# Bence P. Ölveczky, Ph.D.


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## Education

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|---|---|
| 1998-2003 | Ph.D. in Neuroscience and Medical Engineering/Medical Physics, Harvard/MIT |
| 1995-1996 | M.S. in Biomedical Engineering, Imperial College |
| 1988-1994 | M.S in Mechanical Engineering, Technical University of Budapest |

## Research and Professional Experience

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| 2016-present | Professor of Organismic and Evolutionary Biology, Harvard University |
| 2012-2016 | John L. Loeb Associate Professor in the Natural Sciences, Harvard University |
| 2007-2012 | Assistant Professor, Harvard University |
| 2004-2007 | Junior Fellow in the Harvard Society of Fellows working with Prof. Michale Fee, MIT |
| 2003-2004 | Postdoctoral Fellow with Prof. Markus Meister, Harvard University |
| 1998-2003 | Graduate Student with Prof. Markus Meister, Harvard University |
| 1996-1997 | Research Assistant with Prof. Alan Verkman, UCSF |

## Honors and Awards

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| 2015 | Distinguished Kavli Lecturer |
| 2014 | Mind Brain Behavior Faculty Award |
| 2009 | Sloan Fellow |
| 2008 | McKnight Scholar |
| 2008 | Klingenstein Fellow |
| 2007 | Milton Fund |
| 2004 | Elected as a Junior Fellow in the Harvard Society of Fellows |
| 2004 | Helen Hay Whitney Fellow (declined) |

## Specialized Training

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| 2006 | Advanced Techniques in Molecular Neuroscience, Cold Spring Harbor Laboratory |
| 2007 | Ion Channel Physiology, Cold Spring Harbor Laboratory |

## Publications

Wolff SEB and Ölveczky BP. The promise and perils of causal circuit manipulations. **Current Opinion in Neurobiology** 49:84–94. April 2018.

Pehlevan C, Ali F and Ölveczky BP. Flexibility in motor timing constrains the topology and dynamics of pattern generator circuits. **Nature Communications** 9(1):977, March 2018.

Dhawale A, Poddar R, Kopelowitz E, Normand V, Wolff SBE and Ölveczky BP. Dhawale A, Poddar R and Ölveczky BP. Automated long-term recording and analysis of neural activity in behaving animals. **eLife** 6:e27702, September 2017.

Dhawale AK, Smith MA and Ölveczky BP. The role of variability in motor learning. Annual Review of Neuroscience 40:479-498. May 2017.

Otchy, T.M., Wolff, S.B.E., Rhee, J.Y., Pehlevan, C., Kawai, R., Kempf, A., Gobes, S.M.H., Ölveczky B.P. Acute off-target effects of neural circuit manipulations. **Nature** 528, 358–363. December 2015.

Kawai R, Markman T, Dhawale A, Poddar R, Fantana A, Kampff AR, and Ölveczky BP. Motor cortex is required for learning but not for executing a motor skill. **Neuron.** 86(3): 800–812, May 2015.

Garst-Orozco J, Babadi B and Ölveczky BP. A neural circuit mechanism for regulating vocal variability during song learning in zebra finches. **eLife** 2014;10.7554/eLife.03697. December 2014.

Memmesheimer R-M, Rubin R, Ölveczky BP and Sompolinsky H. Learning Precisely Timed Spikes. **Neuron.** 21;82(4):925-38. May 2014.

Ölveczky BP. Neuroscience: Ordered randomness in fly love songs. **Nature.** 507(7491):177-8. Mar 2014.

Wu H, Miyamoto Y, Gonzales-Castro LN, Ölveczky BP and Smith M. Temporal structure of motor variability is dynamically regulated and predicts motor learning ability. **Nature Neuroscience** (17) 312–321 January 2014.

Poddar R, Kawai R, Ölveczky BP. A Fully Automated High-Throughput Training System for Rodents. **PLoS ONE** 8(12): e83171. doi:10.1371/journal.pone.0083171.

Ali F, Otchy TM, Pehlevan C, Fantana AL, Burak Y and Ölveczky BP. The Basal ganglia is necessary for learning spectral, but not temporal, features of birdsong. **Neuron** 80(2):494-506 October 2013.

Otchy TM, Ölveczky BP. Design and assembly of an ultra-light motorized microdrive for chronic neural recordings in small animals. **Journal of Visualized Experiments**. 69. Nov 2012.

Roberts T, Gobes SMH, Murugan M, Ölveczky BP and Mooney R. Motor circuits are required for encoding a sensory model for imitative learning. **Nature Neuroscience** 15(10):1454-92012. Oct 2012.

Ölveczky BP. Motoring ahead with rodents, **Curr. Opin. Neurobiol** 4:571-8. Aug 2011.

Ölveczky BP, Otchy TM, Goldberg JH, Aronov D and Fee MS. Changes in the neural control of a complex motor sequence during learning. **J. Neurophysiology** 106:386-397. July 2011. PMID: 21543758.

Ölveczky BP, Gardner TJ. A bird's eye view of neural circuit formation. **Curr. Opin. Neurobiol.** 21(1):124-31. Feb 2011.

Ölveczky BP . Singing in the Brain (Book review). **Ethology.** 115(10):1005-1006. October 2009

Baccus SA, Ölveczky BP and Meister M. A Retinal Circuit that Computes Object Motion. **J. Neuroscience** 28:6807- 6817. July 2008.

Ölveczky BP, Baccus SA and Meister M. Retinal Adaptation to Object Motion. **Neuron** 56:698-700. Nov 2007.

Ölveczky BP, Andalman AS and Fee MS. Vocal Experimentation in the Juvenile Songbird Requires a Basal Ganglia Circuit. **PLoS Biol** 3(5): e153, May 2005.

*Smallwood PM, *Ölveczky BP, Williams GM, Jacobs HJ, Reese BE, Meister M and Nathans J. Genetically engineered mice with a novel class of cone photoreceptors: implications for the evolution of color vision. **Proc. Natl. Acad. Sci.** 100 (20): 11706-11711, Sept 2003. ***Equal contribution.**

Ölveczky BP, Baccus SA and Meister M. Segregation of object and background motion in the retina (Article). **Nature** 423 (6938): 401-8, 22 May 2003.

Ölveczky BP and Verkman AS, Monte Carlo analysis of obstructed diffusion in three dimensions: Application to molecular diffusion in organelles. **Biophys. J.** 74 (5): 2722-2730, May 1998.

Carter EP, Ölveczky BP, Matthay MA, and Verkman AS. High microvascular endothelial water permeability in mouse lung measured by a pleural surface fluorescence method. **Biophys. J.** 74 (4): 2121-2128, Apr 1998.

Partikian A, Ölveczky BP, Swaminathan R, Li Y, Verkman AS. Rapid diffusion of green fluorescent protein in the mitochondrial matrix. **J. Cell. Biol.** 140(4):821-9, Feb 1998.

Ölveczky BP, Periasamy N, Verkman AS. Mapping fluorophore distributions in three dimensions by quantitative multiple-angle total internal reflection fluorescence microscopy, **Biophys. J.** 73 (5): 2836-2847, Nov 1997.