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ACADEMIC APPOINTMENTS

University of South Carolina , Columbia, SC, USA Assistant Professor Department of Communication Sciences and Disorders Arnold School of Public Health	08/2022–Present
Harvard Medical School-Massachusetts Eye and Ear Infirmary , Boston, MA, USA Postdoctoral Research Fellow Emerging Auditory Research (E.A.R.) Lab, Director: Julie G. Arenberg, Ph.D. Department of Otolaryngology-Head and Neck Surgery	12/2019–07/2022
Michigan State University , East Lansing, MI, USA Graduate Research Assistant, Department of Communicative Sciences and Disorders MSU Speech Perception and Production Lab, Director: Laura C. Dilley, Ph.D.	08/2015–12/2019
Graduate Teaching Assistant, Department of Communicative Sciences and Disorders Instructor, Department of Communicative Sciences and Disorders	08/2015–12/2018 08/2017–12/2017
The University of Alabama , Tuscaloosa, AL, USA Research Assistant, Department of Electrical and Computer Engineering Computer Laboratory of Ambient and Wearable Systems	01/2015–07/2015
Islamic Azad University , Damavand, Tehran, Iran Adjunct Professor, Department of Electrical Engineering	01/2009–12/2014
University of Applied Science and Technology , Tehran, Tehran, Iran Adjunct Professor, Department of Electrical Engineering	06/2010–01/2011
Shahed University , Tehran, Iran Graduate Teaching Assistant, Department of Biomedical Engineering	01/2009–05/2010

EDUCATION

Michigan State University , East Lansing, MI, USA Doctor of Philosophy in Communicative Sciences and Disorders Specialization in Cognitive Sciences Dissertation: <i>Early linguistic environments and language development in children with cochlear implants</i> Dissertation Committee: Laura C. Dilley (Advisor), Mario A. Svirsky, Dimitar D. Deliyski, Courtney E. Venker, Joyce Y. Chai	08/2015–12/2019
Shahed University , Tehran, Tehran, Iran Master of Science in Biomedical Engineering Thesis: <i>Non-invasive diagnosis of patients with laryngeal diseases based on computational analysis of speech signals</i>	07/2007–02/2010
Islamic Azad University-South Tehran Branch , Tehran, Tehran, Iran Bachelor of Science in Electrical Engineering Thesis: <i>Design and implementation of a multi-channel real-time data acquisition module</i>	01/2004–07/2006

RESEARCH INTERESTS

Hearing Loss & Cochlear Implants
Auditory Neurosciences
Neural Prosthesis
Speech & Language Development
Voice Assessment
Acoustic Phonetics
Biomedical Signal Processing
Brain-Computer Interface

RESEARCH GRANTS (RG)

Electro-neuron interfaces and speech perception errors for individualized cochlear implant programming^{RG1} 01/2022–31/2025

Funding Agency: NIH-NIDCD, Fund: Recommended for funding by NIDCD's Training Board.
The applicant declined the award due to accepting a tenure-track position at the University of South Carolina.
Role: Principal Investigator, Sponsors: Julie G. Arenberg, Ph.D. & Andrew J. Oxenham, Ph.D.
Collaborators: Barbara S. Herrmann, Ph.D., Meaghan P. Reed, Au.D., CCC-A
Institute: Massachusetts Eye and Ear, Harvard Medical School
Goal: to develop effective programming strategies for listeners with cochlear implants based on individuals' speech perception errors and/or single-channel auditory detection threshold in response to focused electrical fields (i.e., focused thresholds). Contributions: I developed and submitted an NIDCD F32 research proposal.

Early linguistic environments and language development in children with cochlear implants^{RG2} 08/2017–12/2019

Funding Source: Dissertation Completion Fellowship (DCF) Award, Fund: \$7,000
Role: Principal Investigator, Advisor: Dr. Laura C. Dilley, Institute: Michigan State University
Goal: to study the effects of noise and reverberation on early language input and language outcomes of children with cochlear implants. Contributions: I developed the research proposal (NIH R01 format), developed a comprehensive coding system, trained 13 research assistants to implement the coding system, developed a custom software for interfacing between *Matlab* and *Praat* for acoustic-linguistic analysis, conducted the planned analyses, and successfully completed my dissertation. Outcomes: four conference presentations and four articles (one published, one in press, two in preparation).

The role of racial bias in clinical assessment of speech intelligibility and voice quality of African American in Michigan^{RG3} 01/2017–01/2019

Funding Source: The Charles J. Strosacker Foundation, Fund: \$4,000
Role: Principal Investigator, Advisor: Dr. Laura C. Dilley, Institute: Michigan State University
Goals: to determine the role of dialect and racial background on clinical outcome measures of speech intelligibility and voice quality. Contributions: I designed and conducted the study, trained research assistants to analyze the speech corpus, performed acoustic-phonetic analysis of the corpus, implemented signal processing, and machine learning approaches, and performed the data analyses. Outcomes: three conference presentations, one peer-reviewed conference paper, two journal manuscripts in preparation.

Novel acoustic analysis and machine learning application to predict concussion status^{RG4} 01/2018–02/2019

Funding Source: The Charles J. Strosacker Foundation, Fund: \$4,000
Role: Principal Investigator, Multiple-PI: Russell Banks, Mark Berardi, Hamzeh Ghasemzadeh
Institute: Michigan State University
Goals: to develop novel approaches based on acoustic analysis and machine learning of voice and speech to predict individuals' concussion status. Contributions: I was involved in proposal development, analysis of speech corpus, acoustic-phonetic analysis of the voices, data analysis and poster preparation. Outcomes: two conference presentations and two journal manuscripts in preparation.

A robust face recognition system based on convolutional neural network^{RG5} 01/2014–01/2015

Funding Source: Islamic Azad University (IAU), Fund: \$7,000
Role: PI, Multiple-PI: Hamzeh Ghasemzadeh, Institute: Islamic Azad University
Goal: to develop a reliable automatic face recognition system that is robust to variations in pose, illumination, and facial expression. Contributions: I was involved in the study design, system development, and implementation. Outcomes: the developed system and the technical report were submitted to Islamic Azad University.

- Objective voice disorders analysis for diagnosis of multiple laryngeal diseases** ^{RG6} 01/2011–01/2012
Funding Source: Islamic Azad University (IAU), *Fund:* \$5,000
Role: Principal Investigator, *Multiple-PI:* Ali Akbari, *Institute:* Islamic Azad University
Goal: to develop a multi-class classification system for objective assessment of voice disorders.
Contributions: I developed the research proposal and executed the project in collaboration with the other PI. *Outcomes:* two peer-reviewed articles.
- Acoustic-kinematic modeling of African American English and neural mechanisms for perception of non-standard speech** ^{RG7} 08/2017
Funding Agency: Stetson Scholarship in Phonetics & Speech Production (ASA 2018), *Fund:* unfunded
Role: Principal Investigator, *Institute:* Michigan State University
Goal: to investigate the acoustic-kinematic properties of speech produced in African American English and Standard American English. *Contributions:* I designed the study, collected the preliminary data, and wrote the research proposal.
- Myocardial ischemia detection from processing Electrocardiography (ECG) signal** ^{RG8} 01/2008–01/2010
Funding Source: Shahed University, *Funds:* \$1,800
Role: Co-PI, *PI:* Mohammad Pooyan, *Institute:* Shahed University
Goal: to develop a novel intelligent system for the detection of myocardial ischemic events from analyzing Electrocardiogram (ECG) signal. *Contributions:* I contributed to the proposal development, data acquisition, signal processing, and data analysis. *Outcomes:* one conference presentation and the developed system and the technical report were submitted to Shahed University.
- FUNDED REASERCH EXPERIENCES (FRE)**
- Perceptual consequences of cochlear implant** ^{FRE1} 12/2012–08/2022
Funding Source: NIH-NIDCD 5 R01 DC012142-07, *PI:* Dr. Julie G. Arenberg
Role: Postdoctoral Research Fellow (12/2019–08/2022), *Institute:* Massachusetts Eye and Ear
Goal: to develop and evaluate listener-tailored cochlear implant programming based on the current focusing and deactivation of select channels. *Contributions:* I develop psychophysical and signal processing tools, design and conduct behavioral and psychophysical experiments to (1) evaluate the effects of the quality of electrode-neuron interfaces on the ability of adults and children with cochlear implants in resolving frequency information, as well as speech perception (2) develop effective cochlear implant programming. *Outcomes:* three journal manuscripts (three under revision, one in preparation), three talks, five poster presentations, an experimental research software, an NIH-NIDCD F32 grant submission.
- Infant-directed speech and language development in infants with hearing loss** ^{FRE2} 12/2006–01/2020
Funding Source: NIH-NIDCD 2 R01 DC008581-06A1, *PIs:* Laura C. Dilley & Derek M. Houston
Role: Graduate Research Assistant (08/2015 – 12/2019), *Institute:* Michigan State University & The Ohio State University
Goal: to determine how infant-directed speech in natural auditory environments affects language input and language development in infants with hearing loss, particularly those with cochlear implants. *Contributions:* I was involved in developing tools for acoustic-phonetic analysis of maternal speech, analyzing and interpreting the acoustic and clinical data, preparing the posters and manuscripts. *Outcomes:* four journal manuscripts (four published & two in preparation), one conference paper, two talks, and seven poster presentations.
- Making words disappear or appear: A neurocognitive and behavioral investigation of effects of speech rate on spoken word perception** ^{FRE3} 08/2014–07/2018
Funding Source: NSF 1431105, *PI:* Laura C. Dilley
Role: Graduate Research Assistant (08/2015 – 07/2018), *Institute:* Michigan State University
Goal: to investigate the role of temporal context in speech on perception of syllables and words. *Contributions:* I analyzed speech at highly coarticulated syllable boundaries to understand the contributions of different segmental and suprasegmental acoustic cues in syllable boundary detection and word segmentation. *Outcomes:* four manuscripts (one under revision and three in preparation) and three meeting presentations.
- Neurocognitive basis of disparities in evaluations of speech of African Americans** ^{FRE4} 01/2018–01/2019
Funding Source: Trifecta Initiative Facilitating Funds (TIFF), *PI:* Laura C. Dilley
Role: Investigator & Consultant, *Institute:* Michigan State University

Meisam K. Arjmandi

Goal: to characterize acoustic-phonetic properties in production of African American English compared to Standard American English, as well as identifying the acoustic-phonetic properties responsible for listeners' detection of AAE dialect and to obtain preliminary data for an R01 NIH grant proposal.

Contributions: I contributed to writing the proposal, data collection, and data analysis. Outcomes: pilot data for a NIH R01 grant submission.

Assessing food intake with the automatic ingestion monitor^{FRE5}

07/2014–01/2019

Funding Source: NIH-NIDDK 1 R01 DK100796-01A1, PI: Edward Sazonov. Ph.D.

Role: Research Assistant (01/2015–07/2015), Institute: The University of Alabama

Goal: to develop a wearable device for tracking individuals' food intake activities in real-life scenarios.

Contributions: I developed a state-of-the-art multi-camera video observation system, which was tailored to estimate patterns of food intake activities in free-living individuals during multiple days of observation. Outcomes: a multi-camera video observation system for food intake monitoring in free-living conditions.

UNFUNDED REASERCH EXPERIENCES (URE)

Perceptual consequences of cochlear implant on perception and production of voice quality^{URE1} 08/2017–Present

Role: Principal Investigator, Institutes: Michigan State University & Massachusetts Eye and Ear

Goal: to investigate the effects of cochlear implant on perception and production of voice quality.

Contributions: I designed the experiments, created the vocoded stimuli, analyzed the stimuli and data and presented the results. Outcomes: a conference presentation, a journal manuscript (under review).

Non-invasive diagnosis of patients with laryngeal diseases based on computational analysis of speech signal^{URE2}

09/2009–Present

Role: Principal Investigator, Co-PI: Hamzeh Ghasemzadeh

Institutes: Shahed University & Islamic Azad University & Michigan State University

Goal: to computationally analyze individual's speech to effectively capture the key pathological patterns induced by laryngeal disorders based on speech signal processing to improve objective diagnosis of laryngeal diseases as a complement approach to auditory-perceptual assessments and other traditional invasive methods for voice assessment. Contributions: I developed and conducted multiple studies to achieve the research goals. Outcomes: four journal publications, one conference paper, and one oral presentation.

Modified psychoacoustic models of human hearing for security screening of audio channels^{URE3} 01/2013–01/2015

Role: Principal Investigator, Multiple-PI: Hamzeh Ghasemzadeh

Institute: Islamic Azad University

Goal: to develop an effective psychoacoustic model based on human auditory system to enhance the security screening of audio channels in detection of hidden and malicious information. Contributions: I was responsible for the experiment design, implementation, data collection, model development, data analysis, and publications. Outcomes: two journal publications and one conference paper.

A robust automatic approach for separation of speech from music^{URE4}

04/2013–04/2015

Role: Principal Investigator, Co-PI: Hamzeh Ghasemzadeh

Institute: Islamic Azad University

Goal: to develop novel methods for automatic recognition of speech from music. Contributions: We developed a new approach based on the distribution of spectral energy in different frequency bands for robust recognition of speech from music. Outcomes: The developed system and technical report were submitted to Islamic Azad University.

Objective evaluation of intelligibility of speech corrupted by noise and scrambling^{URE5}

04/2011–04/2013

Role: Principal Investigator

Institute: Islamic Azad University

Goal: to develop an effective system for estimating the degree of intelligibility of noisy and spectro-temporally scrambled speech. Contributions: I designed the experiments, created the audio database, and developed and validated the system. Outcomes: the developed system and technical report submitted to Islamic Azad University.

A robust Persian phoneme recognition system based on wavelet packet decomposition and autoregressive model of speech^{URE6}

01/2008–01/2010

Role: Principal Investigator, Co-PI: Mansour Vali

Institute: Shahed University

Goal: to develop an automatic speech recognition (ASR) system for recognition of Persian phoneme in

Meisam K. Arjmandi

the presence of background noise. *Contributions:* I developed, implemented, and evaluated the ASR system. *Contributions:* The system and technical report were submitted to Shahed University.

HONORS AND ACADEMIC AWARDS

Top Student Award for Highest Academic Achievement Shahed University, Department of Biomedical Engineering, Tehran, Iran	2008–2010
Top Student Award for Highest Academic Achievement Islamic Azad University, Department of Electrical Engineering, Tehran, Iran	2004–2006
1st Place Student Award for Poster Presentation at Michigan State University Undergraduate Research and Arts Forum (UURAF) Michigan State University, <i>Awardee:</i> Nikki Losievski, Alexis Yang, and Ellen Victoria, <i>Role:</i> Mentor	03/2019
ACI Alliance Student Scholarship Award American Cochlear Implant (ACI) Alliance	02/2021
The Association for Research in Otolaryngology Meeting Travel Award The Association for Research in Otolaryngology	04/2021
Graduate School Dissertation Completion Fellowship Award (\$7,000) Michigan State University	11/2019
Charles J. Strosacker Research Award for Health and Risk Communication (\$8,000) The Charles J. Strosacker Foundation	01/2018
Student Travel Grant (~\$1,050) The Acoustical Society of America	03/2017–01/2019
Graduate Office Fellowship (GOF) Funds for Conference Attendance (Total: \$11,500) Michigan State University	2015–2019
Travel Grant, MSU Speech Perception & Production Lab (Total: \$4,200) Michigan State University	2017–2019
Ph.D. Scholarship in Communicative Sciences & Disorders Michigan State University	2015–2019
Workshop Grant Award, “Write Winning Grant Proposals” (\$100) Michigan State University	01/2018

TEACHING EXPERIENCE

Michigan State University Oral Language Development, Undergraduate level class	08/2015 – 04/2018
Islamic Azad University Signals and Systems, Undergraduate level class	07/2010 – 05/2014
Electronic I&II, Undergraduate level class	07/2010 – 05/2014
Electric Machine II, Undergraduate level class	07/2012 – 05/2013
Electrical Circuits I, Undergraduate level class	07/2012 – 05/2013
Digital Logic Circuits, Undergraduate level class	07/2008 – 05/2009
Shahed University Statistical Pattern Recognition, Master level class	07/2008 – 05/2009
Electronic Laboratory I&II, Master level class	07/2008 – 05/2009
Digital Electronic Laboratory, Master level class	07/2009 – 05/2010
University of Applied Science and Technology Digital Logic Circuits, Undergraduate level class	07/2010 – 05/2011
Electronic I&II, Undergraduate level class	07/2010 – 05/2011

PEER-REVIEWED PUBLICATIONS

Google Scholar statistics (as of 02/28/2022): h-index = 11, citations = 540

The corresponding project for each paper, abstract, poster or presentation is indicated in parentheses by the project code.

1. **Arjmandi, M. K.**, Herrmann, B. S., Caswell-Midwinter, B., Doney, E. M., & Arenberg, J. G. (2022). A Modified Pediatric Ranked Order Speech Perception Score to Assess Speech Recognition Development in Children With Cochlear Implants. *American Journal of Audiology*, 1-20. (FRE1)

Meisam K. Arjmandi

2. **Arjmandi, M. K.**, Jahn, K. N., Arenberg, J. G. (2022). Single-Channel focused thresholds relate to vowel identification in pediatric and adult cochlear implant listeners. *Trends in Hearing*, 26, 23312165221095364. ^(FRE1)
3. **Arjmandi, M. K.**, Houston, D. M., & Dilley, L. C. (2022). Variability in quantity and quality of early linguistic experience in children with cochlear implants: Evidence from analysis of natural auditory environments. *Ear and Hearing*. Advance online. <https://doi.org/doi: 10.1097/AUD.0000000000001136> ^(RG2 & FRE2)
4. **Arjmandi, M. K.**, Houston, D., Wang, Y., & Dilley, L. (2021). Estimating the reduced benefit of infant-directed speech in cochlear implant-related speech processing. *Neuroscience Research*. doi: 10.1016/j.neures.2021.01.007. ^(RG2 & FRE2)
5. Caswell-Midwinter, B., Doney, E. M., **Arjmandi, M. K.**, Jahn, K. N., Herrmann, B. S., Arenberg, J. G. (2022). The Relationship between Impedance, Programming and Word Recognition in a Large Clinical Dataset of Cochlear Implant Recipients. *Trends in Hearing*, 26, 23312165211060983. ^(FRE1)
6. Dilley, L., Lehet, M., Wieland E., **Arjmandi, M. K.**, Kondaurova, M., Wang, Y., Reed, J., Svirsky, M., Bergeson, T., Houston, D. (2020). Individual differences in mothers' spontaneous infant-directed speech predict language attainment in children with cochlear implants. *Journal of Speech, Language, and Hearing Research*, 63(7), 2453-2467. ^(FRE2)
7. Lehet, M.*, **Arjmandi, M. K.***, Houston, D., & Dilley, L. (2021). Circumspection in using automated measures: Talker gender and addressee affect error rates for adult speech detection in the Language ENvironment Analysis (LENA) system. *Behavior Research Methods*, 53(1), 113-138. doi: 10.3758/s13428-020-01419-y (* = equal contributions) ^(FRE2)
8. Ghasemzadeh, H., & **Arjmandi, M. K.** (2019). Toward optimum quantification of pathology-induced noises: An investigation of information missed by human auditory system. *IEEE/ACM Transactions on Audio, Speech, and Language Processing*, 28, 519-528. ^(URE2)
9. Ghasemzadeh, H., & **Arjmandi, M. K.** (2017). Universal audio steganalysis based on calibration and reversed frequency resolution of human auditory system. *IET Signal Processing*, 11, 916-922. ^(URE3)
10. Ghasemzadeh, H., & **Arjmandi, M. K.** (2017). Optimum solution and evaluation of rectangular jigsaw puzzles based on branch and bound method and combinatorial accuracy. *Multimedia Tools and Applications*, 1-25. ^(URE3)
11. Ghasemzadeh, H., Khass, M. T., & **Arjmandi, M. K.** (2016). Audio steganalysis based on reversed psychoacoustic model of human hearing. *Digital Signal Processing*, 51, 133-141. ^(URE3)
12. Ghasemzadeh, H., Khass, M. T., **Arjmandi, M. K.**, & Pooyan, M. (2015). Detection of vocal disorders based on phase space parameters and Lyapunov spectrum. *Biomedical Signal Processing and Control*, 22, 135-145. ^(URE2)
13. Akbari, A.*, & **Arjmandi, M. K.*** (2015). Employing linear prediction residual signal of wavelet sub-bands in automatic detection of laryngeal pathology. *Biomedical Signal Processing and Control*, 18, 293-302. (* = equal contributions) ^(RG6)
14. Akbari, A.*, & **Arjmandi, M. K.*** (2014). An efficient voice pathology classification scheme based on applying multi-layer linear discriminant analysis to wavelet packet-based features. *Biomedical Signal Processing and Control*, 10, 209-223. (* = equal contributions) ^(RG6)
15. **Arjmandi, M. K.**, & Pooyan, M. (2012). An optimum algorithm in pathological voice quality assessment using wavelet-packet-based features, linear discriminant analysis and support vector machine. *Biomedical Signal Processing and Control*, 7(1), 3-19. ^(URE2)
16. **Arjmandi, M. K.**, Pooyan, M., Mikaili, M., Vali, M., & Moqarehzadeh, A. (2011). Identification of voice disorders using long-time features and support vector machine with different feature reduction methods. *Journal of Voice*, 25(6), e275-e289. ^(URE2)

CONFERENCE PROCEEDINGS

Peer-Reviewed

1. **Arjmandi, M. K.**, Dilley, L. C., & Lehet, M. (2018). A comprehensive framework for F₀ estimation and sampling in modeling prosodic variation in infant-directed speech. In *Proceeding of 6th International Symposium on Tonal Aspects of Languages (TAL2018)*, 72-76. Berlin, Germany. ^(FRE2)
2. Ghasemzadeh, H., & **Arjmandi, M. K.** (2014). Reversed-Mel cepstrum-based audio steganalysis. In *Computer and Knowledge Engineering (ICCKE), 2014 4th International eConference on* (pp. 679-684). IEEE. ^(URE3)
3. **Arjmandi, M. K.**, Pooyan, M., Mohammadnejad, H., & Vali, M. (2010). Voice disorders identification based on different feature reduction methodologies and support vector machine. In *Electrical Engineering (ICEE), 2010 18th Iranian Conference on* (pp. 45-49). IEEE. Isfahan, Iran. ^(URE2)
4. Mohammadnezhad, H., Vali, M., **Arjmandi, M. K.** (2009). A speaker identification method based on time-delay neural

Meisam K. Arjmandi

network (TDNN) methodology in multi-layer perceptron. In *Electronic Engineering (ICEEE), 2nd Iranian Conference on* (pp. 37-40). Gonabad, Mashhad, Iran.

5. Mohammadnejad, H., Vali, M., **Arjmandi, M. K.** (2008). Ischemic episode detection with discrete cosine transform (DCT) and artificial neural network (ANN). In *Biomedical Engineering (ICBME2008), 2008 15th International Conference on* (pp. 844-849). Tehran, Iran. (In Persian)

Non-Peer Reviewed

1. **Arjmandi, M. K.**, Dilley, L., Wagner, S. (2018). Investigation of acoustic dimension use in dialect production: machine learning of sonorant sound for modeling acoustic cues of African American dialect. Proceeding of *11th International Conference on Voice Physiology & Biomechanics (ICVPB 2018)*, East Lansing, MI, USA, July 31–August 3, 2018. (RG3)

BOOK CHAPTERS

1. Hu, F., **Arjmandi, M. K.** (2016). Opportunities in 5G networks: a research and development perspective. Chapter 2: Opportunities in 5G networks. *CRC Press*, (Chapter 2). PP. 19-32.

UNDER REVIEW OR IN PREPARATION PUBLICATIONS

1. **Arjmandi, M. K.**, Ghasemzadeh, H., Dilley, L. C. (under review). Effects of simulated cochlear-implant processing on voice quality distinction: Evidence from analysis of disordered voices. *Journal of Voice*. (URE1)
2. **Arjmandi, M. K.**, Houston, D., Dilley, L. (in preparation). Early language input in home environments of children with cochlear implants: child-directed versus adult-directed speech. Target Journal: *Ear and Hearing*. (RG2 & FRE2)
3. Sanders, L., Dilley, L. C., Viswanathan, N., **Arjmandi, M. K.**, & Muñoz, M. (under revision). Distal speech rate makes words disappear from early perceptual processing. *Attention, Perception, and Psychophysics*. (FRE3)
4. **Arjmandi, M. K.**, Houston, D. M., Dilley, L. C., (in preparation). Effects of environmental noise and reverberation on properties of language input and language outcomes of children with CIs. Target Journal: *Ear and Hearing*. (RG2 & FRE2)
5. Dilley, L., Lehet, M., **Arjmandi, M. K.** (in preparation). Spectro-temporal cues from context speech facilitates perceptual recovery of reduced syllables from continuous, casual speech. Target Journal: *Journal of Phonetics*. (FRE3)
6. Lehet, M., **Arjmandi, M. K.**, Dilley, L. (in preparation). The spectral and temporal correlates of function word discontinuity. Target Journal: *Journal of Phonetics*. (FRE3)
7. Lehet, M., **Arjmandi, M. K.**, Dilley, L. (in preparation). Statistical relationship between preceding speech rate and function word articulation. Target Journal: *Journal of Phonetics*. (FRE3)
8. Dellwo, V., Kathiresan, T., Dilley, L., **Arjmandi, M. K.**, Townsend, S., Shi, R., Daum, M. (under review). Mothers reveal more of their vocal identity when talking to infants. *Science*. (FRE2)
9. Dilley, L., **Arjmandi, M. K.**, & Lehet, M. (in preparation). Prosody, prediction, and spoken word perception. Target Journal: *Trends in Cognitive Sciences*. (FRE3)
10. **Arjmandi, M. K.**, Ghasemzadeh, H., Berardi, M., Banks, R. (in preparation). Formant dynamics in vowel pronunciation are acoustic correlates of concussed speech. Target Journal: *Journal of Voice*. (RG4)
11. Berardi, M., **Arjmandi, M. K.**, Ghasemzadeh, H., Banks, R. (in preparation). Application of automated vowel space area analysis to predict concussion status. Target Journal: *Journal of Voice*. (RG4)
12. **Arjmandi, M. K.**, Dilley, L., (in preparation). New ways of analyzing linguistic variation: a pattern recognition approach to distinguishing African American and Standard American English dialects. Target journal: *Speech Communication*. (RG3)
13. Ayres, K., Dilley, L., Wieland, L., Morrill, T., **Arjmandi, M. K.**, & Chang, S.E. (in preparation). Rhythm perception and temporal expectation in people who do and do not stutter. Target Journal: *Journal of Fluency Disorders*.
14. **Arjmandi, M. K.**, Dilley, L., & Ireland, Z. (in preparation). Applying pattern recognition to formant trajectories: a useful tool for understanding African American English dialect variation. Target Journal: *Journal of Speech Communication*. (RG3)

PUBLISHED ABSTRACTS

1. **Arjmandi, M. K.**, Houston, D., Svirsky, M., Wang, Y., Lehet, M., & Dilley, L. (2019). Individual differences across caregivers in acoustic implementation of infant-directed and adult-directed speech: Modeling impacts on intelligibility in children with cochlear implants. *The Journal of the Acoustical Society of America*, 146(4), 2921-2921. (RG2 & FRE2)
2. **Arjmandi, M. K.**, Ghasemzadeh, H., & Dilley, L. (2019). Simulated cochlear-implant processing results in major loss of

Meisam K. Arjmandi

- acoustic information regarding differences in talkers' voice qualities. *The Journal of the Acoustical Society of America*, 145(3), 1690-1690. (URE1)
3. **Arjmandi, M. K.**, Dilley, L., Houston, D., Svirsky, M., Lehet, M., Wang, Y.-Y. (2019). Separability of infant-directed from adult-directed speech is affected by number of channels in cochlear-implant simulated speech. *The Journal of the Acoustical Society of America*, 145(3), 1766. (RG2 & FRE2)
 4. Kathiresan, T., Dilley, L., Townsend, S., Shi, R., Daum, M., **Arjmandi, M. K.**, Dellwo, V. (2019). Infant-directed speech enhances recognizability of individual mothers' voices. *The Journal of the Acoustical Society of America*, 145(3), 1766. (FRE2)
 5. Woodard, J. C., Losievski, N., **Arjmandi, M. K.**, Lehet, M., Wang, Y., Houston, D., & Dilley, L. (2019). Accuracy of the language environment analysis (LENA) speech processing system for detecting communicative vocalizations of young children. *The Journal of the Acoustical Society of America*, 146(4), 2956-2956. (FRE2)
 6. Banks, R., **Arjmandi, M. K.**, Ghasemzadeh, H., & Berardi, M. (2019). Formant dynamics in vowel pronunciation as acoustic correlates of concussed speech. *Brain Injury*, 3, 36-37. (RG4)
 7. Banks, R., **Arjmandi, M. K.**, Ghasemzadeh, H., & Berardi, M. (2019). Application of automated vowel space area analysis to predict concussion status. *Brain Injury*, 33, 27-28. (RG4)
 8. Dilley, L., Wieland, E., Lehet, M., **Arjmandi, M. K.**, Houston, D., & Bergeson, T. (2018). Quality and quantity of infant-directed speech by maternal caregivers predicts later speech-language outcomes in children with cochlear implants. *The Journal of the Acoustical Society of America*, 143(3), 1822. (FRE2)
 9. **Arjmandi, M. K.**, Dilley, L., & Wagner, S. (2018). Acoustic cues to linguistic profiling? Machine learning of phonetic features of African American English. *The Journal of the Acoustical Society of America*, 143(3), 1969. (FRE4)
 10. Dilley, L., **Arjmandi, M. K.**, & Ireland, Z. (2017). Spectro-temporal cues for perceptual recovery of reduced syllables from continuous, casual speech. *The Journal of the Acoustical Society of America*, 141(5), 3700. (RG3)
 11. **Arjmandi, M. K.**, Dilley, L., & Ireland, Z. (2017). Applying pattern recognition to formant trajectories: a useful tool for understanding African American English (AAE) dialect variation. *The Journal of the Acoustical Society of America*, 141(5), 3980. (RG3)
 12. Dilley, L., **Arjmandi, M. K.**, Ireland, Z., Heffner, C., & Pitt, M. (2016). Glottalization, reduction, and acoustic variability in function words in American English. *The Journal of the Acoustical Society of America*, 140(4), 3114. (FRE3)

UNPUBLISHED CONFERENCE PRESENTATIONS AND COLLOQUIA

1. **Arjmandi, M. K.**, Houston, D., Dilley, L., Children with cochlear implants experience linguistic environments with substantially different quantity and quality. Podium presentation in *CI2022 Emerging Issues in Cochlear Implants Conference*, May 18-21, 2022.
2. **Arjmandi, M. K.**, Jahn, K. N., Franck, K., Arenberg, J. G., Using single-channel focused thresholds to predict vowel identification errors in cochlear implant listeners. Poster presentation at *45th Annual Association for Research in Otolaryngology (ARO) MidWinter Virtual Meeting*, Feb. 5-9, 2022. (FRE1)
3. Hem, C., **Arjmandi, M. K.**, Jahn, K. N., Franck, K., Arenberg, J. G., Assessing the relationship between focused behavioral thresholds and vowel space errors in cochlear implant listeners. Poster presentation at *45th Annual Association for Research in Otolaryngology (ARO) MidWinter Virtual Meeting*, Feb. 5-9, 2022. (FRE1)
4. **Arjmandi, M. K.**, Arenberg, J. G., Forward-masked psychophysical tuning curves via wireless Bluetooth to evaluate frequency selectivity of cochlear implant channels. Oral presentation at *International Symposium on Auditory and Audiological Research (ISAAR)*, August 23-27, 2021. (FRE1)
5. **Arjmandi, M. K.**, Arenberg, J. G., Toward better understanding of the relationship between focused thresholds and vowel identification in listeners with cochlear implants. Poster presentation at the *2021 Conference on Implantable Auditory Prostheses (CIAP)*, July 11-16, 2021. (FRE1)
6. **Arjmandi, M. K.**, Herrmann, B. S., DesRoche E. M., Caswell-Midwinter, B., Arenberg, J. G., Factors influencing the developmental trajectory of speech recognition in pediatric cochlear implant recipients. Poster presentation at the *CI2021 Cochlear Implants in Children and Adults Conference*, April 28-May 1, 2021. (FRE1)
7. **Arjmandi, M. K.**, Jahn, K. N., Franck, K., Hem, C., Arenberg, J. G., From the electrode-neuron interface to frequency selectivity and speech recognition. Poster presentation at the *48th Annual Scientific and Technology Conference of the American Auditory Society*, March 4-6, 2021. (FRE1)

Meisam K. Arjmandi

8. **Arjmandi, M. K.**, Jahn, K. N., Franck, K., Arenberg, J. G., Relationship between focused threshold profiles and vowel identification in individuals with cochlear implants. Podium presentation at *44th Annual Association for Research in Otolaryngology (ARO) MidWinter Virtual Meeting*, April 28-May 1, 2021. (FRE1)
9. **Arjmandi, M. K.**, Factors influencing the developmental trajectory of speech recognition in pediatric cochlear implant recipients. *Virtual Midwest Conference on Cochlear Implants (CI CRASH) & Mid-Atlantic Symposium on Hearing (MASH)*, Madison, WI, October 16-17, 2020. (FRE1)
10. **Arjmandi, M. K.**, Developmental trajectory of speech recognition in pediatric cochlear implant recipients. *Work in Progress (WiP) talk series at Massachusetts Eye and Ear (MEE)*, Boston, MA, September 1st, 2020. (FRE1)
11. **Arjmandi, M. K.**, Houston, D., Dilley, L., Children with cochlear implants experience linguistic environments with substantially different quantity and quality: evidence from analysis of naturalistic auditory environments. Poster presentation at *the 3rd annual Massachusetts Eye and Ear Research Symposium*, Boston, MA, April 16th, 2021. (RG2)
12. **Arjmandi, M. K.**, Lehet, M., Houston, D., Svirsky, M. A., Dilley, L., Variability in quantity and quality of early linguistic experience in children who use cochlear implants. Oral seminar at the annual *American Speech-Language-Hearing Association (ASHA) convention*, Orlando, FL, November 21–23, 2019. (RG2)
13. Lehet, M., **Arjmandi, M. K.**, Houston, D., Dilley, L., Rethinking automatic language estimation: accuracy of language ENvironment Analysis (LENA) systems in quantifying adult speech. Oral seminar at the annual *American Speech-Language-Hearing Association (ASHA) convention*, Orlando, FL, November 21–23, 2019. (FRE2)
14. **Arjmandi, M. K.** (2019). Quality and quantity of early linguistic input and language development in children with cochlear implants. Oral presentation in *the 11th Annual Graduate Academic Conference at Michigan State University*. (RG2 & FRE2)
15. Yang, A., Silverstein, K., Losievski, N., **Arjmandi, M. K.**, Lehet, M., Dilley, L. (2019). Reliability of Language Environment Analysis (LENA) system in identification of child vocalizations in naturalistic environments. *21st Annual University Undergraduate Research and Arts Forum*, Michigan State University, East Lansing, MI, April 5, 2019. (FRE2)
16. Baumgartner, K., Haar, M., Ghoneim, S., **Arjmandi, M. K.**, Lehet, M., Dilley, L. (2019). Reliability of Language Environment Analysis (LENA) system in quantifying conversational turns in verbal communication of child-environment. *21st Annual University Undergraduate Research and Arts Forum*, Michigan State University, East Lansing, MI, April 5, 2019. (FRE2)
17. Dilley, L., Wieland, E., Wang, Y., Reed, J., Bergeson, T., Houston, D., Lehet, M., **Arjmandi, M. K.** (2017). Maternal speech predicts language outcomes in children with cochlear implants: results from a 10-year study. Poster presentation at the *American Speech-Language-Hearing Association (ASHA) Annual Meeting*, Los Angeles, CA, November 9–11, 2017. (FRE2)
18. **Arjmandi, M. K.**, Ghasemzadeh, H. (2017). Automatic methods for objective pathological voice assessment in spectro-temporal domain. Oral presentation at *46th Annual Symposium of Voice Foundation: Care of the Professional Voice*, Philadelphia, PA, May 30-June 3, 2018. (URE2)
19. Ireland, Z., Magoon, T., **Arjmandi, M. K.** & Dilley, L. An analysis of vowels in African American English. *Great Lakes Expo for Experimental and Formal Undergraduate Linguistics (GLEEFUL) Conference*, Michigan State University, East Lansing, MI, April 22-23, 2017. (FRE4)
20. Ireland, Z., Cutting, M., **Arjmandi, M. K.** & Dilley, L. Spectro-temporal cues for perceptual recovery of reduced syllables from continuous, casual speech. *Michigan State Undergraduate Linguistics Conference (MSULC)*, Michigan State University, East Lansing, MI, April 21, 2017. (FRE3)
21. Ireland, Z., Cutting, M., **Arjmandi, M. K.** & Dilley, L. Spectro-temporal cues for perceptual recovery of reduced syllables from continuous, casual speech. *19th annual University Undergraduate Research and Arts Forum (UURAF)*, Michigan State University, East Lansing, MI, April 7, 2017. (FRE3)
22. Ireland, Z., Magoon, T., **Arjmandi, M. K.** & Dilley, L., An analysis of the vowels in African American English. *19th Annual University Undergraduate Research and Arts Forum (UURAF)*, Michigan State University, East Lansing, MI, April 7, 2017. (FRE4)
23. Dilley, L., Ireland, Z., Viswanathan N., Sanders, L., **Arjmandi, M. K.** & Wieland, E. Slow Joe and Fast Mary: statistical learning of talker rate influences word perception. *CUNY Conference on Human Sentence Processing*, Cambridge, MA, March 31, 2017. (FRE3)
24. Ayres, K., Dilley, L., Wieland, E., Morrill, T., **Arjmandi, M. K.**, Chang, S-E. (2016). Rhythm perception and temporal expectation in people who do and do not stutter. Poster presentation at *American Speech-Language-Hearing Association (ASHA) Annual Meeting*, Philadelphia, PA, Nov. 17–19, 2016.
25. Griffin, M., Girdley, P., Ireland, Z., Jansen, J., Keenan, S., Maier, S., **Arjmandi, M. K.**, & Dilley, L. (2016). Inter and intra-

Meisam K. Arjmandi

- speaker variability in speech characteristics. Poster presented by Griffin, Girdley, Ireland, Jansen, and Keenan at the *University Undergraduate Research and Arts Forum (UURAF)*, Michigan State University, East Lansing, Michigan, April 8, 2016. ^(FRE3)
26. **Arjmandi, M. K.**, Ireland, Z., Mason, A., Wagner, S. & Dilley, L. (2016). An analysis of vowels in African American English. *Mid-Continental Phonetics & Phonology Conference*, East Lansing, MI, September 17, 2016. ^(FRE4)
 27. Cutting, M., Shepard, J., Baldwin, B., Losievski, N., Dilley, L., & **Arjmandi, M. K.** (2016). Individual differences in perception of temporal information in speech. *The University Undergraduate Research and Arts Forum (UURAF)*, Michigan State University, East Lansing, MI, April 8, 2016. ^(FRE3)
 28. Griffin, M., Girdley, P., Ireland, Z., Jansen, J., Keenan, S., Maier, S., **Arjmandi, M. K.**, & Dilley, L. (2016). Inter- and intra-speaker variability in speech characteristics. *The University Undergraduate Research and Arts Forum (UURAF)*, Michigan State University, East Lansing, MI, April 8, 2016. ^(FRE3)
 29. **Arjmandi, M. K.** (2012). Image steganography based on de-noising schemes in wavelet domain, Oral presentation at *9th International ISC Conference on Information Security and Cryptology*, Tabriz, Tabriz, Iran, September 14, 2012.
 30. **Arjmandi, M. K.** (2009), Statistical pattern recognition using *PRTTools* toolbox. Presented at Shahed University, Tehran, Tehran, Iran, February 15, 2010.
 31. Mohammadnezhad, H., Vali, M., **Arjmandi, M. K.** (2009). A speaker identification method based on time-delay neural network methodology in multi-layer perceptron. Oral presentation at *9th WSEAS International Conference on Signal, Speech and Image Processing (SSIP '09)*, 2009.

TALKS

- *Early linguistic environments and language development in children with cochlear implants* ^(RG2) 10/2020
Audiology Lecture Series, Massachusetts Eye and Ear, Boston, MA
- *Quality and quantity of early language input and language outcomes in children with cochlear implants* ^(RG2) 07/2019
Auditory & Speech Sciences Laboratory, University of South Florida, Tampa, FL
- *Early linguistic environments and language development in children with cochlear implants* ^(RG2) 06/2019
Massachusetts Eye and Ear, Boston, MA
- *Simulated cochlear-implant processing results in major loss of acoustic information regarding differences in talkers' voice qualities* ^(URE1) 05/2019
Special session on "Exploring the interface between linguistic processing and talker recognition"
Acoustical Society of America, Louisville, Kentucky, May 2019
- *Quality and quantity of early linguistic input and language development in children with cochlear implants* ^(RG2) 02/2019
The 11th Annual Graduate Academic Conference at Michigan State University, East Lansing, MI
- *Acoustic analysis of voice and speech: from pathological voice assessment to spoken word recognition and dialect identification* ^(RG3, RG6, FRE3, URE2) 07/2016
CSD Colloquium Series, Michigan State University, East Lansing, MI
- *An overview of objective evaluation of voice disorders* ^(URE2 & RG6) 12/2014
Khaje Nasir Toosi University of Technology, Department of Electrical Engineering, Tehran, Iran, Dec. 2014

RELATED EXPERIENCES

- Graduate Thesis & Research Mentor** 06/2019–Present
Institute: MGH Institute of Health Professions & Massachusetts Eye and Ear
Mentees: Shaina DiLalla & Charles Hem
- Lab Co-director** 08/2015–12/2019
Lab: MSU Speech Perception and Production Lab, *Institute:* Michigan State University, East Lansing, MI
- Undergrad Thesis Mentor** 08/2018–12/2019
Institute: Michigan State University
Mentees: Zachary Ireland, Seara Mayanja, Nikaela Losievski
- Undergrad Research Supervisor** 08/2015–12/2019
Lab: MSU Speech Perception and Production Lab, *Institute:* Michigan State University, East Lansing, MI
Trainees: Zach Ireland, Talia Magoon, Nikaela Losievski, Megan Cutting, Sophia Stevens, Riley Reed, Seara Mayanja, Chitra Lakshumanan, Joshua Zhao, Alexis Yang, Kayli Silverstein, Elizabeth Remy,

Meisam K. Arjmandi

Maggie Leff, Maddie Haar, Sophie Ghoneim, Arianna Demos, Lizzy Butterfield, Joanna Vuylsteke, Nicole Steri, Jeana Jeong, Courtney Cameron

Undergrad Research Mentor

08/2015–12/2019

Institute: Michigan State University, East Lansing, MI

Honors seminars: Undergraduate Honors Research Seminar (UGS)

Mentees: Nikaela Losievski, Kayla Baumgartner, Alexis Yang

Symposium: Undergraduate Research and Arts Forum (UURAF)

Mentees: Nikaela Losievski, Chitra Lakshumanan, Kayla Baumgartner, Ellen Brooks, Arianna Demos, Sophie Ghoneim, Kayli Silverstein, Alexis Yang, Megan Cutting, Talia Magoon

Undergrad Thesis Supervision

2012–2014

Institute: Islamic Azad University, Department of Electrical Engineering, Damavand, Tehran, Iran

Undergrad Internship Supervision

2012–2014

Institute: Islamic Azad University, Department of Electrical Engineering, Damavand, Tehran, Iran

EDITORIAL SERVICES

Ad hoc Reviewer

Journal of Speech, Language, and Hearing Research

2018–Present

Acoustical Society of America

2019–Present

Biomedical Signal Processing and Control

2012–Present

Medical & Biological Engineering & Computing

2017–Present

Cognitive Science Society

2019–Present

Journal of Clinical Medicine

2021–Present

PROFESSIONAL AFFILIATIONS

American Speech-Language-Hearing Association (ASHA)

2016–Present

Association for Research in Otolaryngology (ARO)

2020–Present

Acoustical Society of America (ASA)

2017–Present

American Cochlear Implant Alliance (ACIA)

2020–Present

The American Auditory Society (AAS)

2020–Present

PROFESSIONAL RESEARCH SKILLS

Software Development: Psychophysical Tuning Curves (PTCs) for Cochlear Implants Research

Software for Behavioral Research: CITest, Bionic Ear Data Collection System (BEDCS),

Cochlear Implant & Hearing Loss Simulators (AngelSimTM), E-prime, EEGLAB, Video Monitoring System

Programming Software: Matlab, Praat, R, Python, C++

Toolbox: Statistical Pattern Recognition (*PRTtools*), Signal Processing, *mPraat* & *rPraat* Packages

Digital Electronic Circuit Design and Analysis