ben j. arthur

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education

Ph.D. Computation and Neural Systems (2002)
California Institute of Technology, Pasadena, CA
Thesis: "Neural computations leading to space-specific auditory responses in the barn owl"

B.S. Computer Science (1992), cum laude, with Mathematics minor
Trinity University, San Antonio, TX
Honors Thesis: "A partially-automated software tester"

experience

Research Associate, since September 2005
Postdoctoral Scholar, 2002-2005
Ron Hoy's laboratory, Cornell University, Ithaca, NY
Behavioral studies of the auditory system of *Ormia ochracea*, a parasitic fly

Lecturer, Falls 2004, 2005, Spring 2007
Cornell University, Ithaca, NY
BIONB 222 Introduction to Neurobiology and BIONB 420/720 Neural Basis of Hearing
Dept. of Neurobiology and Behavior, College of Arts and Sciences
BIOG 400N Intro. Neuroscience, Dept. of Premedical Education, Weill Cornell Medical College in Qatar, Doha

Postdoctoral Scholar, March to August 2002
Research Assistant, 1993-2001
Masakazu Konishi's laboratory, California Institute of Technology, Pasadena, CA
Physiological and anatomical experiments in the auditory systems of the barn owl and zebra finch

Teaching and Research Assistant, 1993-1995
Carver Mead's laboratory, California Institute of Technology, Pasadena, CA
Designed and tested custom IC chips simulating the cochlea
Assisted students of the Analog VLSI Design lab class with problems testing IC chips

Software Research and Development Assistant, Summers 1990, 1991
Spectrum Management Group, Inc., San Antonio, TX
Computer programmer for pattern recognition, signal processing, and neural networks products

articles, talks, and selected conferences

Arthur BJ (in prep). Physiological mechanisms of loudness summation. *JASA*.

Ratcliffe JM, Fullard JH, **Arthur BJ**, and Hoy RR (in prep). A single auditory afferent sufficiently underlies two complex predator-avoidance behaviors in the Tiger Moth *C. tenera*. *Neuron*.

Egnor SER and **Arthur BJ** (in prep). Two ears are better than one: Barn owls use binaural, not monaural, spectral cues to localize in the vertical plane. *JASA*.

Oshinsky ML, **Arthur BJ**, and Hoy RR (in prep). Directional Characteristics of Acoustic Interneurons in the Parasitoid Fly *Ormia ochracea*. *J. Exp. Biol.*

Invertebrate Sound and Vibration, Toronto, Canada. **Arthur BJ** and Hoy RR (2006). Tethered-flight sound-localization measurements in *Ormia ochracea*.

Arthur BJ and Hoy RR (2006). Sound localization ability of the parasitoid fly *Ormia ochracea* in the elevational plane. *JASA* 120 (3): 1546-1549.

Departmental seminar, *Johns Hopkins University*, Dept. of Biomedical Engineering, hosted by Dr. Poppy Crum, "Mechanisms of vertical sound localization in the parasitic fly *Ormia ochracea*", 2006

Arthur BJ (2005). The distribution within the barn owl's inferior colliculus of neurons projecting to the optic tectum and thalamus. *J. Comp. Neurol.* 492: 110-121.

Job interview, *Creighton University*, Dept. of Biology, "Neural computations underlying sound localization", and "The neuroethology of bats and moths", 2005

Arthur BJ (2004). Sensitivity to spectral interaural intensity difference cues in space-specific neurons of the barn owl. *J. Comp. Physiol. A* 190 (2): 91-104.

Saberi K, Takahashi Y, Konishi M, Albeck Y, **Arthur BJ**, and Farahbod H (1998). Effects of interaural decorrelation on neural and behavioral detection of spatial cues. *Neuron* 21: 789-798.

Lewicki MS and **Arthur BJ** (1996). Hierarchical organization of auditory temporal context sensitivity. *J. Neurosci.* 16: 6987-6998.

Arthur BJ and Mead CA (1996). A silicon model of the auditory neural perception of frequency modulated tones. *International Symposium on Circuits and Systems*, 4: 213-216.

Fifth National Conference on Undergraduate Research, California Institute of Technology, Pasadena, CA. **Arthur BJ** and Hicks TE (1991). A partially-automated software tester. Published in the Wittenberg Review.

Fourth National Conference on Undergraduate Research, Union College, Schenectady, NY. **Arthur BJ** and Bremner FJ (1990). The neuropsychology of back propagation.

grants and scholarships

Applicant, NIH R01, Hoy RR (PI), **Arthur BJ**, Rivlin PK, Wyttenbach RA (co-authors), Acoustic Behavior - Neural and Comparative Bases, 2008-2013
Recipient, Alfred P. Sloan Foundation Equipment Grant, 1998
Recipient, Alfred P. Sloan Foundation Predoctoral Fellowship, 1996-1997
Recipient, National Science Foundation Graduate Fellowship, 1992-1995
Nominee, Rhodes Scholarship, granted state-level interview, 1991
Recipient, Upsilon Pi Epsilon (computer science honor society) scholarship, 1991
Recipient, academic merit-based scholarship, Trinity University, 1988-1992
Recipient, piano scholarship, Department of Music, Trinity University, 1988

honors, activities, and service

Organizer, Neuroethology Journal Club, Cornell University, 2006-7
Advisor, of a high school student, Cornell Summer College's Research Apprenticeship in Biological Sciences, 2006
Contributor, Tomorrow's Ear, BBC/Nat'l Geo. documentary, demo'd Mason *et al.* (2001; *Nature*, 410: 686), 2004
Reviewer, for the *Journal of Comparative Physiology*, 2002
Photographer, Cover of *Science*, April 13, 2001
Patron, environmental groups (NRDC, Nature Conservancy, Planned Parenthood), since 1992
Patron, public broadcasting (PBS, NPR), since 1992
Leader, Boy Scouts, San Gabriel Valley Council, 1990-1992
Member, Dean's list, five semesters, 1989-1992
Member, Alpha Phi Omega (service fraternity), 1989-1992
Participant, Oklahoma Boys State, appointed Secretary of Senate, 1987

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