

**BIOGRAPHICAL SKETCH**

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NAME: Masapollo, Matthew

eRA COMMONS USER NAME (credential, e.g., agency login): MATTHEW.MASAPOLLO

POSITION TITLE: Assistant Professor, Department of Communication Sciences and Disorders, University of Oklahoma Health Sciences; Associate Member, Stephenson Cancer Center, University of Oklahoma Health

EDUCATION/TRAINING (*Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable. Add/delete rows as necessary.*)

INSTITUTION AND LOCATION	DEGREE (if applicable)	Completion Date MM/YYYY	FIELD OF STUDY
University of Michigan, Ann Arbor, MI, USA	BA	05/2010	Cognitive & Linguistic Science
McGill University, Montreal, QC, Canada	PhD	08/2016	Communication Sciences and Disorders
Brown University, Providence, RI, USA	Post-Doc	08/2017	Cognitive, Linguistic, and Psychological Sciences
Boston University, Boston, MA, USA	Post-Doc	12/2019	Speech, Language, and Hearing Sciences

**A. Personal Statement**

Over the past decade, I have pursued rigorous experimental investigations into the neurobiological mechanisms of human speech production. I have demonstrated a consistent record of productivity (> 20 peer reviewed manuscripts, > 90 conference abstracts) and scientific impact that has recently been supported with funding from the Hearing Health Foundation and the American Speech-Language-Hearing Foundation. I am the principal investigator and scientific director of the Speech Motor Control Laboratory at the University of Oklahoma Health Sciences Center (est. 2024). The core scientific mission of the laboratory is to:

- 1) Understand how the nervous system coordinates and controls speech movements.
- 2) Understand the role of afferent sensory inputs in regulating the control of speech movements.
- 3) Understand how speech movements recover from diseases that affect the neuromuscular physiology of the vocal tract.

Experimentally, I focus on kinematic analyses of speech articulator (lip, tongue, jaw) movements and functional brain imaging (fMRI, fNIRS) of speech production. Results of these investigations will have a powerful, sustained impact on the field of speech motor control and hold broad implications for speech production in different clinical patient populations with congenital and acquired sensorimotor deficits (e.g., children with cleft lip or palate; oral cancer patients following surgery and/or chemoradiotherapy; cochlear implant recipients). In addition to carrying out my own research program, I am passionate about training the next generation of research scientists and clinicians (otolaryngologists/ENTs, speech-language pathologists, audiologists). Students that have carried out thesis research projects in my lab (> 10) have received numerous awards, including the Robert Young Award for Undergraduate Research in Acoustics from the Acoustical Society of America.

**B. Positions, Scientific Appointments, and Honors****Positions and Scientific Appointments**

- 2024 – Present      Assistant Professor, Department of Communication Sciences and Disorders, University of Oklahoma Health Sciences, Oklahoma City, OK.
- 2024 – Present      Associate Member, OU Health Stephenson Cancer Center, Oklahoma City, OK.

2023 – 2024	Research Associate, Motor Neuroscience Laboratory, Department of Psychology, McGill University, Montreal, QC
2020 – 2023	Assistant Professor, Department of Speech, Language, and Hearing Sciences, University of Florida, Gainesville, FL
2017 – 2019	Post Doctoral Fellow, Department of Speech, Language, and Hearing Sciences, Boston University, Boston, MA
2016 – 2017	Post Doctoral Fellow, Department of Cognitive, Linguistic, and Psychological Sciences, Brown University, Providence, RI

### Other Scientific Appointments

2025 –	Editorial Board Member, Journal of Speech, Language, and Hearing Research (Speech section)
2025 –	Grant reviews (National Institutes of Health, Auditory System study section)
2016 –	Ad hoc journal reviewing service ( <i>Journal of Speech, Language, and Hearing Research</i> ; <i>Journal of the Acoustical Society of America</i> ; <i>Hearing Research</i> )

### Honors

2022	Dean's Citation Award, College of Public Health & Health Professions, University of Florida
2021	Hearing Health Foundation, Emerging Research Grant
2020	American Speech-Language-Hearing Foundation, New Investigators Research Grant
2019	Young Investigator Travel Award, Acoustical Society of America
2014	Community Leader Award, Center for Research on Brain, Language, and Brain, McGill University
2010	Student Commencement Speaker, Department of Linguistics, University of Michigan

### C. Contributions to Science (+ = student co-author)

#### [Complete List of Published Work in NCBI My Bibliography \(> 20 peer-reviewed journal articles\):](#)

1. *Advancing fundamental knowledge of the critical control parameters used by the nervous system to coordinate speech movements*: A central goal of research in speech production has been to characterize how the nervous system coordinates and regulates vocal tract movements in service to speech across scalar transformations in movement rate and amplitude. Using electromagnetic articulography, my work has elucidated the critical control parameters governing inter-articulator speech coordination across contextual variations in motor execution.

- Masapollo, M.**, \*Gendron, R., \*Wyndham, E., \*Marcellus, A., & Maxfield, N. (2025). Inter-articulator timing relations underlie the production of precise and consistent vocal tract constrictions during speech. *Journal of Speech, Language, and Hearing Research*, DOI: [https://doi.org/10.1044/2025\\_JSLHR-24-00535](https://doi.org/10.1044/2025_JSLHR-24-00535). PMID: 40268725
- Masapollo, M.**, \*Rodriguez, A., \*Gendron, R., \*Kent, K., \*Thomas, H., & Nittrouer, S. (2025). Generalization of inter-articulator timing control: evidence from tongue-jaw and lip-jaw kinematics using electromagnetic articulography. *Journal of Speech, Language, and Hearing Research*, 68(1):129-147. doi: 10.1044/2024\_JSLHR-24-00323. PMID: 39680804.
- Masapollo, M.**, & Nittrouer, S. (2023). Inter-articulator speech coordination: timing is of the essence. *Journal of Speech, Language, and Hearing Research*, 7;66(3):901-915. doi: [https://doi.org/10.1044/2022\\_JSLHR-22-00594](https://doi.org/10.1044/2022_JSLHR-22-00594). PMID: 36827516.

2. *Increasing knowledge of the role of afferent auditory inputs in the coordination and regulation of speech movements*: Auditory input is essential to the acquisition and maintenance of speech production skills. My studies have characterized the effect of long-term degraded auditory input on speech motor control in profoundly deaf people who received cochlear implants and peers with normal hearing. Using state-of-the-art electromagnetic articulography, this body of work shows that auditory input helps regulate the real-time control of speech movements, both in deaf talkers who received cochlear implants, and peers with normal hearing. This work was supported by the Hearing Health Foundation and the Presbyterian Health Foundation.

- Masapollo, M.**, Nittrouer, S., \*Gendron, R., \*Leck, A., & Ostry, D.J. (2025). Afferent auditory inputs regulate vocal tract constriction dynamics during speech production: an electromagnetic articulography study. 5<sup>th</sup> *Biennial Boston Speech Motor Control Symposium*, Boston University, Boston, MA.
- Masapollo, M.**, Nittrouer, S., \*Gendron, R., Ménard, L., & Ostry, D.J. (2025). Differential use of auditory feedback in the real-time control of speech movements by deaf talkers with cochlear implants and peers with

normal-hearing. 48<sup>th</sup> Annual MidWinter Meeting of the Association for Research in Otolaryngology, Orlando, FL.

- c) **Masapollo, M.**, & Nittrouer, S. (2024). Immediate auditory feedback regulates inter-articulator speech coordination in service to phonetic structure. *Journal of Acoustical Society of America*, 156(3), DOI: 10.1121/10.0028725.

**3. Development of optimal methods to assess the coordination and control of speech movements.** Speech movements are some of the smallest and most precise voluntary movements that humans produce. More complicated still, many speech movements (e.g., tongue movements) are not directly visible and hidden within the inner reaches of the vocal tract. I have made meaningful methodological contributions for directly observing speech articulator movements. Notably, my lab was the first to demonstrate that electromagnetic articulography can be used to assess speech movements produced by profoundly deaf people who received cochlear implants without signal artifacts. Aspects of this work appeared on the October 2021 issue cover of the *Journal of the Acoustical Society of America*, *Express Letters*.

- a) **Masapollo, M.**, Wayland, R., Goel, J., Sengupta, R., Shamsi, A., & Hegland, K.W. (2022). An investigation of interference between electromagnetic articulography and electroglottography. *Journal of the Acoustical Society of America*, *Express Letters*, 2(9), 095204-1-8. PMID: 36182347.
- b) **Masapollo, M.**, Nittrouer, S., Goel, J., & Oh, Y. (2021). Electromagnetic articulography appears feasible for assessment of speech motor skills in cochlear implant users. *Journal of Acoustical Society of America* *Express Letters*, doi: <https://asa.scitation.org/doi/10.1121/10.0006719>. PMID: 36154217.

**4. Advancing basic knowledge of the central nervous system network for speech production.** A central goal in communication neuroscience is to characterize the motor and sensory networks in the brain that contribute to the learning and control of speech movements. Toward this end, I have used modern functional brain imaging techniques to investigate how the brain produces speech movements and how those movements are learned.

- a) **Masapollo, M.**, van Vugt, F., & Ostry, D.J. (2025). Persistence of resting-state functional connectivity changes attributable to novel sensorimotor learning and retention. *Annual Meeting of the Society for the Neural Control of Movement*, Panama City, Panama.
- b) Frankford, S.A., Heller Murray, E.S., **Masapollo, M.**, Shanqing, C., Tourville, J., Nieto-Castañón, A., & Guenther, F.H. (2021). The neural circuitry underlying the “rhythm effect” in stuttering. *Journal of Speech, Language, and Hearing Research*. DOI: 10.1044/2021\_JSLHR-20-00328 PMID: 33887150; PMCID: PMC8740675.
- c) **Masapollo, M.**, Segawa, J.A., Beal, D., Tourville, J., Nieto-Castañón, A., Heyne, M., Frankford, S., & Guenther, F.H. (2020). Behavioral and neural correlates of speech motor sequence learning in stuttering and neurotypical adult speakers: an fMRI investigation. *Neurobiology of Language*. doi: 10.1162/nol\_a\_00027 PMCID: PMC8294667.