MELVILLE WOHLGEMUTH

University of Arizona
Department of Neuroscience
Tucson, AZ 85721
www.arizonabatlab.com

wohlgemuth@arizona.edu
520-621-6640 (work)

EDUCATION

University of California-San Francisco — **Ph.D. in Neuroscience, 2008**
The University of St. Andrews — **M.Phil. in Animal Behavior, 2002**
Haverford College — **B.S. in Behavioral Ecology, 1999**

ACADEMIC RESEARCH

University of Arizona (2020-)
- Assistant Professor, research on bottom-up and top-down circuit dynamics for sensing and adaptive behavior in the natural environment.

Johns Hopkins University (2014-2019)
- 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)

WOHLGEMUTH, MJ. SALLES, A. MOSS, CF. (2022). Spatial attention in natural tasks. *Molecular Psychology: Brain, Behavior, and Society*

SALLES, A. **WOHLGEMUTH, MJ.** MOSS, CF. (2022). Neural coding of 3D spatial location, orientation, and action selection in echolocating bats. *Trends in Neuroscience,* 46(1): 5-7.

WIJESINGHE, L. P., **WOHLGEMUTH, M. J.**, SO, R. H., TRIESCH, J., MOSS, C. F., & SHI, B. E. (2021). Active head rolls enhance sonar-based auditory localization performance. PLoS Computational Biology, 17(5), E1008973.

YU, C. LUO, J. **WOHLGEMUTH, MJ.** 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

Kavli Fellow (2023)

- Invited speaker for the 2023 Kavli Frontiers of Science Symposium

N.I.H. B.R.A.I.N. Initiative R34 (2020)

- Technology development grant between Johns Hopkins University and the University of Arizona to create optical tools (imaging and optogenetics) for the echolocating bat.

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.