

CURRICULUM VITAE

John Umar Ramcharitar, Ph.D.

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PROFESSIONAL PREPARATION

Postdoctoral Training, Neurophysiology (May 2005 – Dec 2006)

Department of Anatomy and Cell Biology, The George Washington University Medical Center
Washington, DC, USA

Postdoctoral Training, Neurophysiology (June 2003 – May 2005)

Department of Psychological & Brain Sciences, The Johns Hopkins University
Baltimore, Maryland, USA

Doctor of Philosophy, Biology (Spring 2003)

Department of Biology, University of Maryland
College Park, Maryland, USA

Master of Philosophy, Zoology (August 1997)

Department of Zoology, The University of the West Indies
St. Augustine, Trinidad

Bachelor of Science, Zoology, Upper Second Class Honours (August 1991)

Department of Zoology, The University of the West Indies
St. Augustine, Trinidad

EXPERTISE

- Auditory evoked potentials (e.g. the auditory brainstem response, ABR)
- Scanning electron microscopy
- Intracellular electrophysiology using sharp electrodes
- Patch clamp/brain slice electrophysiology
- Conventional & confocal fluorescence microscopy

COURSES INSTRUCTED

- Neurophysiology
- Comparative Physiology
- Sensory Biology
- Contemporary Bioscience
- Introductory Biology
- Human Anatomy & Physiology

- Ichthyology

PROFESSIONAL EXPERIENCE

Assistant Professor of Physiology (Jan 2007 – Present)

St. Mary's College of Maryland, St. Mary's City, MD 20686

- Instruction of lower- and upper-level courses in physiology, neuroscience and general biology
- Mentorship of student research
- Student advising

Postdoctoral Scientist (May 2005 – Dec 2006)

The George Washington University Medical Center, Washington, DC 20037

Development of the chick vestibular system

- Developing a protocol to stimulate individual vestibular afferent nerve branches in the inner ear of the chick
- Designing experiments to measure evoked postsynaptic voltages and currents in principal cells of the chick tangential nucleus
- Leading the research team in determining the types of receptors underlying synaptic responses in principal cells of the chick tangential nucleus
- Designing experiments to determine developmental changes in postsynaptic responses in principal cells of the chick tangential nucleus

Postdoctoral Fellow (June 2003 – May 2005)

The Johns Hopkins University, Baltimore, MD 21218

Motion detection in weakly electric fish

- Developing a protocol for testing the performance of midbrain electrosensory neurons of *Eigenmannia*
- Designing experiments to investigate the relationship between short-term synaptic plasticity and motion detection in electrosensory neurons of the midbrain of *Eigenmannia*
- Investigating the effects of electrosensory jamming signals on motion detection in *Eigenmannia*
- Designing procedures to assess closed-loop locomotor performance in *Eigenmannia*.
- Leading the research team in investigating mechanisms underlying motion detection in weakly electric fish

Howard Hughes Teaching Fellow (Spring 2004 & 2005)

The Johns Hopkins University, Baltimore, MD 21218

Course development (neurosciences)

- Development and instruction of new upper-level courses in neuroscience

Teaching and Research Assistant (August 1998 – June 2003)

University of Maryland, College Park, MD 20742, USA

Audition in sciaenid fishes

- Developing a protocol to measure hearing capabilities in fish using far-field electrophysiological recordings
- Designing experiments to investigate ultrastructural variations in inner ear epithelia of fishes
- Leading the research team in elucidating the functional significance of swim bladder morphology to hearing in sciaenid fishes
- Developing protocols for establishing auditory baseline data for the construction of an acoustic deterrent system

Research Assistant (Sept 1991 – Dec 1993)

The University of the West Indies, St. Augustnie, Trinidad

Effects of salinity on nitrogen metabolism in tilapia

- Developing protocols for quantifying nitrogen partitioning in fish
- Designing experiments to test the effects of salinity on nitrogen uptake in fish
- Leading the research team assessing the feasibility of culturing Florida Red-Hybrid Tilapia in estuarine/coastal habitats

ACADEMIC SERVICE

- Member -- Natural Sciences & Mathematics Colloquium Committee
- Member -- St. Mary's Institutional Review Board
- Reviewer for Journal of Marine Biology & Fisheries Research
- Faculty search committees (neuroscience searches of spring 2007, 2008)
- Participant in departmental review of 2007 (biology)
- Academic advising

PROFESSIONAL MEMBERSHIPS

- Member -- The Association of Otolaryngology
- Member -- The Society for Neuroscience
- Invited Member -- Beta Beta Beta Biological Honor Society
- Invited Member -- Nu Phi Psi Neuroscience Honor Society

HONORS AND AWARDS

- **Welcome Grant (USD 20,000)**, Maryland Higher Education Commission (2007-2010)
- **Faculty Development Grant (USD 1900)**, St. Mary's College of Maryland (Summer, 2008)
- **Faculty Development Grant (USD 900)**, St. Mary's College of Maryland (Spring, 2008)
- **Faculty Development Grant (USD 3443)**, St. Mary's College of Maryland (Fall, 2007)
- **Postdoctoral Fellowship**, The Johns Hopkins University (July 2003 – May 2005)
- **Howard Hughes Medical Institute Teaching Fellowships**, The Johns Hopkins University (Spring 2004)
- **Howard Hughes Medical Institute Teaching Fellowships**, The Johns Hopkins University (Spring 2005)
- **Technology Fellowship**, Center for Educational Resources, The Johns Hopkins University (2004 - 2005)
- **1st Place**, Graduate Research Interaction Day, University of Maryland, (Spring 2003)
- **Graduate Teaching and Research Assistantship Awards**, University of Maryland (August 1998 – June 2003)
- **Graduate Teaching Assistantship Awards**, University of Miami (August 1996 – July 1998)
- **Exxon Tuition Scholarship Awards**, Bermuda Biological Station for Research Inc. (Summer 1993)
- **Exxon Tuition Scholarship Awards**, Bermuda Biological Station for Research Inc. (Summer 1995)

PUBLICATIONS

Ramcharitar, J., Ganon, D. and Popper, A.N. (2006). Sciaenid Bioacoustics: A Review. Transactions of the American Fisheries Society. Trans Am Fish Soc 135:1409–1431.

Ramcharitar, J.U., Tan, E.W. and Fortune, E.S. (2006). Global electrosensory oscillations enhance directional responses of midbrain neurons in *Eigenmannia*. *J Neurophysiol.* 96(5):2319-26.

Ramcharitar, J., Higgs, D.M. and Popper, A.N. (2006). A Study of Audition in Sciaenid Fishes with Different Swim Bladder-Inner Ear Configurations. *Journal of the Acoustic Society of America* 119(1):439-443.

Ramcharitar, J.U., Tan, E.W. and Fortune, E.S. (2005). Effects of Global Electrosensory Signals on Motion Processing in the Midbrain of *Eignmannia*. *Journal of Comparative Physiology A.* 191(9):865-872.

Popper, A.N., **Ramcharitar, J.** and Campana, S.E. (2005). Why Otoliths? Insights from Inner Ear Physiology and Fisheries Biology. *Marine Biology & Fisheries Research* 56:1-8.

Ramcharitar, J., Deng, X., Ketten, D. and Popper, A.N. (2004). Structure-Function Relations in the Ear of Silver Perch (*Bairdiella chrysoura*): A Hearing Specialist. *Journal of Comparative Neurology* 475:531-539.

Ramcharitar, J. and Popper, A.N. (2004). Masked Auditory Thresholds of Sciaenid Fishes: A Comparative Study. *Journal of the Acoustic Society of America* 116(2).

Ramcharitar, J. 2003. Sciaenids: Model Species for Investigating Structure-Function Relations in the Inner Ears of Teleosts. Ph.D. Dissertation, Univ. MD, College Park.

Ramcharitar, J. (2002). Unique Ear Structure of Silver Perch (*Bairdiella chrysoura*). *Bioacoustics* 12: 122 - 124.

Ramcharitar, J., Higgs, D.M. and Popper, A.N. (2001). Sciaenid Inner Ears: A Study in Diversity. *Brain, Behavior and Evolution* 58: 152 - 162.

Ramcharitar, J. and Ramnarine I. 1997. The Effects of Salinity on Nitrogen Partitioning in Florida Red Hybrid Tilapia. Masters' Thesis, Univ. of the West-Indies, St. Augustine, Trinidad.

Manuscripts submitted:

Ramcharitar, J., Schaefer, N. and Popper, A.N. Structure and Function in the Inner Ears of Three Teleost Fish of the Delaware Bay. *Journal: Copeia*.

Ramcharitar, J. and Smith, J. Sound Source Localization in Fishes: A Review. *Journal: Bioacoustics*

Manuscripts in preparation:

Ramcharitar, J. and Nguyen, M. Frequency Selectivity in the Zebrafish (*Danio rerio*). *Journal: Journal of the Acoustic Society of America*.

PRESENTATIONS

Ramcharitar, J.U. and Fortune, E.S. 2008. Motion Detection During Jamming Conditions in Glass Knifefish (*Eigenmannia virescens*). Neuroscience Colloquium Seminar. Western Kentucky University.

Richards, C., Szymkowiak, S. and **Ramcharitar, J.U.** 2008. Comparison of the Giant Danio and Goldfish Inner Ear Ultrastructure. St. Mary's College of Maryland.

- Nguyen, M., Szymkowiak, S. and **Ramcharitar, J.U.** 2008. Correlations between Dendritic Arborization Patterns and Auditory Epithelial Hair Cell Densities in *Leiostomous xanthurus*. St. Mary's College of Maryland.
- Schaefer, N., Szymkowiak, S. and **Ramcharitar, J.U.** 2007. An Investigation of Auditory Epithelial Tissues of the Atlantic Croaker. St. Mary's College of Maryland
- Ramcharitar, J.U.**, Shao, M., Hirsch, J. and Peusner, K.D. 2006. Glutamatergic Synaptic Transmission between First- and Second-Order Vestibular Neurons in Young Chick Embryos. Society for Neuroscience, Atlanta, GA, USA.
- Fortune, E.S., **Ramcharitar, J.U.**, Cowan, N. and Tan, E.W. 2005. Contributions of Electrosensory Information to Closed-Loop Locomotor Performance in *Eigenmannia*. Society for Neuroscience, Washington, DC, USA.
- Ramcharitar, J.**, Tan, E.W. and Fortune, E.S. 2004. Role of Short-Term Synaptic Plasticity in the Generation of Direction Selectivity for Moving Electrosensory Images. Society for Neuroscience, San Diego, CA, USA.
- Ramcharitar, J.** and Popper A.N. 2003. Auditory Masking in Fish with Different Swim Bladder-Inner Ear Configurations. 1st International Conference on Acoustic Communication by Animals. University of Maryland, College Park, USA.
- Ramcharitar, J.** and Popper, A.N. 2002. Structure-Function Relations in the Ear of Silver Perch: The Story of a Hearing Specialist. Association for Research in Otolaryngology, St. Petersburg, FL, USA.
- Ramcharitar, J.** 2001. Unique Ear Structure of Silver Perch. Fish Bioacoustics: Sensory Biology, Behavior and Practical Applications. Chicago, IL, USA.
- Ramcharitar, J.**, Higgs, D.M. and Popper, A.N. 2001. Auditory Sensitivity in Three Teleost Species of the Delaware Bay. Association for Research in Otolaryngology, St. Petersburg FL, USA.
- Popper, AN, Deng, X., **Ramcharitar, J.** and Higgs D.M. 2001. The Enigma of Fish Ear Diversity. Animal Bioacoustics: Fish Audition and Sound Production. The Ohio State University, Ohio, USA.
- Ramcharitar, J.**, Higgs, D.M. and Popper, A.N. 2000. Comparative Study of the Inner Ear Ultrastructure of Four Species of Western Atlantic Sciaenids. Association for Research in Otolaryngology, St. Petersburg FL, USA.
- Popper, A.N., Higgs, D.M. and **Ramcharitar, J.** 2000. Basic and Applied Aspects of Fish Hearing. Bioscience: Research and Technology Review Day. UM Inn and Conf. Cntr.
- Popper, A.N., Dooling, R.J., **Ramcharitar, J.**, Brittan-Powell, B., Brown, S. and Lohv, B. 2000. Environmental Bioacoustics: Hearing Sciences for Real World Problems. Research and Technology Review Day. UM Inn and Conf. Cntr.
- Lu, Z. and **Ramcharitar, J.** 1999. Cytoarchitecture of the Torus Semicircularis of the Sleeper Goby (*Dormitator lantifrons*). Society for Neuroscience, Miami Beach FL, USA.