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EDUCATION

University of California-San Francisco
The University of St. Andrews
Haverford College

Ph.D. in Neuroscience, 2009
M.Phil. in Animal Behavior, 2002
B.S. in Behavioral Ecology, 1999

ACADEMIC RESEARCH

Johns Hopkins University (2014-present)

- Postdoctoral research on sensorimotor integration and spatial representation in echolocating bats (mentor: Cynthia Moss).

University of Maryland (2009-2014)

- Postdoctoral research on sensorimotor integration in bats (mentor: Cynthia Moss).

University of California-San Francisco (2002-2009)

- Doctoral research on the motor coding for bird song.
- Title: Song coding in the Robust Nucleus of the Arcopallium (RA) of Bengalese finches, *Lonchura domestica* (mentor: Michael Brainard).

The University of St. Andrews, Department of Biology (2001-2002)

- Masters research on song evolution in the Chaffinch (*Fringilla Coelebs*).
- Title: A longitudinal study of syllable usage in the Orcadian population of chaffinches, *Fringilla coelebs* (mentor: Peter Slater).

Bryn Mawr and Haverford Colleges (1998-1999)

- Senior thesis research on selective frugivory in seasonal avian migrants.
- Title: A comparative study of the migratory nutritional requirements in North American thrushes.

Swarthmore College, Department of Biology (1997-1998)

- Research on the effects of land formations upon nocturnal migratory routes.
- Title: Preliminary results of a combined radar and ceilometer study of bird migration through a mountain pass, Franconia Notch, New Hampshire.

Makalu Barun National Park and Conservation Area, Nepal (1998)

- Assessment of the effects of human population density upon species diversity for the Mountain Institute and His Majesties Government, Nepal.
- Title: The relationship between village size and species diversity in avian communities of Makalu Barun National Park and Conservation Area.

PUBLICATIONS (* Denotes equal contribution)

YU, C. LUO, J. WOHLGEMUTH, M.J. MOSS, CF. (2019). Echolocating bats inspect and discriminate landmark features to guide navigation. *Journal of Experimental Biology* 222.8: jeb191965

- WOHLGEMUTH, MJ.** YU, C. MOSS, CF. (2018). 3D hippocampal place field dynamics in free-flying echolocating bats. *Frontiers in Cellular Neuroscience* 12 (270): 10.3389/fncel.2018.00270.
- WOHLGEMUTH*, MJ.** KOTHARI*, NB. MOSS, CF. (2018). Dynamic representation of 3D auditory space in the midbrain of the free-flying echolocating bat. *eLife* 7: e29053.
- KOTHARI, NB. **WOHLGEMUTH, MJ.** MOSS, CF. (2018). Adaptive sonar call timing supports target tracking in echolocating bats. *Journal of Experimental Biology*: jeb-176537.
- JONES, TK. **WOHLGEMUTH, MJ.** CONNER, WE. (2018). Active acoustic interference elicits echolocation changes in heterospecific bats. *Journal of Experimental Biology*: jeb-176511.
- WOHLGEMUTH, MJ.** KOTHARI, NB. MOSS, CF. (2018). Functional organization and dynamic activity in the superior colliculus of the echolocating bat, *Eptesicus Fuscus*. *Journal of Neuroscience* 38(1): 245-256.
- WOHLGEMUTH, MJ.** LUO, J. MOSS, CF. (2016). Three-dimensional auditory localization in the echolocating bat. *Current Opinion in Neurobiology* (41): 76-86.
- KIM, JJ. **WOHLGEMUTH, MJ.** MOSS, CF. HORIUCHI, T. (2016). BatFlash: a Head-Mounted Led for Detecting Bat Echolocation. *IEEE, International Conference on Biomedical Circuits & Systems* (Bio CAS2016).
- WOHLGEMUTH, MJ.** KOTHARI, NB. MOSS, CF. (2016). Action Enhances Acoustic Cues for 3-D Target Localization by Echolocating Bats. *PLoS Biology* 14.9: e1002544.
- WOHLGEMUTH, MJ.** MOSS, CF. (2016). Midbrain auditory selectivity to natural sounds. *Proceedings of the National Academy of Sciences*, 113(9): 2508-2513.
- WOHLGEMUTH*, MJ.** KOTHARI*, NB. HULGARD, K. SURLYKKE, A. MOSS, CF. (2014). Timing matters: sonar call groups facilitate localization in bats. *Frontiers in Physiology*, 168. doi:10.3389
- WOHLGEMUTH, MJ.** and MOSS, CF. (2013). Active listening in a complex environment. *Journal of the Acoustical Society of America*, POMA, Vol. 19, 010030.
- WOHLGEMUTH*, MJ.** SOBER*, S. BRAINARD, M. (2010). Linked control of syllable sequence and phonology in birdsong. *Journal of Neuroscience*, 30(39): 12936-49.
- WOHLGEMUTH*, MJ.** SOBER*, S. BRAINARD, M. (2008). Central contributions to acoustic variation in a songbird. *Journal of Neuroscience* 28(41): 10370-9.
- SINCICH, L. PARK, K. **WOHLGEMUTH, MJ.** HORTON, J. (2004) Bypassing V1: a direct geniculate input to area MT. *Nature Neuroscience* 7(10): 1123-1128.

AWARDS & FUNDING

B.R.A.I.N. Initiative R34 (2018-under review)

- Submitted on 7/15/2018 with collaborator, Kishore Kuchibhotla (JHU), to develop optical tools in the echolocating bat using viral transfection.

Hartwell Foundation Biomedical Research Award (2017)

- Postdoctoral fellowship for work on sensorimotor integration in the superior colliculus for natural adaptive behaviors.

Johns Hopkins University Dean's Teaching Fellowship (2017)

- Fellowship awarded to postdoctoral fellows to conceive, develop, and teach an upper-level undergraduate course.

Internationals Society for Neuroethology Travel Award (2016)

- Travel award to present at the International Congress on Neuroethology Meeting in Montevideo, Uruguay.

ASA Travel Award (2014)

- Travel award to present at the Hokkaido Neuroethology Workshop Satellite Symposium for the International Congress on Neuroethology Meeting in Sapporo, Japan.

CEBH Fellowship (2009-2012)

- University of Maryland, Center for the Evolutionary Biology of Hearing Postdoctoral Training grant (NIH T32 training grant).

Regent's Fellowship (2002)

- University of California-San Francisco Regent's Award.

Member of Sigma Xi (1998-present)

- Member of Swarthmore College's chapter of Sigma Xi.
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TEACHING EXPERIENCE**Johns Hopkins University (2017)**

- Designer and lecturer of course titled: Sensing and action in predator/prey encounters
- Course structure: two, 70 minute lectures per week
- Topics included: sensorimotor integration from a neuroethological perspective

Johns Hopkins University (2015)

- Lecturer for course on Spatial Orientation and Navigation
- Course structure: two, 70 minute lectures per week
- Topics included: the role of the hippocampus, cognitive maps vs. path integration

University of Maryland (2010)

- Lecturer for Psychology 310 – Perception
- Course structure: two, 1 ¼ hour lectures per week
- Topics included: vision, audition, and the chemical senses

University of San Francisco (2008)

- Lecturer for General Biology II (Biology 106)
- Course structure: three, 50 minutes lectures per week
- Topics included: Function and evolution of earth's organisms

University of San Francisco (2007)

- Laboratory Instructor for General Biology I
 - Course structure: one-hour lecture followed by a two-hour laboratory period
 - Topics included: enzymes, cellular respiration, mitosis/meiosis, genetics, and animal development
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PRESENTATIONS OF SCHOLARLY WORK**Society for Neuroscience Meeting (2018)**

- Poster presentation of research on the population codes for sensorimotor integration in the midbrain superior colliculus.

Society for Neuroscience Meeting (2017)

- Poster presentation of research into the effects of competing objects in the range dimension on sensorimotor processing in the midbrain superior colliculus.

Society for Neuroscience Meeting (2016)

- Poster presentation of research into the functional organization of the midbrain superior colliculus during natural orientation.

International Congress on Neuroethology Meeting (2016)

- Invited symposium speaker to present research on behavioral and neural adaptations for echolocation behaviors.

Society for Neuroscience Meeting (2015)

- Poster presentation of research into the role of the superior colliculus in directing spatial orienting motor commands for both sonar vocalizations and head/ear positioning.

Society for Neuroscience Meeting (2014)

- Dynamic poster presentation of research into the relationship between the local field potentials in the superior colliculus, and the timing of sonar vocalizations and pinna movements.

International Congress for Neuroethology Meeting (2014)

- Poster presentation of research examining the relationship between the timing of sonar vocalizations, and local field potentials and spiking activity of superior colliculus neurons.

Hokkaido Neuroethology Workshops (2014)

- Invited talk on research of sensorimotor integration in the superior colliculus and the coordinating of adaptive echolocation behaviors.

Acoustical Society of America (2013)

- Talk on research examining signals related to sensorimotor integration in the superior colliculus of an echolocating bat tracking a moving insect.

Society for Neuroscience Meeting (2013)

- Poster presentation of research on chronic neural recordings in the superior colliculus of an echolocating bat while tracking an insect.

Association for Research in Otolaryngology Meeting (2013)

- Poster presentation of research examining auditory responses of neurons in the superior colliculus of echolocating bats as it relates to stimulus selection.

Society for Neuroscience Meeting (2012)

- Poster presentation of research on the temporal integration of auditory responses in the superior colliculus of echolocating bats.

Collaborative Research in Computational Neuroscience Conference (2012)

- Poster presentation of research investigating adaptive perceptual-motor feedback for the analysis of complex scenes.