed preprint*. 2023.03.27.534480; doi: <https://doi.org/10.1101/2023.03.27.534480>

Book chapters and conference articles

92. U. Mugan, S. Amemiya, PS Regier, **AD Redish** (2024) “Navigation through the complex world – the neurophysiology of decision-making processes” to be published in *Habits: Their definition, neurobiology, and role in addiction*, Y. Vandaele et. Spring Nature. pp 109-139.
93. 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.
94. A. M. Wikenheiser, **A. D. Redish** (2015) “Hippocampal sequences and the cognitive map” In *Analysis and Modeling of Coordinated Multi-neuronal Activity*, Springer Series in Computational Neuroscience 12, M. Tatsuno, ed. Springer, Chapter 5, pages 105-129.
95. **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.
96. A. E. Papale, R. Mork, C. Boldt, J. C. Jackson, J. E. Ferguson, **A. D. Redish** (2012) “Wireless Galvanic transmission through neural tissue via modulation of a carrier signal by a passive probe” *Journal of Medical Devices* 6(1):017509.
97. 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.
98. **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.
99. **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
100. 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.
101. **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.

102. 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
103. **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.
104. **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.
105. 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.
106. **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. Eckman, ed., pp. 269-275, Kluwer Academic Publishers.
107. 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.
108. 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.
109. 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.

Blogs, interviews, and community engagement

110. **A. D. Redish** (2021) [Clarity4Action: Implications beyond the neuroscience](#). Interview by Amy Day. *Clarity4Action*.
111. **A. D. Redish** (2019) [The Upgrade podcast: How to be a better decision maker](#). *The Upgrade podcast by LifeHacker*.
112. **A. D. Redish** (2018) [State of Minds Podcast](#) (with Kate Sytnik) [mp3]
113. **A. D. Redish** (2017) [UTSA Neuroscientists talk shop: Neural Codes of Navigation Symposium](#). Hosted by *Salma Quirashi*.
114. **A. D. Redish** (2016) [Learning for Life Sampler](#) (1st of three talks)
115. **A. D. Redish** (2015) [Exploring Mental Time travel](#).

- 2nd place winner [AAMC Basic Research Video Contest \(Research Means Hope\)](#).
116. **A. D. Redish** (2015) [Decision making with David Redish](#). *The One You Feed* podcast with Eric Zimmer.
 117. **A. D. Redish** (2014) [BCBT: Convergent Science Network Podcast on Thoughts, discussions, and achievements in neurobiology, biomimetic and biohybrid systems](#). *Convergent Science Network Podcast*. Paul Vershure and Tony Prescott.
 118. **A. D. Redish** (2014) [The mind within the brain – how we make decisions and how those decisions go wrong](#). *Ted-X*.
 119. **A. D. Redish** (2014) [How difficult is it to memorize a playbook?](#) *Sports Illustrated*.
 120. **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/>)
 121. **A D Redish** (2006) Did interview/video for Wes Thomsen doing a project on memory and scrapbooking. Included in his documentary movie *Scrapped* (2006).

Computational Psychiatry

Building on the hypothesis that psychiatric conditions arise from changes in the information processing of decision-making which changes how one interacts with the world.

Books

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

Integration and theory papers

123. S. Vinogradov, A. A. Hamid, **A. D. Redish** (2022) Etiopathogenic models of psychosis spectrum illnesses must resolve four key features. *Biological Psychiatry* 92(6):514-522. <https://www.sciencedirect.com/science/article/abs/pii/S0006322322013737>
124. A.F. Haynos, A.S. Widge, L.M. Anderson, **A. D. Redish** (2022) Beyond Description and Deficits: How Computational Psychiatry Can Enhance an Understanding of Decision-Making in Anorexia Nervosa. *Current Psychiatry Reports*. <https://doi.org/10.1007/s11920-022-01320-9>
125. **A.D. Redish**, A. Kepecs, L. M. Anderson, O. Calvin, N. Grissom, A.F. Haynos, S. R. Heilbronner, A.B. Herman, S. Jacob, S. Ma, I. Vilares, S. Vinogradov, C.J. Walters, A.S. Widge, J.L. Zick, A. Zilverstand (2022) “Computational Validity: Using Computation to translate behaviors across species”. *Philosophical Transactions of the Royal Society B* 377:20200525.
126. C. Conelea, S. Jacob, **A. D. Redish**, I. S. Ramsay (2021) “Considerations for pairing Cognitive Behavioral Therapies and Noninvasive Brain Stimulation: Ignore at your own risk” *Frontiers in Psychiatry* 12:660180. <https://doi.org/10.3389/fpsy.2021.660180>.

127. **A. D. Redish**, R. Kazinka, A. B. Herman (2019) "Taking an engineer's view: Implications of network analysis for computational psychiatry", *Behavioral and Brain Sciences* 42:36-47. Commentary on Borsboom et al. "Brain disorders? Not really: why network structures block reductionism in psychopathology research" *Behavioral and Brain Sciences* 42:1-11.
128. 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.
129. M. Ferrante, **A. D. Redish**, M. Oquendo, B. Averbeck, M. Kinnane, J. Gordon (2017) "Computational Psychiatry: A report from the 2017 NIMH Workshop on opportunities and challenges". *Molecular Psychiatry*.
130. 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.
131. C. Pennartz, J. D. Berke, A. Graybiel, R. Ito, C. Lansink, M. van der Meer, **A. D. Redish**, K. Smith, and P. Voorn (2009) "Corticostriatal Interactions during Learning, Memory Processing, and Decision Making." *Journal of Neuroscience*. 29(41):12831-12838.
132. **A. D. Redish** (2009) "Implications of the multiple-vulnerabilities theory of addiction for craving and relapse" *Addiction*. 104:1940-1941.
133. **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.

Experimental papers (including modeling)

134. C. Shen, O. L. Calvin, E. Rawls, **A. D. Redish**, S. R. Sponheim (2024) Clarifying Cognitive Control Deficits in Psychosis via Drift Diffusion Modeling. *Schizophrenia Bulletin* <https://www.medrxiv.org/content/10.1101/2023.08.14.23293891v1>
135. S. Kalhan, M. I. Garrido, R. Hester, **A. D. Redish** (2023). Reward prediction-errors weighted by cue salience produces addictive behaviors in simulations, with asymmetrical learning and steeper delay discounting. *Neural Networks* 168:631-651. <https://www.sciencedirect.com/science/article/pii/S0893608023005282>
136. W. W. Pettine, D. V. Raman, **A. D. Redish**, J. D. Murray (2023) Human generalization of internal representations through prototype learning with goal-directed attention. *Nature Human Behavior*. <https://doi.org/10.1038/s41562-023-01543-7>
137. O. L. Calvin, **A. D. Redish** (2021) "Global Disruption in Excitation-Inhibition Balance Can Cause Localized Network Dysfunction and Schizophrenia-Like Context-Integration Deficits" *PLoS Computational Biology* 17(5): e1008985. <https://doi.org/10.1371/journal.pcbi.1008985>.

138. S. Kalhan, **A. D. Redish**, R. Hester, M. I. Garrido (2021) "A salience misattribution model for addictive-like behaviors" *Neuroscience and Biobehavioral Reviews* 125:466-477.
139. E. Kummerfeld, S. Ma, R. K. Blackman, A. L. DeNicola, **A. D. Redish**, S. Vinogradov, D. A. Crowe, M. V. Chafee (2020) Cognitive control errors in nonhuman primates resembling those in schizophrenia reflect opposing effects of NMDAR blockade on causal interactions between cells and circuits in prefrontal and parietal cortex. *Biological Psychiatry: Cognitive Neuroscience and Neuroimaging* 5(7):705-714.
140. 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.
141. K. J. Friston, **A. D. Redish**, J. A. Gordon (2017) "Computational Nosology and Precision Psychiatry" *Computational Psychiatry*. doi: 10.1162/CPSY_a_00001.
142. 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.
143. 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.
144. **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.
145. **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
146. **A.D. Redish** (2004) "The addiction compulsion: a computational process gone awry" *Science* 306:1944-1947.

Preprints

147. W. W. Pettine, A. Tseng, A. Yang, A. Docherty, A. D. Redish, J. D. Murray, S. Jacob. (2024) Attention and Learning Strategies Reveal Distinct Profiles of Psychiatric Traits. *PsyArXiv unreviewed preprint*. <https://osf.io/preprints/psyarxiv/52mkw>.

Book chapters and conference articles

148. CJ Walters, S Vinogradov, **A. D. Redish** (2023) "Computational Modeling in Psychiatry" to be published in *Cambridge Handbook of Computational Sciences*, Ron Sun ed. Cambridge University Press. Chapter 26.
149. **A. D. Redish** (2020) "Addiction from a Computational Perspective" in *Computational Psychiatry: A Primer* P. Series, ed. Chapter 9, pgs. 185-204.

150. JL Zick, J Camchong J, **A D Redish**, S Vinogradov (2019) “Circuit Psychiatry: Non-Drug Therapeutic Interventions for Impaired Neural System Functioning” to be published in AB Niculescu III, J Licinio (Eds.), *Translational Neuroscience in Psychiatry*. Oxford University Press.
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.
152. 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.
153. **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.
154. S. B. Flagel, 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.
155. **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.
156. **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.
157. 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.
158. **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.

Blogs, interviews, and community engagement

159. **A. D. Redish** (2024) [Computational psychiatry is in the building](#): Brain information processing and the future of psychiatry? [Brainland podcast](#).

160. **A. D. Redish** (2018) [2018 Dean's Distinguished Lectureship Presentation](#) (Redish & Vinogradov).

Neuroeconomics, Neurolaw, and other sociological issues

Building on the hypothesis that the neuroscience of decision-making provides a new microeconomic framework that has policy consequences

Books

161. **A. D. Redish** (2022) *Changing how we choose: the new science of morality*, MIT Press.

Integration and theory papers

162. Z. Kurth-Nelson, **A. D. Redish** (2017) "Precommitment: A way around temptation" *Frontiers for Young Minds* 5:26. doi:10.3389/frym.2017.00026.
163. **A. D. Redish**, N. W. Schultheiss, E. C. Carter (2015) "The computational complexity of valuation and motivational forces in decision-making processes", *Current Topics in Behavioral Neuroscience*.
164. **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.
165. 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.

Experimental papers

166. R. M. Davidson, H. K. Traxler, A. DeFulio, **A. D. Redish**, J. A. Royle, H. P. Gass (2024) Contingency management for mono-substance use disorders: Systematic review and assessment of predicted versus obtained effects. *Journal of Applied Behavior Analysis*. <https://doi.org/10.1002/jaba.2922>
167. C. F. Runge, J. A. Johnson, E. A. Nelson, **A. D. Redish** (2023) A neuroscience-based analysis of impacts of disaster memory on economic valuation. *Journal of Neuroscience, Psychology, and Economics* 16(1):24-49. <https://psycnet.apa.org/record/2023-28159-001>
168. **A.D. Redish**, S.V. Abram, P.J. Cunningham, A.A. Duin, R. Durand-de Cuttoli, R. Kazinka, A. Kocharian, A.W. MacDonald III, B. Schmidt. N. Schmitzer-Torbert, M.J. Thomas, B.M. Sweis (2022) Sunk cost sensitivity during change-of-mind decisions is informed by both the spent and remaining costs. *Communications Biology* 5:1337. <https://www.nature.com/articles/s42003-022-04235-6>
169. R. Kazinka, A. W. MacDonald III, **A. D. Redish** (2021) "Sensitivity to sunk costs depends on attention to the delay" *Frontiers in Psychology* 12:373. DOI: 10.3389/fpsyg.2021.604843.

170. 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.
171. B. Sweis, M. J. Thomas, **A. D. Redish** (2018) "Mice learn to avoid regret" *PLoS Biology* 16(6): e2005853.
172. P. S. Regier, **A. D. Redish** (2015) "Contingency Management and deliberative decision-making processes" *Frontiers in Psychiatry* 6:0076 doi:10.3389/fpsyt.2015.00076
173. 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.
174. 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,
175. 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
176. Z. Kurth-Nelson, **A. D. Redish** (2009) "Temporal-difference reinforcement learning with distributed representations" *PLoS ONE* 4(10): e7362.

Preprints

177. S. E. Allen, R. F. Kizilcec, **A. D. Redish** (2024) A new model of trust based on neural information processing. *arXiv unreviewed preprint*. <https://arxiv.org/abs/2401.08064>

Book chapters and conference articles

178. **A.D. Redish**, H.S. Chastain, C.F. Runge, B.M. Sweis, S.E. Allen, A. Haldar (2025) Policy consequences of the new neuroeconomic framework. Accepted into *Neuroeconomics: Core Topics and Current Directions*. Edited by D. Smith, D. Fareri, and P. Lockwood. *Currently available as an arXiv unreviewed preprint*. <https://arxiv.org/abs/2409.07373>
179. **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.

Blogs, interviews, and community engagement

180. **A D Redish** (2024) [Changing How We Choose with David Redish](#). *The One You Feed with Eric Zimmer*.
181. **A D Redish** (2023) [The Open Mind - The Science of Decision-Making](#). *Alex Heffner's The Open Mind*. PBS.
182. **A D Redish** Brain and the Poetic Mind (2013-2019) *Psychology Today*.

- A new blog 31 Oct 2013
- Putting the Neuro into Economics 5 Nov 2013
- Morality and Tribalism: The Problem with Utilitarianism 12 Dec 2013
- We are all Commander Data, now 11 April 2014
- Post-modern anthropomorphism 9 June 2014
- The Neuroscience of Football 14 Aug 2014
- The Action on the Field 14 Aug 2014
- The Perceptual Arms Race 21 Aug 2014
- Separating Strategy from the Execution on the Field 28 Aug 2014
- Learning the Playbook and Learning from Tape 4 Sept 2014
- Peacemaking among Primates 11 Sept 2014
- Process and Normative 30 July 2015
- Morality and Community 9 November 2019

Engineering and mathematical tools

Projects and products to produce better neural technologies

Integration and theory papers

183. 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.

Experimental papers and engineering contributions

184. 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.
185. 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.
186. 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
187. 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.
188. B. Masimore, J. Kakalios, **A.D. Redish** (2004) "Measuring fundamental frequencies in local field potentials" *Journal of Neuroscience Methods* 138(1-2):97-105.
189. J. C. Jackson, **A.D. Redish** (2004) "Measuring ensemble consistency without measuring tuning curves", *Neurocomputing* 58-60C: 91-99.

190. 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.

Book chapters and conference articles

191. 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.
192. 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)* .
193. 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
194. 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
195. 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.
196. 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.
197. 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.

Products

198. **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, **still maintained**) “MClust: A spike-sorting toolbox”, available from <http://umn.edu/~redish/MClust>, available on github as of 12 October 2019.
199. JE Ferguson, CJ Boldt, **AD Redish**. 2009. Detailed description of how to achieve this plating shown in Ferguson et al 2009.

The process of science, service papers

Addressing questions of the process of science, including the “business of science”, with an emphasis on theory, modeling, and reproducibility.

Integration and theory papers

200. D. Levenstein, V. A. Alvarez, A. Amarasingham, H. Azab, Z. S. Chen, R. C. Gerkin, A. Hasenstaub, R. Iyer, R. B. Jolivet, S. Marzen, J. D. Monaco, A. A. Prinz, S. Quraishi, F. Santamaria, S. Shivkumar, M. F. Singh, R. Traub, H. G. Rotstein, F. Nadim, **A. D. Redish** (2023) On the role of theory and modeling in neuroscience. *Journal of Neuroscience* 43.7 (2023): 1074-1088. <https://www.jneurosci.org/content/43/7/1074>
201. **A. D. Redish**, E. Kummerfeld, R. L. Morris, A. Love (2018) “Opinion: Reproducibility failures are essential to scientific inquiry” *PNAS* 115(20):5042-5046.

Experimental papers (specific cases, how-to, history)

202. M. H. Hagenauer, A. D. Redish, D. Schiller, K. L. Bigos, S. Flagel, A. Rodriguez, Z. Parker, A. O'Connor, X. Ortiz-Gonzalez, D. Murphy, R. Leeson, Community for Rigor (in press) Promoting open discussions of scientific failure within the annual Society for Neuroscience conference. *eNeuro*.
203. 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.
204. **A. D. Redish**, M. W. Howard (2018) “The legacy of Adam Johnson”. *Hippocampus* 28(6):453-454.
205. **A D Redish** (2021) [Catch-22](#). From the story-telling session of the 50th Annual Society for Neuroscience Meeting: *Oh Sh*t, Great Scientists Tell Stories about their Greatest Failures*. Now available on the [Great Scientists, Great Failures](#) YouTube channel.

Blogs, interviews, and community engagement

206. **A D Redish** (2019) [UTSA Neuroscientists talk shop: Future Frameworks in Theoretical Neuroscience Workshop](#). Panel discussion as part of the Future Frameworks workshop. Hosted by Salma Quirashi.
207. **A D Redish** (2019) Watching out for Ol’ Doc Murphy. *Scientopia*.
- Ol’ doc who now? 28 October 2019
 - Peer review is not commentary. 2 November 2019
 - Who pays for the paper? 9 November 2019
 - Papers should move up, not down. 23 November 2019
 - Why I won’t publish in bioRxiv 3 December 2019

Artistic works

Poetry

208. untitled poem (“Our relationship is stretched thin...)
 published 1989 *Late Knocking*.
209. Standing on an unsafe balcony, night and morning
 published 1991 *Baltimore City Paper*.

Plays

210. *Beth* (one-act)
 1988 (full production), produced by E. Albee, directed by M. Kupritz.
211. *Kalypso* (one-act)
 1989 (full production), produced and directed by E. Albee.
 1992 (reading), directed by A. Eaves.
212. *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
213. *The Pilate Dialogues* (full-length)
 1995 (reading), produced by S. Sickles.
214. *Medea* (full-length)
 1998 (reading), directed by V. Baugh.
215. *The Stone at the Heart* (full-length)
 1999 (reading), directed by K. Kellner.
 2000 (staged reading), directed by D. Sewell
216. *Modern Art* (short work)
 1999 (staged reading), *GOCAIA*, Tucson AZ
 Produced by the Old Pueblo Playwrights, directed by L. Andresano.

Service

Service to the department

Committees

1. 2001-2002 Member, Behavioral Genetics search committee
2. 2002 (spring) Member, BBBG speaker search committee

3. 2005 Member Presidential Symposium Committee
4. 2013 MNDrive Faculty search committee
5. 2014 Member, Ad Hoc Research Committee for Neuroscience
6. 2016 Member, Computational neuroscience faculty search CMRR
7. 2024 Member, Computational Cognitive Faculty candidate search
8. 2024 Member, Research strategy committee
9. 2014-present Mock study sections (1 in 2014, 1 in 2015, 1 in 2016, 1 in 2017, 1 in 2018, 1 in 2019, 1 in 2021, 2 in 2022, 1 in 2024).

Junior faculty mentorships

10. 2018-2022 Sarah Heilbronner mentor.
11. 2019-2022 Ben Saunders mentor.
12. 2021-2022 Audrey Sederberg mentor.
13. 2022-2024 Alex Herman K32 mentorship.
14. 2022-present Arif Hamid mentor.
15. 2024-present JP Noel mentor.

Guests hosted

16. 2001 Carol Barnes, NSMA, Univ Arizona Tucson.
17. 2002 Andre Fenton, SUNY Downstate and Czech Academy of Sciences.
18. 2003 Reza Shadmehr, Johns Hopkins.
19. 2006 Loren Frank, UCSF.
20. 2007 Cliff Kentros, U Oregon.
21. 2008 Geoff Schoenbaum, U MD.
22. 2008 Peter Brown, UCL (coordinated with Medtronic)
23. 2008 Yael Niv, Princeton
24. 2009 Eric Hargreaves, NYU (postdoc)
25. 2009 Josh Berke, U Michigan
26. 2009 Menno Witter, Kavli Institute, Trondheim Norway
27. 2010 Dec: Masahide Maeda (From Ichiro Tsuda lab to work on HFSP project)
28. 2010 HFSP Workshop (Ichiro Tsuda + 5 students, Jan Lauwereyns + 1 student, Emma Wood + 1 student, + 9 students from my lab)
29. 2010 Len Maler, U Ottawa

30. 2011 Kevin Quinones-Laracuente (From Greg Quirk lab to see tetrodes)
31. 2011 Paul Cisek, U Montreal
32. 2012 Michael Milford, Queensland University of Technology
33. 2012 Tom Abrams, University of Maryland (Baltimore)
34. 2017 Shelly Flagel, University of Michigan
35. 2018 Caleb Kemere, Rice University
36. 2018 Leah Krubitzer, UC Davis
37. 2018 Oliver Vikbladh (NDaw graduate student)
38. 2018 Robb Rutledge (UCL)
39. 2020 Brad Voytek (UCSD)
40. 2022 Daphna Joel (Tel Aviv University)
41. 2024 Xiaosi Gu (Mount Sinai)

Service to graduate programs

42. 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
43. 2006-2014 Member, Center for Cognitive Science T32 selection committee
44. 2010-2013 Member, Executive Council, CCS UMN
45. 2013 Member, 3M Fellowship committee (AHC)
46. 2005 Member BME-GP Admissions committee
47. 2004-2014 Member, Admissions committee GPN
48. 2008-present Member, Steering committee GPN UMN
49. 2008-2014 Chair, Admissions committee GPN UMN
50. 2013-2019 Member, Basic Sciences Graduate Programs Council
51. 2014-2019 Director of Graduate Studies, GPN
52. 2018-2023 T32 program director, *Computational Neuroscience* T32-MH115886.
53. 2018-present T32 program director, *Predocutorial Training of Neuroscientists* JSPTN T32-NS105603

Service to the university

54. 2002 UMN Academic Health Center Seed Grant review committee
55. 2006 Member, Ford Foundation lecture series selection committee

56. 2016-2021 Member, UMN Medical School Research Council (MSRC)
57. 2017-present Co-director NeuroPRSMH interdisciplinary workgroup.
58. 2020-2022 Special Review Committee, for a faculty member not performing at an adequate level

Service to the field

NIH and federal policy discussions

59. 2009, Presentation at ICARUS project planning meetings, Intelligence Advanced Research Projects Agency (IARPA).
60. 2015 Reconsideration of the missing question of “failure modes” to the NIMH RDOC Unit, NIMH, NIH, Bethesda MD
61. 2017 Policy discussions on Computational Neuroscience and Computational Psychiatry presentation to NIMH Council at invitation of NIMH Director, NIMH, NIH Bethesda MD
62. 2018 NIH ACD BRAIN Initiative Working Group 2.0 Workshop #2, Chicago IL

Training / Teaching

63. 2007-2017 instrumental in success of the Midbrains undergraduate conference
64. 2008 Scholar in Residence, Neural Systems & Behavior course (MBL, Woods Hole MA)
65. 2009, 2017 Taught at Okinawa Computational Neuroscience Class for Okinawa Institute of Science and Technology (OCNC at OIST, Okinawa Japan)
66. 2011 Summer School in Computational & Cognitive Neuroscience (Shanghai China)
67. 2013 Taught at Hippocampus and Decision Making course at Champalimaud Institute (Lisbon, Portugal)
68. 2004, 2014, 2018-2023 Taught at Methods in Computational Neuroscience course (MBL, Woods Hole MA)
69. 2018 Taught at the Computational Psychiatry Summer School, ETH (Zurich Switzerland)
70. 2018 Keynote talk for Computational Psychiatry Summer Course, University College London (London UK)
71. 2018 Taught a one-day (whole day) workshop at LMU Munich on computational analysis of complex neural data. (Munich, Germany)
72. 2018, 2019 Taught at Sloan-Nomis Neuroeconomics conference (Vitznau, Switzerland)
73. 2019 Taught at Dartmouth MIND Summer Workshop, Dartmouth College (Hanover NH)
74. 2019 Taught 1 day pre-meeting workshop at Eating Disorders Research Society conference (Chicago IL)

Edited special issues and editorial boards

75. 2015 Edited special issue with Sheri Mizumori on Memory and Decision Making, published 2015: *Neurobiology of Learning and Memory*
76. 2019 Edited special issue on Sharp-Wave-Ripples, published 2020: *Hippocampus*
77. *Computational Psychiatry* (Editorial board, 2017-present)
78. *Neural Computation* (Editorial board, 2014-present)
79. *Neurobiology of Learning and Memory*, Editorial board (2014-present)
80. *Hippocampus*, Editorial Board (reviewing editor, 2003-present)
81. *JEAB (Journal of the Experimental Analysis of Behavior)*, Editorial board (2012-2022)
82. *Network: Computation in Neural Systems*, Editorial Board (2011-2021)
83. *Frontiers in Integrative Neuroscience*, (Review Editor, 2007-2024)
84. *Frontiers in Behavioral Neuroscience*, Review Board (identified referee, 2007-2024)
85. *Frontiers in Decision Neuroscience*, (Review Editor, 2012-2024)
86. *Frontiers in Neuropharmacology* (Review Editor, 2014-2024)

Society Memberships and service

Neural information processing systems

As a graduate student

87. 1992-1994 Co-Maintainer, Connectionists Mailing List
88. 1994-1997 WebMaster, NIPS
89. 1996 Member, Neural Information Processing Systems (NIPS) Organizing Committee

Computational Neural Systems

90. 2005-2008 Member, Board of Directors, Computational Neural Systems

Society for Neuroeconomics

91. 2010- Member, Society for Neuroeconomics
92. 2012-2013, 2019-2022 Member, Program Committee, Society for Neuroeconomics
 - Vice chair 2020-2021, Chair 2022
93. 2018-2021 Member, Executive Board of the Society for Neuroeconomics
94. 2024 Member, SNE Awards committee

Faculty for undergraduate neuroscience

95. 2017 Special presentation, Faculty for Undergraduate Neuroscience, on the state of graduate education.

Society for Neuroscience

96. 2024-2025 Member, SFN Trainee Professional Development Awards Selection Committee

Grant review

97. 2003 Member, NASA review panel for NRA 03-OBPR-04

98. 2004 Ad-hoc Member, SEP ZMH1 ERB-S 03S NIH Reviewer panel.

99. 2005 Ad-hoc Member, NIH ZRG1 F02B: SMI Study section [NRSA Fellowships, June]

100. 2005 Ad-hoc Member, NIH ZRG1 F02B: SMI Study section [NRSA Fellowships, Oct]

101. 2006 Member, NSF Computational Neuroscience Panel

102. 2009 Member, ETTN F02A NRSA panel JULY

103. 2009 Member, ETTN F02A NRSA panel MARCH

104. 2008 Member, ZRG1 F02AX NRSA panel

105. 2008 Member, ZRG1 F02AC NRSA panel

106. 2011-2015 Standing Member, LAM study section (NIH)

107. 2012 Member, Canadian College of Reviewers

108. 2017-2020 Standing Member, NST-2 NIH Study Section

109. 2024-2029 Member, NIMH Board of Scientific Counselors

110. Journal and other 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, 26 in 2019, 12 in 2020, 5 in 2021, 7 in 2022, 6 in 2023, 10 in 2024).

111. 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], 19 in 2019 [attended 1 study section], 2021 [attended 2 study sections], 2022 [attended 1 study section], 2023 [attended 2 study sections], 9 [including 5 promotion letters, attended 1 study section])

Conference organizations

112. 2015 Co-chair, Strungmann Forum (co-chair with Josh Gordon)
113. 2017 Co-organized NIMH Meeting on Computational Psychiatry: Opportunities and Challenges (with Bruno Averbeck, Michele Ferrante, Maria Oquiedo, and Megan Kinnane)
114. 2017 Co-organized NeuroPsychitry Brain Camp (UMN internal) with Sophia Vinogradov
115. 2022 Organized Computational Psychitry and Cross-Species Translation Session for American Psychology Association conference (2022)
116. 2022 Organized Computational Psychiatry Workshop at Cosyne conference (workshop led by my postdocs Olivia Calvin and Ugurcan Mugan)
117. 2024 Local co-host, Computational Psychiatry conference

Service to the community

(engagement and outreach without a permanent product)

K-12, PUI colleges

1. 2001 BrainU: 24 Middle School Teachers shown lab.
2. 2004 BrainU tours.
3. 2005 BrainU tours.
4. 2007 Presented first grade class (Falcon Heights Elem School, Ms. Nelson and Ms. Plath).
5. 2008 Presented lab tour to Andover High School seniors.
6. 2008 Presented lab tour to Augsburg College Biopsychology class.
7. 2009 Llab tour to students from St. Olaf
8. 2009 BrainU tours
9. 2010 Presentation with brains and demos to ISD #271 Dimensions Academy from Ridgeview Elementary in Bloomington
10. 2010 BrainU tours
11. 2012 Presented talk, brains, and demos to ISD #271 Dimensions Academy from Ridgeview Elementary in Bloomington
12. 2012 Presented lab tours and presentations to BrainU program
13. 2013 Presented lab tour to BrainU
14. 2015 Skype discussion with students at St. Nicholas International School, Sao Paulo, Brazil.

Continuing education

15. 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.*

Lab tours

16. 2003 Showed lab to Governor Pawlenty.
17. 2003 Showed lab to State Senators (for AHC Dean's office).
18. 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).

Lectures and public engagement

19. 2010 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*
20. 2010 Interviewed for "Found in Space" episode of "Are we alone?" [NPR, podcast]
21. 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
22. 2013 Joined art/science roster of "The Gymnasium"
23. 2014 Presented talk to BehaviorMN Meetup group
24. 2017 Presented talk on neuroeconomics to the Minneapolis Federal Reserve
25. 2017 Presented talk on computational psychiatry to the Minneapolis Psychoanalytic Initiative working group
26. 2019 Behavioral Grooves (Lecture, Q/A, and Discussion)
27. 2022 Presented at Anselm house: *Are we really free? A discussion on free will and moral responsibility* with Bill Newsome and David Redish.
28. 2023 Evening lecture for National Association on Mental Illness (NAMI, Minneapolis): The new field of computational psychiatry

Invited lectures and talks

Only including ones external to the University of Minnesota. Also not counting lectures given as part of teaching a class (such as at MBL, which are listed under service.)

Keynotes and named lectures

1. 2024 Syracuse University (Keynote, 10th annual Research Day)
2. 2024 Lethbridge Canada (Harley Hotchkiss Memorial Lecture)

3. 2023 Spence Lecture, University of Iowa
4. 2022 Keynote, Cognitive Computational Neuroscience Conference (San Francisco)
5. 2019 Keynote, Eating Disorders Research Society, Chicago IL
6. 2019 Keynote, Fetal Alcohol Syndrome Disorders Annual Meeting, Minneapolis MN
7. 2018 Keynote, Computational Psychiatry Summer Course, University College London, London UK
8. 2018 Keynote, NeuroFutures Conference, University of Washington, Seattle WA
9. 2018 Roger Loucks Lecture, University of Washington, Seattle WA
10. 2018 Bodian seminar, Johns Hopkins Univ, Baltimore MD
11. 2017 University of Alabama MSTP Retreat Keynote speaker
12. 2016 Invited Speaker, Workshop on Internally Generated Sequences in Hippocampus, Ariccia Italy
13. 2016 Invited Speaker, EBPS Workshop on Computing with Neural Ensembles, Amsterdam Netherlands
14. 2016 Kavli Workshop Speaker, Society for Neuroeconomics 2016 Meeting, Berlin Germany
15. 2015 Hebb Lecture, McGill University, Montreal Canada
16. 2015 Keynote talk, Prefrontal cortex conference, American University, Washington DC
17. 2013 Full community lecture, Institute Champalimaud, Lisbon, Portugal
18. 2011 Concordia University, Montreal Canada [Keynote speaker for workshop on the interpretation of electrophysiological data as a function of behavior]
19. 2010 Yale University Schwartz Symposium, New Haven CT
20. 2010 Keynote talk, Midbrains conference, St. Olaf College, Northfield MN
21. 2007 Mechanism of Mind and Brain Workshop, Sapporo Hokkaido Japan [Invited speaker, Special English section, Annual Meeting of Japanese Physiology Society,]
22. 2006 Center for the Neural Basis of Cognition, Carnegie Mellon University & Univ Pittsburgh, Alumni Lecture
23. 2006 HHMI Distinguished Speaker, Knox College, Galesburg IL
24. 1999 Distinguished dissertation award lecture, Carnegie Mellon University, Pittsburgh PA

University seminars and invited conference presentations

International

25. 2024 University of Zurich, Neuroecon group (Zurich, Switzerland)

26. 2024 Neurobiology of Mental Health [Lake Conferences] (Thun, Switzerland)
27. 2022 Freiburg Germany [ONLINE]
28. 2021 iSCAN, Magdeburg Germany, [ONLINE]
29. 2019 Sloan-Nomis Meeting on Attention (Neuroeconomics), Vitznau Switzerland
30. 2019 Dusseldorf decision making symposium, Dusseldorf Germany
31. 2019 Cosyne Workshop on foraging, Lisbon Portugal
32. 2018 Dept Psychology, UniMelbourne, Melbourne Australia
33. 2018 Dept Finance, UniMelbourne, Melbourne Australia
34. 2018 Neuroeconomics department, ETH, Zurich Switzerland
35. 2018 EBPS Workshop: Using Computational approaches to build a two-way bridge, Downing College, Cambridge, UK
36. 2018 DeepMind, London, UK
37. 2018 Sloan-Nomis Meeting on Attention (Neuroeconomics), Vitznau Switzerland
38. 2018 LMU, Munich Germany
39. 2017 OIST Okinawa, Japan
40. 2017 Ruhr-Universität Bochum, Germany
41. 2016 BCNI, Downing College, University of Cambridge, Cambridge UK
42. 2016 "Addiction, In Theory" Meeting, University College London, London UK
43. 2016 38th GRSNC, Université de Montréal, Montreal QB Canada
44. 2015 International Symposium on Prediction and Decision Making, Tokyo Japan.
45. 2015 Dresden Symposium on Cognitive Control (invited speaker), Dresden Germany
46. 2014 PFC conference, Whistler Canada
47. 2014 Behavior, Cognition, Computation, and Technology Course, Barcelona Spain
48. 2013 HFSP Meeting, Strasbourg, France.
49. 2012 Gordon Research Conference, Il Ciocco, Lucca, Italy.
50. 2012 Symposium on Biology of Decision-Making, Institut du Cerveau et de la Moelle Epiniere (ICM), Hopital Pitie-Salpetriere, Paris, France.
51. 2012 Ecole Normale Supérieure, Paris France
52. 2012 College de France, Paris France
53. 2012 University of British Columbia, Vancouver CA

54. 2011 International Symposium on Learning, Memory and Cognitive Function. Mechanisms, Pathology and Therapeutics, Valencia Spain
55. 2011 Dynamic Brain Forum (Part of ICCNN, Hokkaido, Japan)
56. 2011 Ernst Struengmann Forum, Frankfurt Germany
57. 2009 Dynamic Brain Forum (Atami, Japan)
58. 2008 Conference on Learning and Memory, Spitsbergen Norway [Session chair]
59. 2008 University of Waterloo, Waterloo Canada
60. 2007 Okinawa Institute of Science and Technology, Okinawa Japan
61. 2003 Joint UMN-Karolinska conference, Karolinska, Stockholm, Sweden

Domestic

62. 2024 Stanford MCBT program
63. 2024 Stanford Neurochoice program
64. 2024 Mount Sinai School of Medicine
65. 2023 Zucker Hillside Northwell Hospital (New York NY)
66. 2023 NYU
67. 2023 Cornell University
68. 2023 Philosophy and Neuroscience in the Gulf VI, Pensacola FL (invited nsci keynote)
69. 2023 APPA (NYC)
70. 2022 APA (Psychology) [Minneapolis MN]
71. 2022 Purdue [ONLINE]
72. 2022 U Maryland School of Medicine [P50 group presentation w/ Sophia Vinogradov, ONLINE]
73. 2021 Minisymposium presenter [50th Society for Neuroscience conference, ONLINE]
74. 2021 IU Bloomington [Bloomington IN, ONLINE]
75. 2021 UIUC [Urbana-Champaign, ONLINE]
76. 2020 Northwestern [Chicago IL, ONLINE]
77. 2020 IU School of Medicine [Indianapolis IN, ONLINE]
78. 2020 Mayo Clinic [Rochester MN, ONLINE]
79. 2020 IPAM / UCLA, Los Angeles CA
80. 2019 ACNP, Orlando FL

81. 2019 Columbia University, NYC
82. 2019 Brandeis, Waltham MA
83. 2019 Lisman Memorial Workshop, Woods Hole MA
84. 2019 Society for Quantitative Analysis of Behavior, Chicago IL
85. 2019 Conference on learning and memory, UT Austin, Austin TX
86. 2019 NYU, NY NY
87. 2019 Loyola, Chicago IL
88. 2019 CSHL, New York NY
89. 2019 UCSF, San Francisco CA
90. 2019 Marquette University, Milwaukee WI
91. 2018 LSU Health Sciences Center, New Orleans LA
92. 2018 Hamline University, St. Paul MN
93. 2018 Macalester, St. Paul MN
94. 2018 UCLA, LA CA
95. 2018 University of MD School of Medicine, Baltimore MD
96. 2017 Washington University, St. Louis MO
97. 2017 Howard University, Washington DC
98. 2017 Faculty for Undergraduate Neuroscience Workshop, Dominican University Chicago IL
99. 2017 UTSA Symposium on Neural Codes for Navigation (gave 30 minute intro + 50 minute full talk), University of Texas San Antonio, San Antonio TX.
100. 2017 MetroState University, St. Paul MN
101. 2017 University of MD for the EFRedish Symposium and Celebration
102. 2017 UCSD, San Diego CA
103. 2017 University of Toronto, Toronto CANADA
104. 2016 Arrowhead + 10 years, Workshop on Decision-Making, Sydney AUSTRALIA
105. 2016 NYU, New York NY
106. 2016 Cornell University, Ithaca NY
107. 2016 UChicago, Chicago, IL
108. 2015 Rutgers-Newark, Newark NJ.
109. 2015 George Mason University, Fairfax VA

110. 2015 UC Davis, Davis CA
111. 2015 Baylor College of Medicine, Houston TX
112. 2014 CNBC 20th anniversary celebration (alumni speaker)
113. 2014 Hamline University, St. Paul MN
114. 2014 Emory University, Atlanta GA
115. 2014 Neurobiology of Learning and Memory Conference, Park City UT
116. 2013 University of Washington Addiction Symposium, Seattle WA
117. 2013 University of Washington (Psychology Department), Seattle WA
118. 2013 Caltech, Pasadena CA
119. 2013 Eastern Psychological Association, New York NY
120. 2013 Georgia Regents University, Augusta GA
121. 2012 University of St. Thomas, Minneapolis MN.
122. 2012 Northwestern, Chicago IL
123. 2012 CEAR, Georgia State University, Atlanta GA
124. 2012 Boston University
125. 2012 Brandeis University
126. 2011 Janelia Farm workshop: Neural Circuits and Decision-Making in Rodents II
127. 2010 APA meeting, New Orleans LA
128. 2010, Janelia Farm workshop: Challenges in Extracellular Electrophysiology: Data Extraction, Janelia Farm VA
129. 2010, Midbrains, Northfield MN
130. 2009, Goal-Directed Decision Making: Behavior, Neuroscience and Computation (Princeton NJ).
131. 2009 Princeton University, Princeton NJ.
132. 2009 University of Pennsylvania, Philadelphia PA
133. 2008 University of Michigan, Ann Arbor MI
134. 2008 University of Arkansas, Little Rock AR
135. 2008 Brandeis University, Waltham MA
136. 2008 Conference on Cognitive and Neural Systems [Invited Speaker]
137. 2008 Janelia Farm, Washington DC.

138. 2008 Yale
139. 2008 NIDA Conference on Addiction
140. 2007 Columbia University
141. 2007 Mind and World Conference on Addiction
142. 2007 MidBrains Conferences
143. 2007 NYAS Symposium on Orbitofrontal Function [Session chair]
144. 2007 University of Chicago
145. 2007 Baylor College of Medicine
146. 2006 University of Texas, San Antonio
147. 2006 Conference on Decision Making Systems, Lake Arrowhead, UCLA
148. 2006 University of Edinburgh, Edinburgh UK
149. 2006 Mathematical Biosciences Institute, Ohio State Univ, Columbus OH
150. 2006 Macalaster college, St. Paul MN
151. 2005 (ACNP) American College of Neuropsychopharmacology, Waikoloa, HI
152. 2005 University of Oregon, Eugene OR
153. 2005 McKnight Endowment Fund for Neuroscience annual meeting, Aspen CO
154. 2005 Cold Spring Harbor, NY
155. 2005 CRCNS PI meeting, NSF, Washington DC
156. 2004 Minnesota State University, Mankato.
157. 2003 Design of Medical Devices conference, Minneapolis MN [Session chair]
158. 2002 UCSD, San Diego CA
159. 2002 Spring Brain, Sedona AZ [Session chair]
160. 2002 NSMA, Univ AZ
161. 2001 Conference in memory of Carlo Terzuolo, Brainerd MN
162. 2001 Joint Karolinska-UMN conference, Minnesuing acres MN
163. 2000 University of Illinois, Urbana-Champaign IL
164. 2000 Univeristy of Wisconsin, Madison WI
165. 2000 Brandeis University, Boston MA
166. 2000 Brown Univeristy, Providence RI
167. 2000 University of Minnesota, Minneapolis MN

- 168. 1999 University of Iowa, Iowa City IA
- 169. 1999 Memory Disorders Research Symposium, Tucson AZ
- 170. 1999 Computational Neural Systems conference, Pittsburgh PA
- 171. 1998 University of New Mexico, Albuquerque NM
- 172. 1997 Dartmouth, Hannover NH
- 173. 1997 NSMA, University of Arizona, Tucson AZ
- 174. 1996 NIPS Workshop, Snowmass CO
- 175. 1994 NSF Telluride Workshop, Telluride CO
- 176. 1994 NSMA, University of Arizona, Tucson AZ
- 177. 1992 ConnectFest, Bloomington IN

External Grants

Center grants

Pending

1. S.Vinogradov, **A. D. Redish** (co-PIs) 2025-2030 Dysfunctional State Representations in Psychosis: From Neurophysiology to Neuroplasticity-based Treatment (\$2M/yr). P50 MH119569. (Impact score = 23)
2. S. Vinogradov, A. MacDonald, S. Ma, **A. D. Redish** (PI) 2025-2030 Learning Algorithms for Precision Psychiatry (\$3.7M/yr). U01 MH136539

Active

3. S.Vinogradov, **A. D. Redish** (co-PIs) 2020-2025 Dysfunctional State Representations in Psychosis: From Neurophysiology to Neuroplasticity-based Treatment (\$2M/yr). P50 MH119569.
4. S. Vinogradov, **A. D. Redish** (co-PIs) 2020-2025 *Center support for NeuroPRSMH* Internal AIRP/AHC grant, \$300,000/yr.

Completed

5. **A. D. Redish** (PI) 2024 Computational Psychiatry Conference R01-MH138076 (\$20k)
6. **A. D. Redish** (PI), Ichiro Tsuda (Japan), Jan Lauwereyns (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 was \$105,500)

Training grants

Pending

None.

Active

7. **A. D. Redish** (PI) 2018-2028 *Predoctoral Training of Neuroscientists* T32 NS105604. (\$353,5994/yr 8 GS).

Completed

8. **A. D. Redish** (PI) 2018-2023 *Using Computation to Achieve Breakthroughs in Neuroscience* T32 MH115688. \$348,910 yr2-5 (5 GS + 2 PD).

Individual and R01-scale grants

Pending

1. **A. D. Redish**, A. Sederberg (co-PIs) 2025-2030 Collaborative Research: CRCNS Research Proposal: Differentiating decision-making theories through the neurophysiology of mental exploration in rats (MN portion = \$160k/yr).

Active

2. **A. D. Redish** (PI) 2022-2027 Testing hybrid theories of action-selection R01-MH112688 (\$377,000/yr direct).
3. A. F. Haynos (PI), ... **A. D. Redish** (co-I) 2022-2027 Rule-based decision-making: A novel neuroeconomic mechanism of Anorexia Nervosa. R01 MH1126978. (\$347,000/yr direct).

Completed

4. A. Widge (PI), N. Grissom, **A. D. Redish** (co-I) 2021-2024 Circuit and Cognitive Mechanisms of Striatal Deep Brain Stimulation (\$581/yr, R01 NS120851).
5. **A. D. Redish** (PI) 2016-2021 "Relating episodic memory and episodic future thinking in hippocampus" *R01-MH080318* (\$289,000/year direct). In NCE 2021-2022.
6. **A. D. Redish** (PI) 2017-2022 "Resolving conflicts between decision-making algorithms" R01-MH112688 (\$292,000/year direct).
7. A. Widge, AW MacDonald, **A. D. Redish** (co-PIs) 2019-2021 *Parametrically Detailed Computational Analyses of Human Foraging Behavior* (\$231k/yr)
8. 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)
9. 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)

10. **A. D. Redish** (PI) 2012-2017 “The covert expectation of reward during deliberation”
R01-DA030672 (\$225,000/year direct)
11. **A. D. Redish** (PI) 2014-2016 “Relating episodic memory and episodic future thinking in hippocampus” *R01/R56-MH080318* (\$250,000/year direct).
12. **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)
13. **A. D. Redish** (PI) 2012-2014 “Temporal discounting and decision-making in aged rats”
R03-AG041734 (\$50,000/year direct)
14. **A. D. Redish** (PI) “Purchasing a 128-channel neural ensemble recording system” 2010
Equipment grant (ARRA Supplement request for MH080318) (\$100,000 total).
15. **A. D. Redish** (PI) 2008-2013 “A hippocampal mechanism for considering possibilities”
R01-MH080318 (\$180,000/year direct).
16. W. Bickel (PI), **A. D. Redish** 2008-2013 “Executive Function Therapy for Stimulant Addiction”
R01 DA024080 (subcontract worth \$92,000/year direct)
17. **A. D. Redish** (PI), B. Ziaie, A. G. Erdman, "Wireless recordings in awake, behaving rodents".
2002-2005 *McKnight Foundation* (\$200,000 total).
18. **A. D. Redish** (PI), “CRCNS: Coherency --- measuring representational quality” 2002-2005
NIMH 1-R01-MH68029-01 (\$519,713 total).
19. **A. D. Redish** (award), 2003-2005 *Sloan Fellowship* (\$40,000 total).
20. B. Ziaie (PI), **A. D. Redish** “Electronically Reconfigurable Microfabricated Tetrodes” 2005-
2007 *NIBIB R21-EB005019*. (subcontract worth \$50,000 direct costs)
21. 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)
22. 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)
23. E. Yoon (PI), **A. D. Redish**, A. G. Erdman “Individual research support” 2006 *Biomedical Engineering Institute, University of Minnesota* (\$50,000 total).
24. 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*.

Teaching and mentoring

Major classes

2001-2013 Theoretical Neuroscience (Nsci 5202)

2014-2018 Mind and Brain (Nsci 3505)

Aaron David Redish

Curriculum Vitae

2020-present Mind and Brain (Nsci 3505W + 5505)

2021-present Itasca computational module

Lectures given over the years in

- RCR career skills, T32 workshop, ongoing journal club
- Applied welfare economics, Nsci 5661 (Behavioral Neuroscience), Biol 1806, PA 5122, Neurolaw calss, QuaRRC panels, BME 5411, Neurostats, Drug Addiction, CogNeuro 8420

Non-university students with major mentorship roles

1. Warren Pettine (PD @ Yale)
[Current position: Assistant professor, University of Utah]
2. Shivam Kalhan (GS @ Melbourne)
[Current position: Postdoc, NIDA.]

Post-docs

1. **2024-present Celia Gagliardi (post-doc)**
2. **2023-present Cathy Chen (post-doc, co-mentored with Sophia Vinogradov)**
3. 2022-2024 Avishek Chatterjee (post-doc, co-mentored with Audrey Sederberg)
4. **2022-present Chelsey Damphousse (post-doc)**
5. **2020-present Ugurcan Mugan (post-doc)**
6. **2019-present Olivia Calvin (post-doc)**
[Current position: researcher 5, University of Minnesota]
7. 2020-2024 Paul Cunningham (post-doc)
[Current position: postdoc, Alex Herman lab, UMN]
8. 2018-2019 Rachel Anderson (post-doc, co-mentored with Mark Thomas)
[Current position: associate professor, Bethel University]
9. 2018-2024 Geoffrey Diehl (Post-doc)
[Current position: postdoc, Alik Widge laboratory, Univerity of Minnesota]
10. 2013-2016 Evan C. Carter (Post-doc, co-advised with David Stephens)
[Current position: Research Psychologist, Army Research Laboratory, Aberdeen MD]
11. 2013-2015 Nathan Schultheiss (Post-doc)
[Current position: Research Scientist, Florida International University]
12. 2012-2016 Yannick Breton (Post-doc)
[Current position: Senior Biostatistician at IQVIA.]

13. 2012-2016 Seiichiro Amemiya (Post-doc)
[Current position: Research Scientist, Lab for Circuit and Behavioral Physiology, RIKEN CBS (Center for Brain Science)]
- 14. 2012-present Brandy Schmidt (Post-doc)**
[Current position: researcher 6, University of Minnesota]
15. 2009-2011 Zeb Kurth-Nelson (Post-doc)
[Current position: Senior Research Scientist, DeepMind]
16. 2007-2010 Matthijs van der Meer PhD (Post-doc)
[Current position: Associate Professor, Dartmouth]
17. 2001 Pratibha Aia MD (Health Informatics, postdoc)
[Current position: Assistant Professor of Neurology, Emory University Hospital]

PhD Students

- 18. 2019-2024 Adrina Kocharian (Graduate Program in Neuroscience, co-advised with Patrick Rothwell)**
[Current position: finishing medical school (MD/PhD)]
19. 2017-2021 Rebecca Kazinka (Psychology, co-advised with Angus MacDonald)
[Current position: postdoc, Dept of Psychiatry, University of Minnesota]
20. 2016-2021 Cody Walters (GPN)
[Current Position: Associate Editor, Nature Communications]
21. 2014-2020 Brendan Hasz (GPN)
[Current Position: Data Scientist, C. H. Richardson Company]
22. 2014-2019 Caitlin Durkee (GPN, co-advised with Alfonso Araque)
[Current position, Postdoc, UCSF]
23. 2014-2018 Brian Sweis (MD/PhD, Neuroscience, co-advised with Mark Thomas)
[Current position, Assistant Professor, Icahn School of Medicine, Mount Sinai Hospital, NYC]
24. 2012-2017 Samantha Abram (Psychology [CCS], co-advised with Angus MacDonald)
[Current position: Assistant Professor, UCSF]
25. 2010-2015 Paul Regier (Graduate Program in Neuroscience)
[Current position: Assistant Professor, UPenn]
26. 2009-2014 Andrew Wikenheiser (Graduate Program in Neuroscience)
[Current position: Assistant Professor, UCLA]
27. 2009-2015 Andrew Papale (Graduate Program in Neuroscience)
[Current position: postdoc, University of Pittsburgh]
28. 2009-2015 Nate Powell (Graduate Program in Neuroscience)
[Current position: postdoc, UMN]

29. 2008-2015 Adam Steiner (Graduate Program in Neuroscience)
[Current position: Associate professor, Minnesota State Mankato]
30. 2008-2011 Anoopum Gupta (Robotics, PhD, Carnegie Mellon University,
primary advisor: David Touretzky)
[Current position: Physician Investigator, Neurology, Massachusetts General Hospital;
Assistant Professor of Neurology, Harvard Medical School]
31. 2007, 2009-2015 Jeffrey Stott (Graduate Program in Neuroscience)
[Current position: postdoc, Dartmouth College, Hanover NH]
32. 2006-2011 John Ferguson (BME, PhD)
[Current position: Research Associate, Minnesota VA; Associate Professor, Dept of Rehab
Sciences, UMN]
33. 2003-2008 Beth Masimore (Physics, primary advisor: Jim Kakalios, PhD)
[current position, Investigative Scientist, Office of the Inspector General, NSF]
34. 2002-2005 Jayant Parthasarathy (ECE, PhD, primary advisor: Babak Ziaie)
[current position, Director, Innovation and R&D, United Health Group]
35. 2002-2008 Adam Johnson (GPN, PhD)
[Position when he passed away, Professor, Bethel University]
36. 2001-2006 Jadin Jackson (GPN, PhD)
[2010-2011 (Post-doc)]
[Current position: Principal Data Scientist, Boston Scientific]
37. 2000-2005 Neil Schmitzer-Torbert (Graduate Program in Neuroscience, PhD)
[Current position, Professor, Wabash College, Crawford IN]

Post-bac students

Only known positions listed.

- 38. 2022-present Henri Chastain (Undergraduate, Postbac)**
39. 2019-2022 Samantha Hoffman (Undergraduate, Postbac)
[Current position: MD/PhD graduate student U Wisconsin MSTP program]
40. 2019-2022 Amber McLaughlin
[Current position: graduate student, Mt Sinai]
41. 2017, 2018, 2019-2021 Matthew Erickson (Undergraduate, postbac)
42. 2017-2021 Anneke Duin (Undergraduate, postbac)
43. 2017-2019 Michael Adkins (Undergraduate, post-bac)
44. 2017-2018 Carrie Bell (Undergraduate, post-bac)

Undergraduates in the lab

Only known positions listed.

45. 2024-present Lily Kim (undergraduate)

46. 2023-2024 Aarya Bomidi (undergraduate)

47. 2023 Ashlynn Reid (undergraduate)

48. 2023 Nyomi Charleston (undergraduate)

49. 2023-2024 Poorvi Singh Ghai (undergraduate)

[Current position: Behavioral Therapist, Kadiant LLC Milpitas CA]

50. 2023-present Jen Peterson (undergraduate)

51. 2022, 2023 Ian Acheson (undergraduate)

52. 2022-2023 Tori Lawrence (undergraduate)

53. 2022-present Killian Macias (full-time technician)

54. 2022-2023 Noah Zimmerman (undergraduate)

[Current position: postbac, UMN]

55. 2021-2023 Olivia Patterson (undergraduate).

56. 2021 Jonathan Williams (LSSURP, undergraduate)

57. 2021, 2022 Georgia Cannan (Macalester, undergraduate)

58. 2019-2022 Kevin Singh (Undergraduate)

59. 2019-2021 Grant Noble (Undergraduate)

60. 2019-2021 Samantha Hoffman (Undergraduate)

[2021 postbac]

[Current position: graduate student, MD/PhD program, University of Wisconsin]

61. 2019 Sabra Sisler (LSSURP, Undergraduate)

[Current position: graduate student, Biomedical Engineering, Stanford]

62. 2018-2021 London Aman (Undergraduate, Summa Cum Laude Thesis)

[Current position: graduate student, Neuroscience, LMU Munich]

63. 2017-2018 Onni Rauhala (Undergraduate)

[Current position: research associate, Columbia University]

64. 2017-2018 Matthew Cortese (Undergraduate)

65. 2017-2019 Elizabeth Dean (Undergraduate)

[Current position: graduate student, Molecular and Integrative Physiology, University of Michigan]

66. 2017-2020 Daniel Min (Undergraduate)
[Current position: research technician, MIT]
67. 2016-2017 Sophie Sampson (Undergraduate)
68. 2015-2017 Jerrius Jubran (Undergraduate)
[Currentt Position: Pediatrics Resident Children’s Hospital, Los Angeles]
- 69. 2013-present Ayaka Sheehan (Undergraduate, Macalaster, currently full-time technician)**
70. 2013 Joseph Griffin (Undergraduate)
71. 2013-2014 Patrick Crowe (Undergraduate)
72. 2012 Nate Pasmarter (CCS REU)
73. 2012 Soren Knutson (undergraduate, St. Olaf)
74. 2012 Christopher Weeks (undergraduate, St. Olaf)
75. 2009 Anna Blumenthal (CCS REU, from Drew University)
[Current position: Assistant Professor, Marist College]
76. 2006-2007 Meghan Masrud (undergraduate, directed study 2006)
77. 2006 Kristin Bohnhorst (undergraduate)
78. 2006 Seth Mastous (undergraduate)
79. 2005 Daniel Smith (undergraduate, LSSURP 2005, UROP 2006)
80. 2005-2006 Morgan Little (undergraduate, UROP 2005, 2006)
[Current position: Technical Sales Consultant, Miltenyi Biotec]
81. 2005 Alex Colvin (undergraduate)
82. 2005 Maniezheh Firouzi (undergraduate)
83. 2005-2006 Mandy Huber (undergraduate)
[Current position: Nurse-midwife at Hennepin Healthcare]
84. 2005-2006 Sarah Jutila (undergraduate)
85. 2004-2006 Giuseppe Cortese (undergraduate, UROP 2005)
[Current position: Associate professor, Montana State Northern]
86. 2004-2005 Monica Kumar (undergraduate)
87. 2003-2004 Susan Nwoke (undergraduate)
88. 2000-2004 Mallika Arudi (undergraduate, UROP 2004)
[Current position: Assistant Adjunct Professor, UC Davis]

89. 2000-2005 Deborah Bang (undergraduate, MFA Music)
[Completed Medical School in 2021, current position unknown]
90. 2000-2006 Dan Bernal (undergraduate, directed research 2003)
- 91. 2000-present Chris Boldt (ug 2000-2005, directed research 2003,
currently full-time technician)**
92. 2000-2003, 2009-2022 Kelsey Seeland (ug 2000-2003, full-time technician 2009-2022)