

## MARC F SCHMIDT

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### EDUCATION

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- 1993 – 1996      California Institute of Technology  
Postdoc in Neuroethology  
Advisor: Dr. Masakazu Konishi
- 1986 – 1993      Colorado State University  
Ph.D. in Anatomy & Neurobiology  
Advisor: Dr. Stanley Kater
- 1983 – 1986      Swarthmore College  
B.A. in Biology
- 1977 – 1983      College Cardinal Mercier, Belgium

### SCIENTIFIC POSITIONS

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- 2018 –              Professor of Biology, University of Pennsylvania
- 2010 –              Co-Director, Undergraduate Neuroscience Program,  
University of Pennsylvania
- 2006 – 2018      Associate Professor of Biology, University of Pennsylvania
- 2009 – 2011      Director of Academic Affairs, Neuroscience Graduate Group,  
University of Pennsylvania
- 2006 – 2007      Instructor, Neural Systems & Behavior Course, Woods Hole, MA
- 1999 – 2006      Assistant Professor of Biology, University of Pennsylvania
- 1996 – 1999      Research Fellow in Biology, California Institute of Technology

### HONORS, AWARDS, FELLOWSHIPS

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- Alfred P. Sloan Foundation Fellow, 2001-2003
- Basil O' Connor Starter Scholar Research Award, 2001-2003
- National Research Service Award, National Institute of Health, 1993-1996
- John H. Venable Research Scholarship, Colorado State University, 1990-1992

Grass Fellowship, Friday Harbor Laboratories, University of Washington 1987

Sigma Xi Honors Society, Swarthmore College, Swarthmore, PA May 1986

Martin Scholarship in Biology, Swarthmore College, Swarthmore, PA 1985-1986

## PEER-REVIEWED PUBLICATIONS

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### Manuscripts in preparation:

1. Burke J., J. M. Wild, J. Jarmula, E. Cruz and **M. F. Schmidt** (2022) A neural circuit for more than just singing in the female songbird.
2. **Schmidt M. F.** and J. Jarmula (2022) Neural bases of cloacal contractions during a copulatory display.
3. Burke, J., Perlegos, A., Perkes A. and **M. F. Schmidt** (2022) Characterization of a neural pathway for relaying viscerosensory information to telencephalic song control nuclei.
4. Langer M, Boardman and M. F. **Schmidt, M. F.** (2022). Lateralization and dynamics of female wing stroking behavior in female cowbirds.

### Manuscripts submitted or under revision:

Perkes A, Pfrommer B, Daniilidis K, White DJ, and **M. F. Schmidt** (2022). Variation in female songbird state determines signal strength needed to evoke copulation. *eLIFE* (under revision); bioRxiv preprint doi: <https://doi.org/10.1101/2021.05.19.444794>

Perkes A, Anderson H, Gros-Louis J, **Schmidt M.F.** and D. White (2022) Cohesion in male singing behavior predicts group reproductive output in a social songbird. *Current Biology* (under review); bioRxiv preprint doi: <https://doi.org/10.1101/2021.11.20.469403>

Badger M., Xiao S., Wang Y., Perkes A., **Schmidt M.F.** and Kostas Daniilidis (2022) Multi-view Tracking, ReID, and Social Network Analysis of a Flock of Visually Similar Birds in an Outdoor Aviary. *International Journal of Computer Vision* (submitted)

### Published:

Anderson H, Perkes A, Gottfried J, Davies H, White D and **M. F. Schmidt** (2021) Female signal jamming in a socially monogamous brood parasite. *Animal Behaviour*. 2021 February; 172:155-169. Available from: <https://linkinghub.elsevier.com/retrieve/pii/S0003347220303031> DOI: 10.1016/j.anbehav.2020.10.011.

Badger M, Wang Y, Modh A, Perkes A, Kolotouros N, Pfrommer B, **Schmidt M** and Daniilidis K. (2020) Lecture Notes in Computer Science. Cham: Springer International Publishing; 2020. Chapter 1, 3D Bird Reconstruction: A Dataset, Model, and Shape Recovery from a

Single View. 1-17p. Available from: [http://link.springer.com/10.1007/978-3-030-58523-5\\_1](http://link.springer.com/10.1007/978-3-030-58523-5_1) DOI: 10.1007/978-3-030-58523-5\_1

- Sheldon\*, Z., Castelino C. E., Glaze, C., Yau, E., Bibu S. and **M.F. Schmidt** (2020) Regulation of vocal precision by noradrenergic modulation of a motor nucleus. *Journal of Neurophysiology* 124: 458–470, 2020. doi:10.1152/jn.00154.2020. (\*chosen as APS select paper of the month)
- Albersheim-Carter, J., A. Blubaum, I. H. Ballagh, K. Missaghi, E. R. Siuda, G. Mc Murray, A. H. Bass, R. Dubuc, D. B. Kelley, **M. F. Schmidt**, R. J.A. Wilson, and P. A. Gray (2016) Testing the evolutionary conservation of specialized vocal motoneurons in vertebrates. *Respiratory Physiology and Neurobiology*. 224: 2 – 10.
- Maguire S., **M. F. Schmidt** and D. J. White (2013) Social brains in context: Lesions to the song control system in female cowbirds affect their social network. *PLoS ONE*. 8(5): e63239.
- Mclean J., S. Bricault and **M. F. Schmidt** (2013) Characterization of respiratory neurons in the rostral ventrolateral medulla, an area critical for vocal production in songbirds. *Journal of Neurophysiology* 109:948-957.
- Raksin J. N., C. Glaze, S. Smith and **M. F. Schmidt** (2012) Linear and Nonlinear Auditory Response Properties of Interneurons in a High Order Avian Vocal Motor Nucleus During Wakefulness. *J. Neurophys.* 107:2185-2201.
- Lewandowski B. C. and **M. F. Schmidt** (2011) Short bouts of vocalization induce long lasting fast gamma oscillations in a sensorimotor nucleus. *J. Neuroscience* 31(39): 13936-13948.
- Gregory J. A., Borna A., Roy S., Wang X., Lewandowski B., **Schmidt M. F.** and K. Najafi (2009) Low-cost wireless neural recording system and software. *Conf Proc IEEE Eng Med Biol Soc. 2009:* 3833–3836.
- Ashmore R. C., J. A. Renk and **M. F. Schmidt** (2008) Bottom-up Activation of Forebrain Vocal Motor Structures by the Respiratory Brainstem. *J. Neuroscience* 28: 2613 – 2623.
- Ashmore R. C., M. Bourjaily and **M. F. Schmidt** (2008) Hemispheric coordination is necessary for song production in adult birds: Implications for a dual role for forebrain nuclei in vocal motor control. *J. Neurophysiol.* 99: 373–385.
- Nealen P. M. and **M. F. Schmidt** (2006) Distributed and selective auditory representation of song repertoires in the avian song system. *J. Neurophys.* 96: 3433-3447
- Ashmore R. C., J. M. Wild and **M. F. Schmidt** (2005) Brainstem and forebrain contributions to the generation of learned motor behaviors for song *J. Neuroscience* 25: 8543-8554.
- Cardin J.A., Raksin J. N. and **M.F. Schmidt** (2005) The sensorimotor nucleus Nlf is necessary for auditory processing but not vocal motor output in the avian song system. *J. Neurophys.* 93: 2157-2166.
- Cardin J.A. and **M.F. Schmidt** (2004) Noradrenergic inputs mediate state dependence of auditory responses in the avian song system *J. Neuroscience* 24: 7745-7753.

- Cardin J.A. and **M.F. Schmidt** (2004) Auditory responses in multiple sensorimotor forebrain song system nuclei are co-modulated by behavioral state *J. Neurophys.* **91**: 2148-2163.
- Schmidt M. F.** (2003) Pattern of interhemispheric synchronization in HVC during singing correlates with key transitions in the song pattern *J. Neurophys.* **90**: 3931-3949
- Cardin, J.A. and **M. F. Schmidt** (2003) Song system auditory responses are stable and highly tuned during sedation, rapidly modulated and unselective during wakefulness, and suppressed by arousal *J. Neurophys.* **90**: 2884-2899.
- Nealen P. M. and **M. F. Schmidt** (2002) Comparative Approaches to Avian Song System Function: Insights into Auditory and Motor Processing. *J. Comp. Physiology* **188**: 929 – 941.
- Dutar P., Petrozzino J. J., Vu H.M., **Schmidt M.F.** and D. J. Perkel (2000) Slow Synaptic Inhibition Mediated by Metabotropic Glutamate Receptor Activation of GIRK Channels. *J Neurophys.* **84**: 2284-2290.
- Schmidt M. F.** and D. P. Perkel (1998) Slow synaptic inhibition in nucleus HVC of the adult zebra finch. *J. Neurosci.* **18**: 895-904.
- Schmidt M. F.** and M. Konishi (1998) Gating of auditory responses in the song control system of awake songbirds. *Nature Neuroscience* **1**: 513-518.
- Vu E. T., **Schmidt M. F.** and M. E. Mazurek (1998) Interhemispheric coordination of premotor neural activity during singing by zebra finches. *J. Neurosci.* **18**(21): 9088-9098.
- Schmidt M. F.** (1998) Modulation by social context sheds new light on mechanisms of vocal production. *Neuron* **21**: 645-647.
- Schmidt, M. F.**, Atkinson P. and S. B. Kater (1996) Transient elevations in intracellular calcium are sufficient to induce sustained responsiveness to the neurotrophic factor bFGF. *J. Neurobiol.* **31**: 333-344.
- Schmidt, M. F.** and S. B. Kater (1995) Depolarization and laminin independently enable bFGF to promote neuronal survival through different second messenger pathways. *Dev. Biol.* **168**: 235-246.
- Kuhn, T., **Schmidt M. F.** and S.B. Kater (1995) Molecular guideposts impart sustained, receptor-mediated instructions to advancing neuronal growth cones. *Neuron* **14**: 275-285.
- Guthrie P. B., Lee R. E., Rehder V., **Schmidt M. F.** and S. B. Kater (1994) Self recognition inhibits gap junction formation: regulation by cytoplasmic continuity. *J. Neurosci.* **14**: 1477-1485.
- Schmidt M. F.** and S.B. Kater (1993) Fibroblast growth factors, depolarization and substratum interact in a combinatorial way to promote neuronal survival. *Dev. Biol.* **158**: 228-237.

- Bandtlow C. E., **Schmidt M. F.**, Hassinger T. D., Schwab M. E. and S. B. Kater (1993) Role of intracellular calcium in NI-35-evoked collapse of neuronal growth cones. *Science* **259**: 80-83.
- Collins, F., **Schmidt M.F.**, Guthrie, P.B. and S. B. Kater (1991) Sustained increase in intracellular calcium promotes neuronal survival. *J. Neurosci.* 11(8):2582 – 2587.

## INVITED COMMENTARIES, REVIEWS, BOOK CHAPTERS

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- Schwark R. W., Fuxjager M. J. and **M. F Schmidt** (2022) Proposing a neural framework for the evolution of elaborate courtship displays. *eLIFE* (under revision)
- Burke J. and M. F. **Schmidt, M. F.** (2020) Neural control of birdsong (2.0). In: Encyclopedia of Life Sciences. Chichester: John Wiley and Sons.
- Perkes, A., White. D. J., J. M. Wild and **M. F. Schmidt** (2019) Female songbirds: the unsung drivers of social behavior. *Behavioral Processes* 163: 60 – 70
- Schmidt M. F.** and F. Goller (2016) Breathtaking songs: Coordinating the neural circuits for breathing and singing. *Physiology*. 31: 442-451
- Schmidt M. F.** and L. Ding (2014) Achieving perfection through variability: the basal ganglia helped me do it! *Neuron* 82: 6 – 8.
- Schmidt M. F.** and J. M. Wild (2014) The respiratory-vocal system of songbirds: anatomy, physiology and neural control *Progress in Brain Research*. 212: 297 – 335.
- Lewandowski B.C, A. Alexei, R. Hahnloser and **M.F. Schmidt** (2013) At the interface of the auditory and vocal motor systems: Nlf and its role in vocal processing, production and learning. Invited Review. *J. Physiology (Paris)* 107: 178 – 192
- Schmidt, M. F.**, J. Mc Lean and F. Goller (2012) Breathing and Vocal Control: The Respiratory System as both a Driver and Target of Telencephalic Vocal Motor Circuits in Songbirds. *J. Exp. Physiology* 97 (4) 455-461
- Schmidt, M. F.** (2010) An IACUC Perspective on Songbirds and Their Use in Neurobiological Research. *ILAR Journal* 51: 424 – 430
- Schmidt, M. F.** (2010) Contributions of Bird Studies to Behavioral and Neurobiological Research: Introduction. *ILAR Journal* 51: 305 – 309
- Margoliash, D. and **M.F. Schmidt** (2010) Sleep, off-line processing, and vocal learning. *Brain and Language* 115: 45 – 58.
- Castelino, C. B. and **M. F. Schmidt** (2010) What birdsong can teach us about the central noradrenergic system. *J. Chem. Neuroanatomy* 39: 96 – 111
- Schmidt, M. F.** (2009) Neural control of birdsong. In: Encyclopedia of Life Sciences. Chichester: John Wiley and Sons.
- Schmidt, M. F.** (2008) Using Both Sides of Your Brain: The Case for Rapid Interhemispheric Switching. *PLoS Biology* 6: 2089 – 2093

**Schmidt, M. F.** and R. C. Ashmore (2008) Integrating breathing and singing: Forebrain and brainstem mechanisms in *Neuroscience of Birdsong* (ed. Zeigler, H. P. and P. Marler) Cambridge University Press.

**Schmidt, M. F.**, R. C. Ashmore and E. T. Vu (2004) Bilateral Control and Interhemispheric Coordination in the Avian Song Motor System in *Behavioral Neurobiology of Birdsong* (ed. Zeigler, H. P.) *Annals of the New York Academy of Sciences* 1016: 171-186

**Schmidt M. F.** and M. Konishi (1999) Bilateral hemispheric co-ordination of birdsong. In: Adams, N.J. & Slotow, R.H. (eds) Proc. 22 Int. Ornithol. Congr., Durban: 509-523. Johannesburg: Bird Life South Africa.

Kater, S. B. and **M. F. Schmidt** (1993) Filopodia as sensors for calcium signaling in neuronal growth cones. *Neurosci. Facts* 4: 23-24.

## RESEARCH SUPPORT

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### ONGOING

NATIONAL SCIENCE FOUNDATION 10/01/21 – 9/30/23

*Title:* NCS-FO:Tracking social behavior and its neural properties in a smart aviary

Role: PI

Award: \$ 993,000

### COMPLETED

Penn's Center for Undergraduate Research and Fellowships (CURF) and the Provost's Office; \$10,000 for lab funding and \$18,000 for 4 student stipends. PI: M. Schmidt and K. Daniilidis.

Title: Team Grant for Interdisciplinary Activities (TGIA)

University (of Pennsylvania) Research Foundation (URF) 3/01/19 – 28/02/21

Title: Using Computer Vision to Study the Effect of Targeted neural Circuit Perturbations on Social Behavior in Songbirds.

Direct cost: \$ 48,000

NATIONAL SCIENCE FOUNDATION 7/01/16 –6/30/19

*Title:* Neural bases of song preference and reproductive behavior in a female songbird

Role: PI

Award: \$ 800,000

NATIONAL SCIENCE FOUNDATION 9/1/16 - 8/31/19

Title: MRI: Development of an observatory for quantitative analysis of collective behavior in animals

K. Daniilidis (SEAS): PI

Role: co-PI

Budget: \$ 339,174

UNIVERSITY OF PENNSYLVANIA

9/1/16 - 8/31/17

Title: CURF Proposal for Faculty Mentoring Undergraduate Research

Award: \$ 8,000

University (of Pennsylvania) Research Foundation (URF)

3/01/13 –3/01/15

Title: Using optogenetics to investigate the role of a respiratory-thalamic pathway in song production

Direct cost: \$ 45,000

1 R01-DC006453 (Schmidt, PI)

12/01/04 – 11/30/14

NIH/NIDCD

Title: Functional Organization of the Song Motor System

Direct cost: \$ 175,000/year

1 R01-DC006453 (Schmidt, PI)

12/01/04 – 11/30/09

NIH/NIDCD

Title: Modulation of Auditory Processing by Behavioral State

Direct cost: \$ 175,000/year

1 R01-NS050436 (Vicario, PI)

12/01/04 – 11/30/09

NIH/NIMH

Title: Integrative Study of Vocal Development

Direct cost for the whole proposal: \$ 660,953/year

Direct cost to Schmidt Lab: \$ 80,600/year

2000-12-22-A (Schmidt, PI)

3/01/01 – 2/29/04

Whitehall Foundation

Title: Modulation of auditory responses by behavioral state

Total Direct cost: \$ 200,000

Basil O'Connor Starter Award (Schmidt, PI)

3/01/01 – 2/29/04

March of Dimes Foundation

Title: Regulation of developmentally restricted critical periods during vocal learning

Total Direct cost: \$ 150,000

Sloan Research Fellowship for Neuroscience (Schmidt, PI)

3/01/01 – 2/29/04

Alfred P. Sloan Foundation

Title: Auditory-motor integration in the avian song system

Total Direct cost: \$ 40,000

Lions Hearing Research (Schmidt, PI)

3/01/01 – 2/29/04

Pennsylvania Lions Hearing Research Foundation, Inc.



Title: Regulation of critical periods for auditory learning  
Total Direct cost: \$ 19,580

University Research Foundation (Schmidt, PI) 2001 – 2002  
University of Pennsylvania

Title: Auditory-motor encoding in a multi-songed passerine  
Total Direct cost: \$ 15,000

University Research Foundation (Schmidt, PI) 2000 – 2001  
University of Pennsylvania

Title: Organization of the Avian Song Motor System  
Total Direct cost: \$ 25,000

## **ADVISORY BOARD**

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2020 – 2023	Board of Directors, Pennsylvania Tourette Syndrome Alliance
2018 – 2021	Scientific Advisory Board, National Tourette Association of America
2017 – 2019	MindCORE – SAS Initiative for the study of mind and brain.
2016 – 2018	SAS Science Outreach Initiative
2010 – 2015	Mahoney Institute of Neurological Science
2011 – 2016	Franklin Institute Neuroscience Advisory Committee
2010 – 2015	Systems and Integrative Biology Training Grant
2009 – 2013	Neuroscience and Society Program

## **EXTERNAL EXAMINER**

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2006	Examiner, “Habilitation à Diriger des Recherches” for Dr. Catherine Del Negro, Université Paris Sud, Orsay, France
2000, 2003	Swarthmore College, Department of Biology, Honors examiner
2007, 2013	Swarthmore College, Department of Biology, Honors examiner
2022	Swarthmore College, Department of Biology, Honors examiner

## **GRANT REVIEW COMMITTEES**

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2019 - present	University Research Foundation, Natural Science Review Panel
2019 - present	National Tourette Association of America, panel to review proposals.
2022	NSF Panel to review Integrative Organismal Systems (IOS) proposals from the Animal Behavior Cluster.
2017	NSF NeuroNex Panel to review proposals for Neurotechnology development.

- 2016 NSF Panel to review Integrative Organismal Systems (IOS) proposals from the Neural Systems Cluster.  
NIH: Sensory Motor Integration Study Section, ad hoc member  
NIH: SBIR and Fellowships Study Section, ad hoc member
- 2010 – 2014 NIH: Communication Disorders Review Committee, Study Section, member
- 2006 – 2010 NIH: SBIR and Fellowships Study Section, member
- 2008 NIH: Sensory Motor Integration Study Section, ad hoc member

## EDITORIAL BOARD

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- 2009 Guest editor for Special Issue of the ILAR Journal on Birds in Neural and Behavioral research

## JOURNAL AND GRANT REVIEW

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Reviewer for *J. Neuroscience*, *J. Neurophysiology*, *J. Neurobiology*, *J. Comparative Physiology*, *J. Experimental Biology*, *J. Comparative Neurology*, *Neuron*, *Nature Neuroscience*, *Nature Communication*, *PLoS Biology*, *PLoS ONE*, *J. Experimental Biology*, *J. Physiology (Paris)*, *J. Experimental Physiology*, *J. Chemical Nature Communication*, *Neuroanatomy*, *Neurobiology of Learning & Memory*, *PNAS*, *European Journal of neuroscience*, *Laterality*, *Frontiers in Neuroscience and eLIFE* and grant reviews for *National Science Foundation*, *NIH-NIDCD*, *NIH-NIMH*, *Dutch research foundation (NOW)*, *The Danish Council for Independent Research - Natural Science*, *Marsden Fund (New Zealand)* and the *Howard Hughes Medical Institute*; *Swiss Research Foundation*.

## COMMUNITY SERVICE

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- 2022 – 2026 Co-organizer, Gordon Conference on “*Neural Mechanisms of Acoustic Communication*”
- 2019 – present Board of directors, Pennsylvania Tourette Syndrome Alliance
- 2018 – present Scientific Advisory Board, Tourette Association of America
- 2016 – present Faculty, Neuroscience Summer Academy, University of Pennsylvania
- 2014 – present Faculty mentor for the Neuroscience Honors Society Nu Rho Psi
- 2010 – present Kids Judge Neuroscience Fair, Faculty Organizer
- 2011 – 2016 Neuroscience Advisory Board, The Franklin Institute and Penn, Neuroscience in your world: A partnership for Neuroscience Education Across the K-12 Spectrum.
- 2014 Represented the university’s Biomedical Graduate Studies program at the SACNAS (Society for Advancement of Hispanics/Chicanos and Native Americans in Science) meeting in Los Angeles, CA.

- 2015 Diversity Recruitment Talk for BGS, Cheney University, PA
- 2012 Diversity Recruitment Talk for BGS, Delaware State University
- 2010 Diversity Recruitment Talk for BGS, Hunter College, New York

## **PROFESSIONAL SOCIETY MEMBERSHIPS**

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Society for Neuroscience, Member 1988-present

American Association for the Advancement of Science, Member 1987- 2011

American Physiological Society, Member 2003 – present

Nu Rho Psi, The National Honor Society in Neuroscience, Chapter Advisor, 2011 - present

## **INVITED TALKS**

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- 2022 Invited speaker, Zangwill talk, Cambridge University (Virtual)  
Invited speaker, weekly webinar on 'Subcortico-cortical loops in sensory processing and perception' (Virtual)
- 2021 Invited speaker, Symposium to commemorate the life of Mark Konishi (Virtual)
- 2020 Speaker, Informal seminar, India Institute of Science Education and research (IISER) Pune (Virtual)  
Invited speaker, Tufts University, Biology colloquium (Virtual)  
Speaker, Informal seminar, Dept. Neuroscience, Columbia University, NY
- 2019 Invited speaker, Winter Animal Behavior Conference, Steamboat Springs, Colorado  
Invited speaker, Small Circuits Meeting, University of Pennsylvania  
Invited speaker, Delaware Ornithology Club, Philadelphia, PA  
Speaker, Informal seminar, Max Planck Institute for Ornithology, Seewiesen, Germany  
Invited speaker, Max Planck Institute for Brain Research, Frankfurt, Germany  
Invited speaker, University of Konstanz, Germany  
Invited speaker, Biomedical Awareness Day Symposium, Veterinary School, University of Pennsylvania  
Invited speaker, Widener College, Pennsylvania
- 2018 Invited speaker, Saint Joseph University, Philadelphia, PA  
Invited speaker, Max Planck Institute for ornithology, Seewiesen, Germany  
Speaker, workshop on mechanisms of avian breeding, Princeton University, NJ  
Speaker, symposium on neuroethology of courtship signaling, U. Mass, Amherst, MA
- 2017 Invited speaker, Birdsong Meeting, Washington D.C.  
Colloquium speaker, Biology, Colorado State University, Fort Collins, CO  
Speaker, Philadelphia Science Fair, Philadelphia, PA  
Speaker, Informal seminar, University of South Denmark, Denmark

- 2016 Speaker, Informal seminar, Dept. Neuroscience, New York University, NY  
Speaker, Informal seminar, University of Queensland, Australia  
Speaker, Informal seminar, Dept. Psychology, Rutgers University, NJ
- 2015 Speaker, Dynamics of multifunction brain networks, UC San Diego, CA  
Speaker, Meeting on "Small circuits & behavior", University of Pennsylvania  
Speaker, Behavioral neuroscience @ Penn, University of Pennsylvania  
Speaker, Institute for research in Cognitive Science, University of Pennsylvania  
Speaker, Cheney University, Cheney, PA (Part of BGS outreach)
- 2014 Colloquium speaker, Psychology, University of Maryland  
Speaker, veterinary intern meeting, ULAR, University of Pennsylvania  
Speaker, Birdsong workshop, Neuroscience Dept., UC San Francisco, CA  
Speaker, Mount Sinai Medical School, New York, NY  
Speaker, Birdsong Meeting, Georgetown, Washington D.C.  
Speaker, Meeting on "Small circuits & behavior", University of Pennsylvania
- 2013 Colloquium speaker, Neuroscience, Drexel University  
Keynote speaker symposium on "Crossing the Mind, Brain, and Behavior Barrier",  
University of Arizona.  
Colloquium speaker, Biology, University of West Virginia  
Speaker, Evolution of vocal communication workshop, Columbia University, NY
- 2012 Invited speaker, conference on "Breathing, Emotion and Evolution", Almelo, The  
Netherlands  
Speaker, International Virtual Laboratory Animal Science (LAS) Conference  
([www.lasconference.com](http://www.lasconference.com))  
Speaker, Meeting on "Small circuits & behavior", University of Pennsylvania  
Speaker, Delaware State University, Newark, DE (Part of BGS outreach)
- 2011 Colloquium speaker, Bioengineering, Johns Hopkins University  
Speaker, seminar series on Evolutionary Development, Swarthmore College  
Colloquium speaker, Neurobiology and Behavior, Cornell University  
Invited speaker, Workshop on "Neurobiology of Birdsong", Paris, France  
Colloquium speaker, Dept. Neuroscience, Virginia Commonwealth University  
Invited Speaker, workshop on "Producing and Perceiving Complex Acoustic Signals:  
Songbirds and Mice as Model Systems", Janelia Farms, HHMI
- 2010 Speaker, Dept. Physiology, University of South Florida  
Symposium speaker, Symposium on "Multiscale Neuronal Control of Respiratory  
Function: Bridging Gene Networks to Neural Networks" Experimental Biology  
Meeting, Washington DC
- 2009 Invited speaker, annual conference of the American Ornithology Union, Philadelphia  
Seminar speaker, Institute for Neuroinformatics, University of Zurich
- 2008 Colloquium speaker, Dept. Anesthesiology, University of Pennsylvania  
Speaker, SIB training grant retreat, University of Pennsylvania
- 2007 Colloquium speaker, Dept. Neuroscience, University of Chicago  
Speaker, 'vocal production' workshop, Penn State University.

- Invited speaker, MBL Woods Hole, MA  
Speaker, Dept. Otolaryngology, University of Pennsylvania  
Colloquium speaker, Dept. Biology, Villanova University  
Colloquium speaker, Dept. Psychology, Johns Hopkins University  
Invited speaker, Mahoney Institute for Neurological Science retreat, University of Pennsylvania
- 2006 Symposium speaker, East Coast Nerve Net conference, MBL Woods Hole,  
Invited speaker, IGERT Happy hour talk, University of Pennsylvania
- 2005 COSYNE Meeting, Salt Lake City, Utah, Invited presentation.  
University of Utah, Biology Seminar Series  
Cold Spring Harbor labs, Invited speaker for meeting on “Integrative Study of Vocal Development”  
Rockefeller University Field Station, Birdsong Meeting, Millbrook, NY  
University of Pennsylvania, Speaker and organizer of meeting on “Song Motor Control”
- 2004 Invited symposium speaker, International Congress for Neuroethology, Denmark,  
Rockefeller University Field Station, Birdsong Meeting, Millbrook, NY  
Johns Hopkins University, Baltimore, Psychology Seminar series  
University of Pennsylvania, Behavioral and Cognitive Neuroscience Retreat  
University of Pennsylvania, Biology Department Ecolunch Talk
- 2003 University of Pennsylvania, Department of Biology Annual Retreat  
University of Michigan, Talk in Electrical Engineering Department  
Rockefeller University Field Station, Birdsong Meeting, Millbrook, NY
- 2002 City College New York, New York, Biology Seminar series  
Johns Hopkins University, Meeting on “Auditory Systems Neuroscience”  
University of Pennsylvania, MINS Annual Retreat
- 2001 University of Maryland, Maryland, Neuroscience Seminar series  
Rockefeller University Field Station, Birdsong Meeting, Millbrook, NY
- 2000 Columbia University, New York, Biology Seminar series  
Rockefeller University Field Station, Birdsong Meeting, Millbrook, NY

## **COMMITTEES AND ADMINISTRATIVE (University of Pennsylvania)**

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### **BIOLOGY DEPARTMENT**

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- Member, Biology Department Executive committee, 2021 – present  
Representative for new Biology faculty, 2021 – present  
DEI committee coordinator, 2021 – present  
Undergraduate Advisor, 1998-present

Advising Committee, Neuroscience Concentration, 2001-present  
Member, Biology Graduate Admissions Committee, 2007, 2008, 2021, 2022  
Chair, “Animal Behavior” faculty search committee, 2017, 2018  
Member, Biology Department Vision committee, 2014 – 2020  
Member, Space committee for Biology, 2014 - 2020  
Member, Neuroscience PIK committee for Biology, 2008-2020  
Member, Student advising committee, 2013 - 2015  
Lynch Vivarium Liaison with ULAR, 2010 – 2014  
Member, Committee to re-evaluate the Biology Graduate Curriculum, 2008-2009  
Faculty Search Committee, 2006-2007, 2007-2008, 2014-2015  
Chair, Graduate Admissions Committee, 2007  
Member, Graduate Admissions Committee, 2007 - 2008  
Biology Seminar Committee, 2004 - 2007  
Web Design Committee, 2001, Chair  
Neurodinner Seminar Series, 2000-2004.  
Graduate Student Admissions Committee, 2000-2004  
Biology Advisory Board Presentation, 2000  
Biology Undergraduate Night Speaker, 1999  
Biology Department, Faculty Search Committee, Physiology, 2001-2002

## **SCHOOL OF ARTS AND SCIENCES**

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Director and Co-director, Undergraduate Neuroscience Program, 2010 – present  
Undergraduate Neuroscience Program, curriculum committee, 2007 – present  
Member of Dean’s “Faculty Wellness Partners for Graduate Students” committee.  
Mind Core, Advisory board, 2017 - 2019  
SAS Mapping the Mind Planning Group Committee, 2015 - 2017  
Advisor to First-Year Students, 2012  
Penn Previews, Faculty Panel, 2011, 2012  
Psychology department, Faculty Search Committee, 2012  
Advisor, Computational Neuroscience Minor, 2011  
SAS curriculum committee, 2005 – 2007.

## **UNIVERSITY**

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University Research Foundation, Natural Science Review Panel, 2019 - present

Neuroscience Graduate Group, Academic Review Committee, 2012 – present  
Provost's Faculty Council on Access and Academic support, 2009 – present  
Member, Biology Graduate Group, 1999-present  
Member, Neuroscience Graduate Group, 2000-present  
Member, Psychology Graduate Group, 2004-present  
Government Engagement Committee, 2017 - 2020  
Member, Office of Student Conduct focus group, 2015  
Member, committee for 2014 Year of Sound Symposium on Sound and Brain,  
Member, special committee on Provost's theme year for 2013-14 -- the Year of Sound  
Executive committee, Mahoney Institute for Neurological Sciences, 2010 - 2013  
Neuroscience Graduate Group, Director for Academic Affairs, 2009 - 2011  
Neuroscience Graduate Group, Chair Academic Review Committee, 2009 – 2011  
Neuroscience Graduate Group Academic Review Committee, 2005 – 2009  
Pharmacology Department, SOM, Graduate Group Review Committee, 2008  
Behavioral Neuroscience Retreat, Organization Committee, 2008 – 2010.  
Fine Science Tools Travel Award, Chair of committee to evaluate best PhD student abstracts,  
2004 - 2005  
Systems Neuroscience Journal Club, organize (together with Josh Gold) and coordinate a weekly  
journal club for the neuroscience community, 2002 - 2010  
Winegrad Award Committee, evaluate best Neuroscience Ph.D. thesis, 2000-2004  
Flexner Award Committee, evaluate best Neuroscience Ph.D. thesis, 2000-2005.  
Neuroscience Graduate Group, Lab Rotation Talks Committee, 2000-2002  
Member, Bioengineering Graduate Group, 2004-2007