Rahul Krishnamurthy, Ph.D.

Assistant Professor
Department of Speech and Hearing Sciences
University of New Mexico
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EDUCATION

Doctor of Philosophy in Human Sciences — 2021 - 2024
University of Nebraska – Lincoln, U.S.A — Awarded: May 2024
Advisor: Dr. Angela Dietsch
Areas of Emphasis: Sensorimotor Plasticity of Upper Aerodigestive Functions

Doctor of Philosophy in Speech-Language Pathology — 2018 - 2021
Manipal Academy of Higher Education, India — Awarded: Apr 2023
Advisors: Dr. Radish Kumar B and Dr. Nutan Kamath
Areas of Emphasis: Speech and Swallowing Disorders in Acute Care

Master of Science in Speech-Language Pathology — 2015 - 2017
All India Institute of Speech and Hearing
University of Mysore, India

Bachelor of Science in Speech and Hearing — 2011 - 2015
All India Institute of Speech and Hearing
University of Mysore, India

ACADEMIC APPOINTMENTS

Assistant Professor — Aug 2025 -
Department of Speech and Hearing Sciences
University of New Mexico

Post-Doctoral Research Associate — Aug 2024 - July 2025
Department of Neurosurgery, University of Nebraska Medical Center
Areas of Emphasis: Computational Neurosciences and Neuromodulation

Research Assistant — Aug 2021 - Jul 2024
Sensorimotor Integration for Swallowing and Communication (SISC) Lab
University of Nebraska – Lincoln, United States

Mar 2018 - Jun 2021

Assistant Professor
Department of Audiology and Speech-Language Pathology
Manipal Academy of Higher Education, India

Research Assistant — Aug 2017 - Mar 2018
All India Institute of Speech and Hearing, Mysore
University of Mysore, India

Adjunct Assistant Professor — Jul 2017 - Mar 2018
Naseema Institute of Speech and Hearing, Bangalore
University of Bangalore, India

RESEARCH

Research Statement

"I am a speech-language pathologist trained in neuroscience and neurostimulation methods. My research explores how the central nervous system adapts to exercises and neurostimulation targeted at speech, voice, and swallowing—key upper aerodigestive functions."

Research Interests

- Sensorimotor Plasticity of Upper Aerodigestive Functions
- Neuromodulation and Neurotherapeutics
- Precision Rehabilitation of Upper Aerodigestive Functions

Research Funding

In-Preparation

- ***NIDCD R-21*** (PAR-24-119) – June 2025
  Project title: Exercise Preconditioning and Speech Decline Following Deep Brain Stimulation of Sub-thalamic Nucleus in Parkinson's Disease
  Investigating Team: Rahul Krishnamurthy
  Role: Principal Investigator

Unsuccessful

- **Frances E. Lageschulte & Evelyn B. Weese New Frontiers in Medical Research Fund**
  Internally funded by University of Nebraska Medical Center, Omaha, NE
  Project title: Multimodal Connectome-based Predictors of Speech Decline Following Subthalamic Nucleus Stimulation in Patients with Parkinson's Disease. (PI: Dr. Steve Gliske)
  Role: Co-Principal Investigator
  Award Amount: $ 50,000
- **National Institutes of Health (NIH)—Early Independence Award (DP-5)**
  August 2024 — July 2029: Not Discussed.
  Project title: A Mechanistic Model of Lingual and Respiratory Muscle Strength Training Induced Brain Plasticity.
  Role: Principal Investigator
  Award Amount: $ 1,333,072
- **American Parkinson Disease Association Research Grant —** December 2024
  Project title: Cortical and White Matter Predictors of Speech Decline After Subthalamic Nucleus Stimulation in Parkinson's Disease. (PI: Dr. Steve Gliske)
  Role: Co-Principal Investigator
  Award Amount: $ 75,000

Completed

- **Biotechnology Ignition Grant (BIG),** July 2021 – December 2023
  Project title: Non-Invasive Identification of Aspiration Using High-Resolution Cervical Auscultation and Accelerometry Signals (Principal Investigator: Radish Kumar B)
  Role: Co-Principal Investigator
  Funding Source: Biotechnology Industry Research Assistance Council (BIRAC), Government of India
  Award Amount: 5,883,000 INR (~ 72,000 $)
- **All India Institute of Speech and Hearing Research Fund,** Mar 2019 – Feb 2020
  Project title: Automatic Quantification of the Glottal Area in Stroboscopic Videos Using Deep Neural Networks.
  Investigating Team: Prasanta Kumar Ghosh, Rahul Krishnamurthy, Pebbili Gopi Kishore, Prakash T K, Suja Sreedharan.
  Role: Principal Investigator

Funding Source: All India Institute of Speech and Hearing, Mysore, India
Award Amount: 986,000 INR (~ 12,000 $)

Fellowships, Awards and Honors

1. **The Council of Academic Programs in Communication Sciences and Disorders (CAPCSD) Ph.D. Scholarship,** 2023; Source: CAPCSD; Amount: 20,000 $
2. **Graduate Research Fellowship**, 2021 – 2024; Source: University of Nebraska – Lincoln; Amount: 24,000 $/year.
3. **Chancellor's Fellowship**, 2021– 2023; Source: University of Nebraska – Lincoln; Amount: 4,000 $/ year
4. **CSDRG Logemann Conference Bursary Award**, 2023; Source: Dysphagia Research Society (DRS); Amount: 500 USD
5. **Graduate Travel Award**, 2023; Source: Office of Graduate Studies, University of Nebraska – Lincoln; Amount: 650 USD
6. **Ragunathan Award for Best Poster Presentation**.
   For the study titled 'Oral and pharyngeal transit time as a factor of age, gender, and consistency of liquid bolus, ' at the 48th Indian Speech and Hearing Conference (ISHACON—2015), India.

Publications

Google Scholar statistics as of June 16, 2025: total citation counts: 179, H-Index: 8

* Indicates student author

Refereed Journal Articles

1. Krishnamurthy, R., Schultz, D. H., Wang, Y., Barlow, S. M., & Dietsch, A. M (2025). Expiratory Musculature Targeted Resistance Training Modulates Swallowing Neural Regions: Preliminary fMRI Evidence. *Neural Plasticity (Accepted).*

2. Krishnamurthy, R., Cloud, C., Westemeyer, R. et al. White Matter Microstructural Correlates of Swallowing Biomechanics: An Exploratory Pilot Study in Healthy Young Adults. *Dysphagia* (2025). https://doi.org/10.1007/s00455-025-10841-3

3. Krishnamurthy, R., Schultz, D. H., Wang, Y., Natarajan, S. K., Barlow, S. M., & Dietsch, A. M (2025). Multimodal Adaptations to Expiratory Musculature Targeted Resistance Training: A Preliminary Study in Healthy Young Adults. *Journal of Speech, Language, and Hearing Research*. https://doi.org/10.1044/2024_JSLHR-24-00294

4. Krishnamurthy, R., Krishnamoorthy, C., Dietsch, A. M., & Natarajan, S. K. (2025). Molecular biomarkers of dysphagia targeted exercise-induced neuroplasticity: A review of mechanistic processes and preliminary data on detraining effects. *Brain Research, 1846*, 149287. https://doi.org/10.1016/j.brainres.2024.149287

5. * Jose, M., Krishnamurthy, R., Venkatesh, L., Kamath, N., Bhat, K. G., & Balasubramanium, R. K. (2024). Assessment and management of dysphagia in the neonatal intensive care units in India: A survey report. *Clinical Epidemiology and Global Health*, *29*, 101683. https://doi.org/10.1016/j.cegh.2024.101683

6. *Aseef A, Dodderi T, Muthukumar V, Krishnamurthy R, Balasubramanium RK, Kothari M (2024). Test of mastication and swallowing solids in healthy individuals aged 6 to 20 years: A normative study in an Indian context. *Journal of Oral Rehabilitation*, 1-9. https://doi.org/10.1111/joor.13741

7. Dietsch, A. M., Krishnamurthy, R., Young, K., & Barlow, S. M. (2024). Instrumental Assessment of Aero-Resistive Expiratory Muscle Strength Rehabilitation Devices. *Journal of Speech, Language, and Hearing Research*, *67*(3). https://doi.org/10.1044/2023_JSLHR-23-00381

8. *Vijay, A., Balasubramanium, R. K., Krishnamurthy, R., Chilwan, U., Kamath, N., & Bhat, K. (2023). Profiling non-nutritive sucking skills in full-term and preterm neonates. The *Egyptian Journal of Otolaryngology, 39*(1), 187. https://doi.org/10.1186/s43163-023-00550-9

9. Krishnamurthy, R., Bhat, B., Nayak, P.S, & Balasubramanium, R. K (2023). Videofluoroscopy Practice in India: A Survey of Speech-Language Pathologists. *Dysphagia,* 38(1), 457-465.https://doi.org/10.1007/s00455-022-10487-5

10. Krishnamurthy, R., Balasubramanium, R. K., & Premkumar, P. K. (2022). Systematic Review and Meta-Analysis of Dysphagia and Associated Pneumonia in Patients with Stroke from India: A Call to Arms. *American Journal of Speech-Language Pathology, 31*(1), 502-514. https://doi.org/10.1044/2021_ajslp-21-00175

11. Balasubramanium, R. K., Jacob, A. S., & Krishnamurthy, R. (2022). A Cross-Sectional Study of Acoustic and Perceptual Changes in Voice During Pregnancy. *Current Women's Health Reviews, 18*(2). https://doi.org/10.2174/1573404817666210315151512

12. Krishnamurthy R, Philip R, Balasubramanium RK, Rangarathnam B (2021) Effects of Dual-Task Interference on Swallowing in Healthy Aging Adults. *PLoS ONE 16*(6): e0253550. https://doi.org/10.1371/journal.pone.0253550

13. Krishnamurthy, R., Balasubramanium, R.K., Kothari, S., & Huckabee, M. L. The Test of Masticating and Swallowing Solids (TOMASS): Normative Data for the Adult Indian Population*. Data in Brief*, 35, March, (106958). https://doi.org/10.1016/j.dib.2021.106958

14. *Kothari, S., Krishnamurthy, R., Balasubramanium, R. K., & Huckabee, M.L. (2021). The Test of Masticating and Swallowing Solids (TOMASS): Reliability, Validity and Normative Data for the Adult Indian Population. *Indian Journal of Otolaryngology and Head & Neck Surgery, 73*(3), 327–332. https://doi.org/10.1007/s12070-021-02429-8

15. *Bhat, B., Balasubramanium, R. K., Krishnamurthy, R., & Rinkel, R. N. M. P. (2021). Validation and Psychometric Evaluation of the Kannada Version of the Speech Handicap Index in Individuals with Oral and Oropharyngeal Cancer. *Indian Journal of Otolaryngology and Head & Neck Surgery*, *4* (Suppl 3), 5019–5027. https://doi.org/10.1007/s12070-021-02645-2

16. *Sarve, A. R., Krishnamurthy, R., & Balasubramanium, R. K. (2021). The Timed Water Test of Swallowing: Reliability, Validity, and Normative Data from Indian Population. *International Journal of Health Sciences, 15*(2), 14.

17. Krishnamurthy, R., Balasubramanium, R. K, Kamath, N., & Bhat, K. G. (2021). A Delphi Survey-Based Development and Validation of Test for Oropharyngeal Dysphagia in Indian Neonates. *International Journal of Pediatric Otorhinolaryngology, 140*, January 2021 (110306). https://doi.org/10.1016/j.ijporl.2020.110306

18. *Belagali, V., Rao, M., A., Gopikishore, P., Krishnamurthy, R., & Ghosh, P. K. (2020). Two-Step Convolutional Neural Network for Automatic Glottis Localization and Segmentation in Stroboscopic Videos. *Biomedical Optics Express, 11*(8), 4695. https://doi.org/10.1364/boe.396252

19. Krishnamurthy, R., & Ramani, S. A. (2020). Acoustic and Aerodynamic Voice Characteristics Among Children with Down Syndrome: A Systematic Review. *International Journal of Pediatric Otorhinolaryngology, 133*, June (109946). https://doi.org/10.1016/j.ijporl.2020.109946

20. Krishnamurthy, R., Balasubramanium, R. K., & Hegde, P. S. (2020). Evaluating the Psychometric Properties of the Kannada Version of EAT 10. *Dysphagia*, 1-6. https://doi.org/10.1007/s00455-020-10094-2

21. Krishnamurthy, R., Balasubramanium, R. K, Kamath, N., & Bhat, K. G. (2020). Trends in Neonatal Dysphagia Research: Insights from Text Mining Approach. *Canadian Journal of Audiology and Speech-Language Pathology, 44* (1), 9-18.

22. Krishnamurthy, R., & Balasubramanium, R. K. (2020). Development and Validation of Kannada Version of The Dysphagia Handicap Index. *American Journal of Speech-Language Pathology, 29* (1), 255-262. https://doi.org/10.1044/2019_AJSLP-19-00122

23. *Degala, D., Rao, A., Krishnamurthy, R., Gopikishore, P., Priyadharshini, V., Prakash, T. K., & Ghosh, P. K. (2020). Automatic Glottis Detection and Segmentation in Stroboscopic Videos Using Convolutional Networks. *Proceedings of Interspeech-2020*, 4801-4805. https://doi.org/10.21437/interspeech.2020-2599

24. Balasubramaniam, R. K., Krishnamurthy, R., Rajan, A., & K, S. (2019). Forehead Against Resistance (FAR): Preliminary Findings from a Clinical Alternative to Shaker's Type of Exercise. *Gastroenterology Research and Practice*, 2019, 1–5. https://doi.org/10.1155/2019/9387578

25. Krishnamurthy, R., & Balasubramanium, R. K. (2019). Using Text Mining to Identify Trends in Oropharyngeal Dysphagia Research: Proof of Concept. *Communication Sciences & Disorders, 24*(1), 234-243. https://doi.org/10.12963/csd.19579

26. Krishnamurthy, R., Narayanan, S., Ramachandran, R., & Krishnakumar, J. (2019). Comparison Between Automatic and Volitional Swallow in Healthy Individuals Using Tongue Array and Cervical Auscultation Modules. *Indian Journal of Otolaryngology and Head Neck Surgery, 71*(4), 520-530. https://doi.org/10.1007/s12070-019-01699-7

27. *Rao, A., Krishnamurthy, R., Gopikishore, P., Priyadharshini, V., & Ghosh, P. K. (2018). Automatic Glottis Localization and Segmentation in Stroboscopic Videos Using Deep Neural Network. *Proceedings of Interspeech-2018*. https://doi.org/10.21437/interspeech.2018-2572

28. Nikhil, J., Krishnamurthy, R., Krishnan, G., & Manjula, R. (2014). Oral and Pharyngeal Transit Time as a Factor of Age, Gender, and Consistency of Liquid Bolus. *Journal of Laryngology and Voice, 4*(2), 45. https://doi.org/10.4103/2230-9748.157465

Refereed Conference Proceedings

1. Sanju, H. K., Nikhil, J., & Kumar, P., & Krishnamurthy, R. (2015). Cortical Auditory Evoked Potentials in Carnatic Vocal Musicians. *Proceedings of the National Symposium on Acoustics (NSA - 2015)*.
2. Arjun, M. S., Krishnamurthy, R., & Hema, N. (2015). Benchmark for Speaker Identification Using Mel Frequency Cepstral Coefficients on Nasal Continuants in Kannada. *Proceedings of the International Symposium of Frontiers of Research on Speech and Music (FRSM 2015).*
3. Krishnamurthy, R., & Hema, N. (2014). Benchmark for Speaker Identification Using Prediction Cepstral Coefficient (LPCC) on Vowels in Kannada Language: A Preliminary Study. *Proceedings of the National Symposium on Acoustics (NSA - 2014).*
4. Premkumar, P. K., Krishnamurthy, R., & Pebbili, G. K. (2013). Efficacy of Estimated Subglottic Pressure Measured Through a Portable Device in Differentiating Normal and Pathological Voices. *Proceedings of 6th National Women's Science Congress (NESC - 2013).*

Refereed Conference Oral or Poster Presentation

* Indicates mentored presentation by students

1. Expiratory Muscle Strength Training Activates Swallowing-Implicated Neural Regions. Oral Presentation at the ASHA Convention, December 2024.

2. Hemispheric Differences in White Matter Microstructure Associated with Swallowing: A Tract-Based Spatial Statistics Study. Poster Presentation at the Dysphagia Research Society (DRS) Conference - 2024, Puerto Rico.
3. Neuroplastic and Behavioral Effects of Skill and Strength-Based Swallowing Rehabilitation Regimens. Oral Presentation at the Dysphagia Research Society (DRS) Conference - 2024, Puerto Rico.
4. Benchmarks and Reliability Testing of Commercially Available Expiratory Muscle Strength Training (EMST) Devices." Poster Presentation at the Dysphagia Research Society (DRS) Conference - 2023, San Francisco.
5. * Rheological Properties of Thickened and Non-Thickened Liquid Barium. At the 52nd Poster Presentation at the Indian Speech and Hearing Conference (ISHACON - 2020).
6. * Does Cerebral Laterality for Swallowing Vary as a Function of Age? Poster Presentation at the 51st Indian Speech and Hearing Conference (ISHACON - 2019).
7. Hemispherical Laterality Reduction for Swallowing Among Older Adults. At the 2nd Oral presentation at the Annual Conference of Bihar Speech and Hearing Association (BISHACON - 2018).
8. * Efficacy of Vocal Function Exercises on Voice of Future Speech-Language Pathologists: A Pilot Study. Conference on Voice and Laryngectomy Rehabilitation, 2018.
9. Oral and Pharyngeal Transit Time as a Factor of Age, Gender, and Consistency of Liquid Bolus. Poster Presentation at the 48th Indian Speech and Hearing Conference (ISHACON - 2015).

TEACHING

Teaching-Learning Philosophy

"As a researcher-educator, I believe in empathetic reflective practice backed by evidence based pedagogical methods. I hope to create an open inquisitive learning environment tailored for my learner's success, which is rooted in positive lifelong learning mindset."

Undergraduate Courses

University of Nebraska – Lincoln; Co-taught with Dr. Angela Dietsch
- Speech and Hearing Science (SLPA 456) — Spring 2022, 2023

Manipal Academy of Higher Education, India; Lead Instructor
- Introduction to Communication Disorders and Sciences (ICS B1.1) — 2019
- Motor Speech Disorders in Children (MSD-C B5.1) — 2018 - 2021
- Motor Speech Disorders in Adults (MSD-A B6.1) — 2018 - 2021

Graduate Courses

University of Nebraska – Lincoln; Co-taught with Dr. Angela Dietsch
- Swallowing Disorders (SLPA 996) and Lab (SLPA 996L) — Fall 2022, 2023

Bangalore University, India; Lead Instructor
- Speech Sciences — 2018
- Research Methodology in Speech and Hearing — 2018

Manipal Academy of Higher Education, India; Lead Instructor
- Dysphagia (SLP - 6102) — 2018 - 2020
- Neurogenic Speech Disorders in Children and Adults (SLP - 6101) — 2018 - 2021
- Speech Sound Disorders (SLP - 5201) — 2019

**Course evaluations and student feedback are available upon request.*

Invited Presentations (Lectures)

1. Expiratory Muscle Strength Training for Speech and Swallowing Rehabilitation. Invited Lecture at the Nebraska Speech Language and Hearing Association (NSHLA) Convention – 2023.
2. Conducting Surveys and Systematic Reviews. Invited (webinar) lecture delivered to Chandrashekar Institute of Speech and Hearing (ISH - BNG), Bangalore, India.
3. Case-Based Road Map to Assessment and Management of Dysphagia. Invited lecture delivered at Department of Speech and Hearing, Holy Cross College, Trichy, India.
4. Speech and Swallowing Rehabilitation of Head and Neck Cancers. Invited lecture delivered to postgraduate students in speech-language pathology at Marthoma College of Special Education, India.
5. Utility of Database Management Software in Research. Invited lecture delivered at Center for Research on Research (CRR), Manipal Academy for Higher Education, India.

Teaching Development

- Attended Workshop on Developing Teaching Portfolio offered by Center for Transformative Teaching, University of Nebraska – Lincoln. Spring 2023
- Completed Preparing Future Faculty (PFF) program offered by the Office of Graduate Studies, University of Nebraska – Lincoln. Summer 2022
- Attended Workshop on Introduction to Backward Design, offered by Center for Transformative Teaching, University of Nebraska – Lincoln. Spring 2022
- Attended Backward Design and Course Mapping Workshop offered by Center for Transformative Teaching, University of Nebraska – Lincoln. Fall 2021
- Case Based Learning, Workshop offered by the Medical Education Unit, Manipal Academy of Higher Education, India. 2019

Mentoring

Doctoral Advisory Committee Member

1. Ms. Prithvi Padmaraj
   PhD Candidate, 2024 – 2027, Manipal Academy of Higher Education, India.
   Tentative Thesis Title: Development of Safe Swallow Guide for Individuals in Palliative Care: A Mixed-method Study

Co-advisor for Graduate Students at the Manipal Academy of Higher Education, India

1. Ms. Mary Jose, M.S (Speech-Language Pathology) student, 2019 - 2021
   Master's Dissertation: Assessment and Management of Dysphagia in the Neonatal Intensive Care Units in India: A Survey
2. Ms. Bhavana Bhat, M.S (Speech-Language Pathology) student, 2018 - 2020
   Master's Dissertation: Validation and Adaptation of Speech Handicap Index in Kannada.
   Currently a PhD student at the University of Iowa.
3. Mr. Siddarth Kotari, M.S (Speech-Language Pathology) student, 2018 - 2020
   Master's Dissertation: Test of Mastication and Swallowing Solids (TOMASS): Normative Data from Indian Population.
4. Ms. Rhea Philip, M.S (Speech-Language Pathology) student, 2019
   Master's Dissertation: Behavioral Investigation of Hemispherical Laterality for Swallowing Among Older Adults Using Dual Task Paradigm.

Ad-Hoc Refereeing

- BMC Neurology
- Frontiers in Neurosciences
- Frontiers in Medicine
- Frontiers in Ageing

- GeroScience
- Public Health
- Health Expectations
- Folia Phoniatrica
- Oral and Maxillofacial Surgery

Professional Membership

- Affiliate Member - American Speech Language and Hearing Association (ASHA)
- Lifetime member of the Indian Speech and Hearing Association (ISHA)
- Registered Speech-Language Pathologist, Rehabilitation Council of India (RCI)
- Member of Dysphagia Research Society (DRS)