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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- Associate Professor, Department of Neuroscience, University of Minnesota

Current Status

Associate Professor with Tenure
Department of Neuroscience, University of Minnesota, Minneapolis MN 55455

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

Member, IGERT Computational Neuroscience Training Faculty
Member, NIH Roadmap Computational Neuroscience Training Faculty
Member, NIDA Training Grant Training Faculty
Member, CCS Training Grant Training Faculty [Center for Cognitive Science]
Member, CNBD Training Grant Training Faculty [Center for Neurobehavioral development]

Awards and Fellowships

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 (1999) *Beyond the Cognitive Map: From Place Cells to Episodic Memory*, 420 pages, MIT Press.

Journal Articles

M. A. A. van der Meer, A. D. Redish (in press) “Expectancies in decision making, reinforcement learning, and ventral striatum” *Frontiers in Neuroscience*.

J. E. Ferguson, C. Boldt, A. D. Redish (in press) “Creating low-impedance tetrodes by electroplating with additives” *Sensors and Actuators: A. Physical*.

C. Pennartz, J. D. Berke, A. Graybiel, R. Ito, C. Lansink, M. van der Meer, A. D. Redish, K. Smith, and P. Voorn (2009) *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
- J.C. Jackson, A. Johnson, A.D. Redish (2006) "Hippocampal sharp waves and reactivation during awake states depend on repeated sequential experience" *Journal of Neuroscience* 26:12415-12426.
- B. Masimore, N.C. Schmitzer-Torbert, J. Kakalios, A.D. Redish (2005) "Striatal local field potentials signal initiation of movement in rats" *NeuroReport* 16(18):2021-2024.
- R. Venkateswaran, C. Boldt, J. Parthasarathy, B. Ziaie, A. G. Erdman, A. D. Redish (2005) "A motorized microdrive for recording of neural ensembles in awake behaving rats" *Journal of Biomechanical Engineering* 127:1035-1040
- A. Johnson, A.D. Redish (2005) "Hippocampal replay contributes to within session learning in a temporal difference reinforcement learning model" *Neural Networks* 18(9):1163-1171.
- N.C. Schmitzer-Torbert, J.C. Jackson, D. Henze, K.D. Harris, A.D. Redish (2005) "Quantitative measures of cluster quality for use in extracellular recordings" *Neuroscience* 131:1-11.

- A. Johnson, K. D. Seeland, A. D. Redish (2005) “Reconstruction of the postsubiculum head direction signal from neural ensembles” *Hippocampus* 15:86-96.
- A.D. Redish (2004) “The addiction compulsion: a computational process gone awry” *Science* 306:1944-1947.
- B. Masimore, J. Kakalios, A.D. Redish (2004) “Measuring fundamental frequencies in local field potentials” *Journal of Neuroscience Methods* 138(1-2):97-105.
- N. C. Schmitzer-Torbert and A. D. Redish (2004) “Neuronal activity in the rodent dorsal striatum on a sequential navigation task: Separation of responses to sequence and reward on the multiple T task”, *Journal of Neurophysiology* 91(5):2259-2272.
- J. C. Jackson, A.D. Redish (2004) “Measuring ensemble consistency without measuring tuning curves”, *Neurocomputing* 58-60C: 91-99.
- J.C. Jackson, A.D. Redish (2003) “Detecting dynamical changes within a simulated neural ensemble using a measure of representational quality” *Network: Computation in Neural Systems*, 14:629-645.
- E. S. Rosenzweig, A. D. Redish, B. L. McNaughton, C. A. Barnes (2003) “Hippocampal map realignment and spatial learning”, *Nature Neuroscience*, 6(6):609-615.
- N.C. Schmitzer-Torbert, A.D. Redish (2002) “Development of path-stereotypy in a single day in rats on a multiple-T maze” *Archives Italiennes Biologie* 140:295-301.
- A.D. Redish (2001) “The hippocampal debate: Are we asking the right questions?” *Behavioural Brain Research* 127:81-98.
- A.D. Redish, F.P. Battaglia, M.K. Chawla, A.D. Ekstrom, J.L. Gerrard, P. Lipa, E.S. Rosenzweig, P.F. Worley, J.F. Guzowski, B.L. McNaughton, C.A. Barnes (2001) “Hippocampal pyramidal cells located near each other anatomically do not show related spatial firing correlates”, *Journal of Neuroscience* 21(RC134):1-6.
- A. D. Redish, E. S. Rosenzweig, J. D. Bohanick, B. L. McNaughton, C. A. Barnes (2000) “Hippocampal ensemble activity realignment: Time vs. space”, *Journal of Neuroscience*, 20(24):9289-9309.
- A. D. Redish, B. L. McNaughton, C. A. Barnes (2000) “Place cell firing shows an inertia-like process”, *Neurocomputing*, 32–33: 235–241.
- J. P. Goodridge, A. D. Redish , and D. S. Touretzky (1999) “A model of the rodent head direction system that accounts for unique properties of anterior thalamic head direction cells”, *Neurocomputing* 26–27(1–3):705-711.
- A. D. Redish, B. L. McNaughton, and C. A. Barnes (1998) “Reconciling Barnes et al. (1997) and Tanila et al. (1997a, 1997b)”, *Hippocampus* 8(5): 438-443.
- A.D. Redish and D.S. Touretzky (1998) “The Role of the Hippocampus in Solving the Morris Water Maze”, *Neural Computation* 10(1): 73-112.

A.D. Redish and D.S. Touretzky (1997) “Cognitive Maps beyond the Hippocampus”, *Hippocampus*.
7(1): 15-35.

A.D. Redish, A.N. Elga, and D.S. Touretzky (1996) “A Coupled Attractor Model of the Rodent Head Direction System”, *Network: computation in neural systems*.
7(4):671-685.

D.S. Touretzky and A.D. Redish (1996) “A Theory of Rodent Navigation Based on Interacting Representations of Space”, *Hippocampus* 6(3): 247-270.

A.D. Redish and D.S. Touretzky (1994) “The Reaching Task: Evidence for vector subtraction in the motor system” *Biological Cybernetics* 71(4): 307-317.

D.S. Touretzky, A.D. Redish, and H.S. Wan (1993) “Neural Representation of Space Using Sinusoidal Arrays”, *Neural Computation*, 5(6): 869-884.

PhD Dissertation

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

Book Chapters and Conference Articles

A. D. Redish and Z. Kurth-Nelson (2010) “Neural models of temporal discounting” in *Impulsivity: Theory, Science, and Neuroscience of Discounting*. APA books. Chapter 5. Pages 123-158.

A. Johnson, J. Jackson, A. D. Redish (2009) “Measuring distributed properties of neural representations beyond the decoding of local variables – implications for cognition” in *Mechanisms of information processing in the Brain: Encoding of information in neural populations and networks*. Holscher and Munk (Eds), Cambridge University Press, Cambridge UK.

KM Al-Ashmouny, C Boldt, JE Ferguson, AG Erdman, AD Redish, E Yoon (2009) “IBCOM (Intra-Brain Communication) Microsystem: Wireless Transmission of Neural Signal within The Brain”, (366) *31st Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC'09)* .

JE Ferguson, C Boldt, AD Redish (2009) ”Creating low-impedance coatings for neural recording electrodes using electroplating inhibitors” *J. Med. Devices* June 2009. 3(2):027523 (1 pages). DOI:10.1115/1.3147086

KM Al-Ashmouny, C Boldt, JE Ferguson, AG Erdman, AD Redish, E Yoon (2009) “The neural nanoprobe: Physically decoupling the neural recording site from the headstage” *J. Med. Devices* June 2009. 3(2):027524 (1 pages)
DOI:10.1115/1.3147087

J. Parthasarathy, J. Hogenson, A.G. Erdman, A.D. Redish, B. Ziaie (2006) “Battery-operated High-bandwidth Multi-channel Wireless Neural Recording System using 802.11b” *28th IEEE EMBS Annual International Conference*. 1:5989-5992.

- J. Parthasarathy, A.G. Erdman, A.D. Redish, B. Ziaie (2006) “An Integrated CMOS Biopotential Amplifier with a Feed-Forward DC Cancellation topology” *28th IEEE EMBS Annual International Conference*. 1:2974-2977.
- B. Masimore, J. Kakalios and A. D. Redish (2003) “Measuring neural coupling from non-Gaussian power spectra of voltage traces taken from awake, behaving animals”, *Proceedings of SPIE vol. 5110, Fluctuations and Noise in Biological, Biophysical, and Biomedical Systems*, edited by Sergey M. Bezrukov, Hans Frauenfelder and Frank Moss. (SPIE, Bellingham, WA), pages 224-234.
- A.D. Redish and D.S. Touretzky (1999) “Separating Hippocampal Maps”, *Spatial Functions of the Hippocampal Formation and the Parietal Cortex*, edited by N. Burgess, K. Jeffery, and J. O’Keefe, Oxford University Press, Chapter 11, pages 203-219
- M.C. Fuhs, A.D. Redish, and D.S. Touretzky (1998) “A Visually Driven Hippocampal Model”, *Computational Neuroscience: Trends in Research*, edited by J. M. Bower, Kluwer Academic Press.
- A.D. Redish and D.S. Touretzky (1998) “The Role of the Hippocampus in Solving the Morris Water Maze”, *Computational Neuroscience: Trends in Research*, edited by J. M. Bower, Kluwer Academic Press.
- A.N. Elga, A.D. Redish, and D.S. Touretzky (1997) “A Model of the Rodent Head Direction System”, *Computational Neuroscience: Trends in Research*, edited by J. M. Bower, Kluwer Academic Press
- A.D. Redish and D.S. Touretzky (1997) “Computing Goal Locations from Place Codes”, in *Symbolic Visual Learning*, Katsu Ikeuchi and Manuela Veloso eds., Oxford University Press, Chapter 12 , pages 325-351.
- A.D. Redish and D.S. Touretzky (1996) “Modeling Interactions of the Rat’s Place and Head Direction Systems”, *Advances in Neural Information Processing Systems 8*, D. S. Touretzky, M. C.. Mozer and M. E.. Hasselmo, eds., MIT Press, pages 61-67.
- D. S. Touretzky and A. D. Redish (1995) “Landmark Arrays and the Hippocampal Cognitive Map”, *Current trends in connectionism - Proceedings of the 1995 Swedish Conference on Connectionism*, L. Niklasson and M. Boden eds., pp 1-13, Lawrence Erlbaum.
- A. D. Redish, D. S. Touretzky, and H. S. Wan (1994) “The Sinusoidal Array: A Theory of Representation for Spatial Vectors”, *Computation in Neurons and Neural Systems*, F. H. Eeckman, ed., pp. 269-275, Kluwer Academic Publishers.
- D. S. Touretzky, H. S. Wan, and A. D. Redish (1994) “Neural representations of space in rats and robots”, *Computational Intelligence: Imitating Life*, J. M. Zurada, R. J. Marks II, and C. J. Robinson eds., pp. 57-68, IEEE Press.
- H. S. Wan, D. S. Touretzky, and A. D. Redish (1994) “Computing Goal Locations from Place Codes”, *Proceedings of the 16th annual conference of the Cognitive Science society*, pp 922-927, Lawrence Earlbaum Associates.

H. S. Wan, D. S. Touretzky, and A. D. Redish (1994) “Towards a Computational Theory of Rat Navigation”, *Proceedings of the 1993 Connectionist Models Summer School*, M. Mozer, P. Smolensky, D. Touretzky, J. Elman, and A. Weigerd, eds., pp 11-19, Lawrence Erlbaum Associates.

Abstracts

A. S. Gupta, M. van der Meer, D. S. Touretzky, A. D. Redish (2009) Cognitive influences on sequence replay and construction in the rodent hippocampus. *SFN 2009*.

J. E. Ferguson, C. Boldt, A. D. Redish (2009) Creating low-impedance tetrodes by electroplating with additives. *SFN 2009*.

M van der Meer, A Johnson, N. Schmitzer-Torbert, A D Redish (2009) “Dissociations in ensemble dynamics between rat dorsal striatum, ventral striatum, and hippocampus” *CoSyne, 2009*.

AD Redish, NC Schmitzer-Torbert, A Johnson, MAA van der Meer (2008) “Lost in thought? Pausing behavior at the high-cost choice point on the multiple-T task” *SFN 2008*.

A Johnson, AA Fenton, C Kentros, AD Redish (2008) “Identifying structure in the noise - covert variables and cognition” *SFN 2008* 684.3.

MAA van der Meer, AD Redish (2008) “Non-local reward processing in rat ventral striatum” *SFN 2008* 684.2

AD Redish, A Johnson, M van der Meer (2008) “Search and expectancies on the Multiple-T task” *ICCNS 2008*.

A. D. Redish (2007) A novel framework for addiction: Vulnerabilities in the decision-making system *Society for Neuroscience* 610.1.

A. Johnson, P. Schrater, A. D. Redish (2007) Use of multiple generative models for identifying and decoding spatial memory in the hippocampus *CoSyne 2007*.

S. L. Jutila, A. D. Redish (2006) “The NMDA-receptor antagonist CPP, given systemically, impairs exploration but not ability to complete a modified Hebb-Williams Maze” *Society for Neuroscience Abstracts* 31.

A. Johnson, A. D. Redish (2006) “Neural ensembles in CA3 transiently encode paths forward of the animal at a decision point: a possible mechanism for the consideration of alternatives” *Society for Neuroscience Abstracts* 31.

A. D. Redish (2005) “Implications of the Temporal Difference Reinforcement Learning Model for Addiction and Relapse” *Neuropsychopharmacology* 30(Suppl 1):S27-28.

G.P. Cortese, M. Little, A. Johnson, A.D. Redish (2005) “Opposite effects of inactivations of dorsal hippocampus or dorsal striatum on maze learning” *Society for Neuroscience Abstracts* 30.

N.C. Schmitzer-Torbert, A.D. Redish (2005) “Identification and behavioral correlates of putative striatal interneurons in rodents” *Society for Neuroscience Abstracts* 30.

- A.D. Redish, S. Jensen, A. Johnson, Z. Kurth-Nelson (2005) “Reward loss does not produce unlearning: Implications for TDRL” *Society for Neuroscience Abstracts* 30.
- A. Johnson, N.C. Schmitzer-Torbert, J.C. Jackson, A.D. Redish (2005) “Differential changes in neural activity in the dorsal hippocampus and dorsal striatum during performance of a Multiple-T task” *Society for Neuroscience Abstracts* 30.
- J.C. Jackson, A. Johnson, A.D. Redish (2005) “Sharp-wave events and correlated neuronal activity increase during behavior” *Society for Neuroscience Abstracts* 30.
- A.D. Redish, A. Johnson, S. Jensen, J. Jackson (2005) “Latent Learning requires multiple value functions within TDRL” *Computational Neural Systems*2005*.
- A. Johnson, A.D. Redish (2005) “Hippocampal replay contributes to within session learning in a temporal difference reinforcement learning model” *Computational Neural Systems*2005*.
- J.C. Jackson, A. Johnson, A.D. Redish (2005) “Hippocampal sharp wave events increase during behavior with experience within session” *Computational Neural Systems*2005*.
- N.C. Schmitzer-Torbert, A.D. Redish (2004) “Task-dependent spatial encoding in the dorsal striatum” *Society for Neuroscience Abstracts* 30.
- B. Masimore, N.C. Schmitzer-Torbert, J.C. Jackson, J. Kakalios, A.D. Redish (2004) “Synchronous oscillations in striatal local field potentials correlate with movement initiation” *Society for Neuroscience Abstracts* 30.
- A.D. Redish (2004) “The addiction process: a computational process gone awry” *Society for Neuroscience Abstracts* 30.
- Z. Kurth-Nelson, A.D. Redish (2004) “uAgents: Action-selection in temporally-dependent phenomena using temporal difference learning over a collective belief structure” *Society for Neuroscience Abstracts* 30.
- A. Johnson, K.D. Seeland, A.D. Redish (2003) “Head-direction ensembles recorded from awake, behaving rats in an open field under cue-conflict situations” *Society for Neuroscience Abstracts* 29.
- N.C. Schmitzer-Torbert, S. Rao, J.C. Jackson, A.D. Redish (2003) “Changes in patterns of neural firing in the rodent dorsal striatum precede development of a regular route” *Society for Neuroscience Abstracts* 29.
- B. Masimore, J. Kakalios, A.D. Redish (2003) “Correlations between frequencies of local field potential oscillations indicate specific components in the theta, gamma, and high frequency (hfo) ranges in dorsocentral striatum” *Society for Neuroscience Abstracts* 29.
- J.C. Jackson, N.C. Schmitzer-Torbert K.D. Harris, A.D. Redish (2003) “Quantitative assessment of extracellular multichannel recording quality using measures of cluster separation” *Society for Neuroscience Abstracts* 29.

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

A.D. Redish and D.S. Touretzky (1996) “Details of a comprehensive theory of rodent navigation”, *Society for Neuroscience Abstracts* 22:678.

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

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

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

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

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

Products

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

Invited talks, presentations, and participations in conferences

External

2009 Goal-Directed Decision Making Workshop (Princeton)

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 [Conference on Neural Circuits and Decision Making in Rodents, Invited Speaker]

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

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 Pharmaceutics (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

2008, 2009 Ad-hoc Member, NIH NRSA study section ZRG01 F02A
2009 Mail-in Reviewer, NIH Challenge Grant study section ZRG1 ETTN-A 58
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- 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

2008- 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

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, 19 in 2009).

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 [member 2 study sections], 20 in
2009 [member 3 study sections])

TEACHING AND MENTORING ACTIVITIES

Teaching

2004-2005 Supervisor, Advanced design (ME 4054)

2001-present 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-present Itasca Sensorimotor Neurobiology Laboratory (Nsc 5551)

Mentoring (directly advised students)

Post-doc

2009-present Zeb Kurth-Nelson (Post-doc)

2007-present Matthijs van der Meer PhD (Post-doc)

2001 Pratibha Aia MD (Health Informatics, postdoc)

[Current position: Residency - Movement Disorders Fellowship, Emory University]

PhD Students

2009-present Andrew Wikenheiser (Graduate Program in Neuroscience)

2009-present Andrew Papale (Graduate Program in Neuroscience)
 2009-present Nate Powell (Graduate Program in Neuroscience)
 2009-present Adam Vogel (Graduate Program in Neuroscience)
 2008-present Adam Steiner (Graduate Program in Neuroscience)
 2008-present Anoopum Gupta (Robotics, Carnegie Mellon University,
 primary advisor is David Touretzky)
 2006-present John Ferguson (BME, PhD student)
 2003-2008 Beth Masimore (Physics, primary advisor is Jim Kakalios)
 [current position, Senior Analyst, Discovery Logic]
 2002-2005 Jayant Parthasarathy (ECE, PhD student, primary advisor: Babak Ziaie)
 [current position, Senior Design Engineer, Nonin Physiological Monitoring company]
 2002-2008 Adam Johnson (Graduate Program in Neuroscience)
 [current position, Assistant professor, Bethel University]
 2001-2006 Jadin Jackson (Graduate Program in Neuroscience)
 [current position, post-doc position w/ Cyriel Pennartz in Amsterdam]
 2000-2005 Neil Schmitzer-Torbert (Graduate Program in Neuroscience, PhD)
 [Current position, Assistant Professor, 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

2009 Anna Blumenthal (CCS REU, from Drew University)
 2009 Katrina Schrode (Graduate Program in Neuroscience, rotation)
 2009 Nancy Staffend (Graduate Program in Neuroscience, rotation)
 2007 Jeffrey Stott (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)

Ongoing and recent collaborations

Cliff Kentros (U Oregon), Andre Fenton (SUNY Downstate)

Duane Nykamp (Mathematics, U Minn)

Jim Kakalios (Physics, U Minn)

Babak Ziaie (EE, Purdue) and Art Erdman (MechE, U Minn)

Eusik Yoon (EE, U Minn) & Art Erdman (MechE, U Minn)

Heiko Jacobs (EE, U Minn) and Babak Ziaie (EE, Purdue)

Ken Harris (Rutgers) and Darrel Henze (Merck)

Gary Havey (Advanced Medial Electronics, Inc)

Geoff Schoenbaum (University of Maryland, Baltimore)

Warren Bickel (University of Arkansas)

Jon Grant (Psychiatry, U Minn)

Angus MacDonald (Psychology, U Minn) and Kelvin Lim (Psychiatry, U Minn)

Non-technical publications, awards, etc.

Poetry

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

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

Plays

Beth (one-act)

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

Kalypso (one-act)

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

1992 (reading), directed by A. Eaves.

In the Balance (full-length)

1994 (reading), directed by T. Bannister.

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

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

The Pilate Dialogues (full-length)

1995 (reading), produced by S. Sickles.

Medea (full-length)

1998 (reading), directed by V. Baugh.

The Stone at the Heart (full-length)

1999 (reading), directed by K. Kellner.

2000 (staged reading), directed by D. Sewell

Modern Art (short work)

1999 (staged reading), *GOCAIA*, Tucson AZ

Produced by the Old Pueblo Playwrights, directed by L. Andresano.

Professional Activities

Member, Dramatists Guild, (New York NY)

1996-2002

Member, Old Pueblo Playwrights, (Tucson AZ)

1998-2000

Member, Playwright’s Center, (Minneapolis MN)

2000-2005