Fatemeh Tabari

Ph.D. Candidate and Graduate Research Assistant at Department of Communication Sciences and Disorders
Louisiana State University Baton Rouge, USA.
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An enthusiastic, adaptable, and fast-learning individual with a deep interest in the study of Language and Communication Disorders, possessing 10 years of experience in language and cognitive studies. A confident presenter at conferences and an effective classroom teacher, skilled in explaining complex information to audiences of all levels.

RESEARCH INTERESTS

- Speech Motor Control Impairments in Parkinson ’s Disease
- Neural Correlates of Speech Production and Limb Movement in Normal Aging and Parkinson’s Patients
- Communication and Speech Disorders in Aging Population
- High-Definition Transcranial Direct/Alternating Current Stimulation (HD-tDCS/tACS)
- Neurophysiology Techniques such as EEG, MEG and fMRI
- Natural Language Processing

TEACHING INTERESTS

• Courses related to Communication Sciences and Disorders (CSD), including but not limited to Neurogenic Communication Disorders, Neuropathologies of Speech, Fluency Disorders, Speech and Language Assessment, Voice Disorders, and Research Methods in CSD.
• Educational seminars/workshops focusing on neuromodulation techniques, electrophysiology, and neuroimaging in the context of speech and language research.
• Mentorship and supervision of undergraduate and graduate students in research projects related to speech and voice function in neurodegenerative disorders such as Parkinson's disease.

RESEARCH EXPERIENCE AND PROJECTS

-Research Assistant at Human Neurophysiology & Neuromodulation Lab, Department of Communication Sciences and Disorders, Louisiana State University, Baton Rouge, USA

08/2022-Present

Research Experience and Projects

1. Investigating the Differential Modulation of Neural Correlates of Motor Planning for Speech vs. Limb Movement by HD-tDCS Over Left Supplementary Motor Area (SMA).

Our research focuses on delineating the neural underpinnings of speech production and limb movement utilizing non-invasive neurophysiology techniques, including EEG, alongside neuromodulation techniques such as high-definition transcranial direct current stimulation (HD-tDCS) with cathodal and anodal stimulation. This integrated approach allows us to not only observe the neural correlates of speech and limb movement but also actively manipulate cortical activity to discern causal relationships between neural dynamics and motor behaviour.

- Status: Data were collected from 24 college students, analysed, a poster was presented, and a paper published.

2. Explored Personalized Beta HD-tACS over the Left SMA as a Non-invasive Brain Stimulation Protocol to Modulate Neural and Behavioural Correlates of Speech Production.

In this study, we are investigating the application of personalized beta-band high-definition transcranial alternating current stimulation (HD-tACS) over the left SMA preceding speech and limb movement tasks in younger adults (18-30 years), the aging population (over 60 years), and patients with Parkinson's disease (PD).

Phase I:

- Status: Data were collected from 22 college students, analysed, a poster was presented, and two papers were submitted.

Phase II:

- Status: Data collection is ongoing with 20 participants from the aging population over 60 years.

Phase III:

- Status: Data collection is ongoing with 20 participants from PD population, aged- and gender-matched with the aging population.

3. Examined the Potential of HD-tACS in Enhancing Speech Production in Parkinsonian Speech: A Verbal Fluency and Syllable Repetition Study.

This study aims to assess the efficacy of HD-tACS over the frontal aslant tract (FAT) in modulating functional connectivity to improve verbal fluency, speech rate, and spontaneous speech in individuals with hypokinetic dysarthria associated with PD.

- Status: Data collected from 17 patients with PD. One paper is under review and one paper is in preparation

4. Investigating the Effect of Frontal Aslant Tract (FAT) Stimulation on Speech and Motor Inhibition: An HD-tACS/EEG Study.

Our aim is to explore the effects of non-invasive cortical excitability modulation using HD-tACS with both synchronized and desynchronized protocols on the FAT. We are focusing on the impact of HD-tACS on speech and motor inhibition processes as measured by EEG. Specifically, the study aims to elucidate how synchronized and desynchronized stimulation affect cortical excitability within the FAT network and, in turn, influence speech and motor inhibition mechanisms.

- Status: Data collected from 22 college students, analysed, poster presented, one papers submitted.

-Visiting researcher at Neuropsychophysiology lab, Faculty of Psychology, University of Minho, Portugal

06/2017-09/2020

Collaboration with researchers in different neuropsychological projects using EEG, fNIRS, and fMRI to advance my understanding of the brain's functioning.

-Graduate Student and Researcher at Universidad Autónoma de Madrid, Department of Linguistics, Madrid, Spain

10/2014-06/2020

I developed my thesis around the theme of social transitions and the international need for a new kind of plurilingualism. My investigation focused on Spanish-English children and explored how bilingualism can enhance cognitive functioning, linguistic skills, and the responsiveness and efficiency of neural networks. For the first time in the literature, I compared three groups—monolingual, bilingual, and multilingual children—using various linguistic, psychological, and neurological perspectives, employing different linguistic assessments, psychological measures, and brain imaging techniques.

I conducted my project at the Cognitive and Computational Neuroscience Lab at Universidad Politécnica de Madrid. The aim of my study was to provide insights into language production processes and to track temporal information with millisecond precision through picture naming and semantic judgment tasks using magnetoencephalography (MEG). This approach allowed me to investigate the temporal flow and scalp distributions among the study participants.

-Visiting student at Biotech campus, Brain and Language lab, University of Geneva, Switzerland

10/2016-06/2017

Collaboration with researchers in different neuropsychological projects using fMRI to advance my understanding of the brain's functioning.

-Medical editor and Journalist at Iranian Journal of Medical Sciences, Shiraz University of Medical Sciences, Shiraz, Iran

07/2012-10/2013

My duties included screening medical and scientific papers, editing, proofreading, and preparing articles for publication. I have gained substantial experience in the publishing industry, particularly in health science, clinical studies, and clinical trials. Additionally, I completed a specialized course in medical journalism and familiarized myself with COPE guidelines.

-Graduate Student at Azad University, Shiraz branch, Shiraz, Iran

09/2005-06/2008

I conducted a comprehensive study on the role of the mother tongue in the acquisition of a second language. I also investigated the sociolinguistic aspects of bilingualism in both theory and practice.

TEACHING EXPERIENCE

- Instructor of the course "Fluency Disorders," Department of Communication Sciences and Disorders, Louisiana State University, USA

2024-2025

- Instructor of the course "Introduction to Communication Disorders," Department of Communication Sciences and Disorders, Louisiana State University, USA

2023-2024

- Research Mentor at Human Neurophysiology & Neuromodulation Lab, Department of Communication Sciences and Disorders, Louisiana State University, Baton Rouge, USA: Mentoring 10 undergraduate students on acoustic analysis, neurostimulation, and EEG recording and analysis.

2022-2024

- Teaching Assistant of "Psycholinguistics," Universidad Autónoma de Madrid, Department of Linguistics, Madrid, Spain

2016-2017

- Teaching Assistant of "Brain Imaging in Language Studies," Universidad Autónoma de Madrid, Department of Linguistics, Madrid, Spain

2017-2019

- Instructor of the course "General Linguistics," Zand University, Shiraz, Iran

2013-2015

SELECTED ORAL PRESENTATIONS

Fatemeh Tabari, Karim Johari, "HD-tACS Modulates Speech Motor Performance in Parkinson's Disease: Complexity-Dependent Modulation". 5th Biennial Boston Speech Motor Control Symposium (BSMCS), Boston, USA, June 2025

Fatemeh Tabari, "Language, Speech and aging". UAM-CSIC Conference for young researchers in Philosophy and Language Sciences, Madrid, Spain. June 2016

Fatemeh Tabari, "How far is far? An overview on CLIL system in Spain". UAM-CSIC Conference for young researchers in Philosophy and Language Sciences, Madrid, Spain. June 2017

SELECTED POSTER PRESENTATIONS

Fatemeh Tabari, Joel Berger, Mehdi Bakhtiar, Karim Johari. "Personalized Beta tACS Improves Reaction Times by Modulating Low-Frequency Prefrontal Oscillations". 6th International Brain Stimulation Conference, Kobe, Japan, February 2025

Fatemeh Tabari, Joel Berger, Karim Johari. "Personalized Beta tACS over the Left SMA: A Non-Invasive Brain Stimulation Protocol to Modulate Neural Correlates of Speech Production and Limb Movement". Society for Neuroscience (SfN), Neuroscience 2024, Chicago, USA. October 2024

Karim Johari, **Fatemeh Tabari**. "Entrainment of theta oscillations associated with speech inhibition through synchronization of left SMA and IFG". Society for Neuroscience (SfN), Neuroscience 2024, Chicago, USA. October 2024

Fatemeh Tabari, Karim Johari, "Personalized Transcranial Alternating Current Stimulation over Supplementary Motor Area Improves Speech Motor Control in Neurotypical Adults". Society for Psychophysiological Research (SPR) 2023 Annual Meeting, New Orleans, USA. September 2023

Fatemeh Tabari, Rutvik Desai, Karim Johari, "Temporal Features of Concepts are Subserved by Time Perception Network in the Human Brain: An EEG/HD-tDCS Study". Cognitive Neuroscience Society (CNS) 29th Annual Meeting, San Francisco, USA. March 2023

Fatemeh Tabari, "Lexicon on Board, a MEG evidence on picture naming". El XII Congress of Spanish Society of Cognitive and Affective Psychophysiology and Neuroscience (SEPNECA), Cadiz, Spain, October 2021

Fatemeh Tabari, Adriana Sampaio, "A Magnetoencephalography Study on the Effect of Language Proficiency and Exposure on Lexical Semantic Processing", Alpine Brain Imaging Seminar, University of Geneva, Champery, Switzerland, January 2019

Fatemeh Tabari, Adriana Sampaio, Elenena Garayzable, "Language as a Cognitive Tool". I International CIMCYC Workshop on Brain and Cognition, Center for Mind, Brain and Behavior Research, Granada, Spain. June 2018

PUBLICATIONS

Book Chapter:

Tabari F. (2012). "Theories of Language Acquisition: Nativism." In Dehghani F. and Sadighi F. (Eds.), A Manual of Language Acquisition Approaches and Theories (pp. 47-57). Shiraz: Navid Shiraz.

Journal Articles:

Johari K, **Tabari F**. HD-tACS over the left frontal aslant tract entrains theta activity associated with speech motor control. Brain Res. 2024 Dec 30;1850:149434. doi: 10.1016/j.brainres.2024.149434.

Tabari F., Berger JI., Flouty O., Copeland B., Greenlee JD., Johari K. (2024) Speech, voice, and language outcomes following deep brain stimulation: A systematic review. PLoS ONE 19(5): e0302739. https://doi.org/10.1371/journal.pone.0302739

Tabari, F., Patron, C., Cryer, H., & Johari, K. (2024). HD-tDCS Over Left Supplementary Motor Area Differentially Modulated Neural Correlates of Motor Planning for Speech vs. Limb Movement. International Journal of Psychophysiology. DOI: 10.1016/j.ijpsycho.2024.112357.

Johari, K., **Tabari, F.** & Desai, R.H. (2023). Right frontal HD-tDCS reveals causal involvement of time perception networks in temporal processing of concepts. Sci Rep 13, 16658.

Chholak P. *, **Tabari F.***, Pisarchik A. N. (2022). Revealing the Neural Network Underlying the Covert Picture-Naming Paradigm using Magnetoencephalography. Izvestiya VUZ. Applied Nonlinear Dynamics, 30(1), 76-95.

*Equal contribution by these authors.

Tabari F. (2021). Lexicon on Board: A MEG Study Based on Expressive Picture-Naming. East European Journal of Psycholinguistics, 8(2).

Tabari F., Garayzabal Heinze E., & Sampaio A. (2018). How Far from the Premise: A Systematic Review and Critical Appraisal of Literature on Content and Language Integrated Learning. Review in Educational Research, European Journal of Foreign Language Teaching, 3(4), 60-103.

Tabari F., & Sadighi F. (2014). Bilingual Education: From Theory to Practice. Modern Journal of Language Teaching Methods (MJLTM), 4(2), 311-323.

Conference Paper:

Tabari, F., Berger, J., Bakhtiar, M., & Johari, K. (2025). Personalized Beta Band HD-tACS Improves Speech Reaction Times by Modulating Low-Frequency Prefrontal Oscillations. Brain Stimulation: Basic, Translational, and Clinical Research in Neuromodulation, 18(1), 481.

PAPERS UNDER REVIEW

Tabari F., Berger JI., Kunduk M., Van Gemmert, A. W. A., Johari K. (2024). Personalized Beta HD-tACS Over the Left SMA Surpasses HD-tDCS in Improving Speech and Limb Reaction Times. Manuscript under review.

Tabari F., Berger JI., Kunduk M., Van Gemmert, A. W. A., Johari K. (2024).Personalized Beta Band HD-tACS over the Left SMA Improves Speech and Limb Movement by Modulating Prefrontal Delta Oscillations

Johari K, **Tabari F**. HD-tACS Over Left Frontal Aslant Tract Enhances Prefrontal Theta Activity During Action Verbal Fluency in Parkinson's Disease

Tabari F, Johari K. The Role of the Supplementary Motor Area (SMA) in Speech Production: Implications from Neurostimulation Studies

Tabari F, Shaheen A, Johari K. (2025). Non-invasive Brain Stimulation Improves Word Retrieval in Parkinson's Disease: A Meta analysis of Randomized Trials

PAPERS IN PREPARATION

Tabari F, Johari K. (2025). HD-tACS Modulates Speech Motor Performance in Parkinson's Disease: Complexity-Dependent Modulation

AWARDS AND HONORS

- Travel Award recipient for the 2025 Boston Speech Motor Control Symposium (BSMCS). May 2025: $500

-Visiting Scholar awards from Parkinson's foundation. April 2025. $4000 + $1000 travel grant for follow up presentation

- Ph.D. Scholarship Awarded from the Council of Academic Programs in Communication Sciences and Disorders (CAPCSD). March 2025: $12,000

- College of Humanity and social sciences and Department of Communication Sciences and Disorders, Louisiana State University, Travel Grant to present at Society for Neuroscience (SfN), Neuroscience 2024, Chicago, USA. October 2024; $1000

- Department of Communication Sciences and Disorders, Teaching Assistantship stipend, Louisiana State University August 2024-May 2025; $23,000

- College of Humanity and social sciences and Department of Communication Sciences and Disorders, Louisiana State University, Travel Grant to Present in Society of Psychophysiological Research (SPR) Annual Meeting, New Orleans, USA, September 2023; $800

- Department of Communication Sciences and Disorders, Research Assistantship stipend, Louisiana State University August 2023-May 2024; $23,000

- College of Humanity and social sciences and Department of Communication Sciences and Disorders, Louisiana State University, Travel Grant to present at Cognitive Neuroscience Society (CNS) 29th Annual Meeting, San Francisco, USA, March 2023; $1099

- Department of Communication Sciences and Disorders, Research Assistantship stipend, Louisiana State University August 2022-May 2023; $15,500

- Spanish Society of Cognitive and Affective Psychophysiology and Neuroscience (SEPNECA), Travel Grant, March 2019; €300

- Spanish Society of Cognitive and Affective Psychophysiology and Neuroscience (SEPNECA), Travel Grant, March 2018; €300

- University of Geneva, Switzerland, Student Mobility Grant, October 2016 till June 2017; CHF 2400

EDUCATION

-Ph.D. Candidate in Communication Sciences and Disorders at Louisiana State University, Baton Rouge, USA

08/2022-Present

Dissertation*:* investigates the modulatory effect of High-Definition Transcranial Alternating Current Stimulation targeting supplementary motor area on speech motor control in the patients with Parkinson's disease

-Ph.D. in Philosophy and Science of Language at Universidad Autónoma de Madrid, Madrid, Spain

10/2014-10/2020

GPA: A (Outstanding)

Dissertation*:* Neural Signature of Bilingualism; A Magnetoencephalography study on language processing and production in monolingual, bilingual and multilingual population

-M.A. in Teaching English as a Foreign Language (minor in Psycholinguistics) at Azad University, Shiraz branch, Shiraz, Iran

09/2008-06/2010

GPA: 3.66/4 (A+)

Dissertation: Bilingualism from theory to practice

-B.A. in English Language and Literature at Yasooj University, Yasooj, Iran

09/2003-01/2007

GPA: GPA 2.97/4 (B)

Dissertation: Psychological disorders in Shakespeare's Hamlet

EDITORSHIP AND SIENTIFIC REVIEWER

- **Editorial Board Member**

Communication and Linguistics Studies, Science Publishing Group, US

- **Scientific Reviewer**
  Linguistics and Literature Studies, Horizon Research Publishing Co., US

- **Scientific Reviewer**
  East European Journal of Psycholinguistics, Lesya Ukrainka Volyn National University

ADVENCED CERTIFICATES

- **EEG Resting State Functional Connectivity**
  Spanish Society of Cognitive and Affective Psychophysiology and Neuroscience

  8 September 2021 Cadiz, Spain
- **Diffusion Tensor Imaging and Fiber Tracking Analysis**
  Spanish Society of Cognitive and Affective Psychophysiology and Neuroscience

  14-15 May 2021 Sevilla , Spain
- **fMRI Resting State Functional Connectivity**
  Spanish Society of Cognitive and Affective Psychophysiology and Neuroscience

  17-18 June 2019 Santiago de Compostela , Spain
- **EEG FieldTrip**
  Donders Institute/Radboud University

  21-22 Jan 2019 Madrid , Spain
- **MEG-EEG analysis with Brainstorm software**
  Cutting EEG Association

  3-5 December, 2019 Paris, France
- **Language Testing During Awake Brain Surgery**

  University Medical Center Groningen

  May 2020, Online

AFFILIATION

- American Speech-Language-Hearing Association (ASHA)
- Society for Neuroscience (SfN)
- American Acoustical Society
- Cognitive Neuroscience Society (CNS)
- Spanish Society of Cognitive and Affective Psychophysiology and Neuroscience (SEPNECA)
- Society for the Neurobiology of Language (SNL)
- Society for Psychophysiological Researchciety (SPR)

LANGUAGE SKILLS

Mother tongue: Persian (Farsi)

Other languages

UNDERSTANDING		SPEAKING		WRITING
Listening	Reading	Spoken interaction	Spoken production	

English	C1	C1	C1	C1	C1
Spanish	B2	B2	B2	B2	B1
German	A1	A1	A1	A1	A1

TECHNICAL SKILLS

- ERPs
- Magnetoencephalography
- Electroencephalography
- SPSS package
- MATLAB/Python
- BRAINSTORM (certificated)
- Clinical Trial design
- SPM (certified)
- EEG FieldTrip (certified)
- Language Testing During Awake Brain Surgery (Certified)
- Preliminary knowledge in fMRI and fNIRs

REFERENCES

Dr. Karim Johari (Ph.D.), Professor of Communication Sciences and Disorders at Louisiana State University, Department of Communication Sciences & Disorders, Baton Rouge, Louisiana, USA; karimjohari@lsu.edu

Melda Kunduk (Ph.D.), Professor of Communication Sciences and Disorders at Louisiana State University, Department of Communication Sciences & Disorders, Baton Rouge, Louisiana, USA; mkunduk@lsu.edu