

VARSHA M ATHREYA

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EDUCATION

Purdue University, Department of Speech, Language, and Hearing Sciences 2020 - Present
Ph.D. in Auditory Neuroscience, *Advisor: Hari Bharadwaj, Ph.D.*

All India Institute of Speech and Hearing (AIISH), Mysuru
M.Sc. in Audiology, *Advisor: Animesh Barman, Ph.D.* 2016 - 2018
B.Sc. in Speech and Hearing 2012 - 2016

RESEARCH EXPERIENCE

Research Assistant, Purdue University
Advisor: Hari Bharadwaj, Ph.D. 2020 - Present
Advisor: Michael G. Heinz, Ph.D. 2023 - Present

Elucidating the relative contributions of peripheral and central changes in aged auditory system using translational science. To characterize these changes, we employ within-frequency and across-frequency behavioral and EEG (Chinchilla: mini-EEG cap) measures. Generation and presentation of stimuli through MATLAB; EEG response analysis using MNE, Python; Behavioral analysis using Python; Statistical analysis using R, Python.

Research Assistant, All India Institute of Speech and Hearing 2018 - 2019
Advisors: Hemanth N, Ph.D., Ajith Kumar U, Ph.D.

Developed and tested a comprehensive computer-based tool (C# and MATLAB) to assess listening effort, fatigue, and semantic information processing in collaboration with a software engineer.

Master Thesis, All India Institute of Speech and Hearing 2017 – 2018
Advisor: Animesh Barman, Ph.D.

Studied variability in temporal processing skills and speech perception in noise in young individuals with normal hearing sensitivity. Used behavioral measures of gap detection test (Psycon), and electrophysiological auditory brainstem response (ABR) using Intelligent Hearing Systems (IHS). Statistical analysis using SPSS.

Student Researcher, All India Institute of Speech and Hearing 2015
Mentors: Sandeep Maruthy, Ph.D., Nike Gnanteja, Ph.D.

Studied behavioral measures of working memory, suprathreshold auditory skills (SPIN, concurrent vowel identification, acceptable noise levels) in individuals exposed to below-damage-risk criteria (DRC) environmental noise.

Student Researcher, All India Institute of Speech and Hearing 2015
Mentor: Niraj Kumar Singh, Ph.D.

Assessed semi-circular canals and otolith functioning in individuals with motion sickness using o-VEMP, c-VEMP, and a questionnaire on motion sickness.

SCHOLARSHIPS

Wilson Scholarship, Purdue University Summer 2021, Summer 2020

AWARDS AND HONORS

SLHS Outstanding Teaching Assistant
Graduate Student Travel Support, Department of SLHS, Purdue University
Best Student Clinician, Department of Audiology, AIISH

2022-23
February 2023
December 2018

PUBLICATIONS

Athreya, V. M., & Barman, A. (2022). Auditory Brainstem Response as an Objective Measure of Temporal Resolution. *bioRxiv*. (Pre-print)

Maruthy, S., Gnanateja, G. N., Chengappa, P. C., Publius, S. A., & **Athreya, V. M.** (2018). Effect of below-damage-risk criteria environmental noise on auditory perception and working memory. *Indian Journal of Otology*, 24(2), 98.

In preparation:

Athreya, V. M., Bharadwaj, H. M. Temporal Processing and Aging: A Review.

Athreya, V. M., Barman, A. Temporal Resolution: Behavioral Measures and its Neural Correlates in Individuals with Normal Hearing Sensitivity.

TEACHING EXPERIENCE

Guest Lecture, Graduate Class, Purdue University
Auditory Perception (SLHS503)

Fall 2023

Teaching Assistant, Purdue University
Assessment Audiology and Aural Rehabilitation across the Lifespan (SLHS 460)

Fall 2022, Fall 2021

Mentor, All India Institute of Speech and Hearing
Lab - Diagnostic Audiology: Physiological Tests

Fall 2019, Fall 2018

PUBLIC OUTREACH AND PROFESSIONAL ACTIVITIES

Professional Experience

Auditory Neuroscience Association at Purdue (ANAP), Purdue University 2020 - Present

- Incumbent president and former treasurer at ANAP – a group intended at bringing together students, staff, and faculty in the field of auditory neuroscience for peer discussions, mentorship, and potential collaborations. Organized monthly discussions, journal clubs, and meetings.
- Introduced an interactive stall with fundamental neuroscience activities for children at Spring Fest, Purdue University (2023) – a collaborative effort with Purdue Institute of Integrative Neuroscience (PIIN).

Member, Scientific Committee, Convention of the Indian Speech and Hearing Association, Mysuru 2018

- Responsible for the selection, announcement, and categorization of abstracts submitted from across the world to the conference.
- Served as the moderator of a scientific session.

Diversity, Equity, and Inclusion

Charter Member, Human Library, Mysuru 2018 - Present

- Founded Human Library – Mysuru Chapter intended at challenging stereotypes and prejudices through dialogue. This chapter is part of the registered international Human Library organization headquartered in Copenhagen.
- Individuals from various walks of life such as, LGBTIQ+ community, single parents, drag artists, social workers, persons with disabilities, acid attack survivors, served as anonymous 'books' to an open public audience.

- 'Books' talked about their experiences and how they navigated obstacles in life. The motive is to empower individuals by creating a safe place for the necessary but difficult dialogue.

Public Outreach

Volunteer, National Service Scheme (NSS), All India Institute of Speech and Hearing 2012 - 2018

- Attended camps to survey, diagnosis, and management of communication disorders in remote and tribal populations in over 4 cities across India.
- Organized and participated in over 10 awareness drives about Mental Health, Autism Spectrum Disorders, Tinnitus and Noise.
- Held over 4 campaigns for educating and creating awareness about the field of speech and hearing in orphanage shelters across the state of Karnataka.

Cultural Secretary, All India Institute of Speech and Hearing Gymkhana 2017

- Involved in the planning, execution, and financial management of various intra-college competitions and an inter-college fest 'AAWAAZ'.
- Organized a candle-light march and bicycle rally to promote rights of people with disabilities.

Cadet, National Cadet Corps (NCC), Ministry of Defense, India 2007 - 2009

- One of twenty people selected to demonstrate regional folk cultures of my home state of Karnataka and Goa at the **National Cultural Camp** (2008), New Delhi.

CONFERENCE TALKS♦ AND POSTER PRESENTATIONS*

* Mid-Winter Meeting of the Association for Research in Otolaryngology, Florida. February 2023

Athreya, V. M., Singh, R., Bharadwaj, H. M.

Effects of Age on Within-Channel and Across-Channel Temporal Processing and Relationship to Speech Perception in Noise.

* Mid-Winter Meeting of the Association for Research in Otolaryngology, Florida. February 2023

Sivaprakasam, A., **Athreya, V. M.**, Ginsberg, H., Bharadwaj, H. M., Heinz, M.

A Chinchilla Mini-Eeg Cap Improves Cross-Species Translation for Cortical and Subcortical Evoked Potentials.

♦ Mid-Winter Meeting of the Association for Research in Otolaryngology, Virtual. February 2022

Athreya, V. M., Singh, R., Bharadwaj, H. M.

Age effects on Temporal Processing and Auditory Figure-Ground Segregation, and Relationship to Speech Perception in Noise.

* Mid-Winter Meeting of the Association for Research in Otolaryngology, Virtual. February 2022

Singh, R., **Athreya, V. M.**, Bharadwaj, H. M.

Relationships Between Co-Modulation Masking Release, Speech-In-Noise Perception, and EEG Measures of Temporal-Coherence Processing.

* Convention of the Indian Speech and Hearing Association, Bengaluru. January 2021

Athreya, V. M., Barman, A.

Temporal Resolution: Behavioral measure and its neural correlates in individuals with normal hearing sensitivity.

♦ International Conference in Audiological Sciences, Mangalore. September 2017

Kumar, N., **Athreya, V. M.**, Gafoor, S. A., Publius, S. A.

Assessment of Semi-circular Canals and Otolith function in individuals with motion sickness.

CLINICAL EXPERIENCE

Student Audiologist, All India Institute of Speech and Hearing 2016 - 2018

- Worked part-time as a clinician responsible for the assessment, diagnosis, and rehabilitation of hearing disorders in pediatric, adult, and geriatric populations.
- Conducted newborn hearing screening (UNHS).

Extern (B.Sc. in Speech and Hearing) Spring 2016

- Worked full-time in a panel of clinicians responsible for the assessment, diagnosis, and rehabilitation of speech, language, and hearing disorders in pediatric, adult, and geriatric populations in 3 federal hospitals across India:
 - District Hospital, Dharwad
 - Jawaharlal Nehru Medical College and Associated Group of Hospitals, Ajmer
 - Rajendra Institute of Medical Sciences, Ranchi

Student Speech and Hearing Clinician, All India Institute of Speech and Hearing 2012 - 2016

- Worked part-time as a clinician responsible for the assessment, diagnosis, and rehabilitation of speech, language, and hearing disorders (Autism Spectrum Disorders, Fluency disorders, Intellectual Disability, Aphasia, Parkinson's disease, Hearing Loss to name a few) in pediatric, adult, and geriatric populations.
- Trained in newborn hearing screening (UNHS).

PROFESSIONAL MEMBERSHIPS

Student Member, Acoustical Society of America (ASA) 2022 - Present

Student Member, Association for Research in Otolaryngology (ARO) 2020 - Present

Lifetime Member, Indian Speech and Hearing Association (ISHA) 2016 - Present

References

1. **Hari Bharadwaj, PhD** – hari.bharadwaj@pitt.edu
Assistant Professor, Department of Communication Science and Disorders, University of Pittsburgh
2. **Michael Heinz, PhD** – mheinz@purdue.edu
Professor, Department of Speech, Language, and Hearing Science, Purdue University
3. **Elizabeth Strickland, PhD** – estrick@purdue.edu
Professor, Department of Speech, Language, and Hearing Science, Purdue University
4. **Animesh Barman, PhD** – barmananimesh197@gmail.com
Professor, Department of Audiology, All India Institute of Speech and Hearing, India