

Jonathan S. Brumberg

Curriculum Vitae

May 2023

Address: Department of Speech-Language-Hearing: Sciences & Disorders
University of Kansas
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Education

- 2003–2008 Ph.D. Cognitive and Neural Systems Boston University, Boston, MA
Thesis: *“An electrophysiological investigation of human motor cortex and its application to speech restoration”*
- 1998–2002 B.S. Computer and Information Sciences University of Delaware, Newark, DE
- 1998–2002 B.A. Philosophy University of Delaware, Newark, DE

Academic appointments

- 2023–present **Associate Professor:** Department of Psychology (Brain, Behavior, Quantitative Program)
University of Kansas, Lawrence, KS
- 2022–present **Provost’s Fellow:** Academic Success
University of Kansas, Lawrence, KS
- 2018–2023 **Associate Professor:** Department of Speech-Language-Hearing: Sciences & Disorders
University of Kansas, Lawrence, KS
- 2018–present **Courtesy Associate Professor:** Department of Electrical Engineering and Computer Science
University of Kansas, Lawrence, KS
- 2018–present **Courtesy Associate Professor:** Department of Hearing and Speech
University of Kansas Medical Center, Kansas City, KS
- 2017–present **Core Faculty:** Graduate Program in Bioengineering
University of Kansas, Lawrence, KS
- 2015–present **Co-director:** Biobehavioral Technology Core, Kansas Intellectual and Developmental Disabilities Research Center
University of Kansas, Lawrence, KS
- 2013–2018 **Courtesy Assistant Professor:** Department of Electrical Engineering and Computer Science
University of Kansas, Lawrence, KS
- 2013–2018 **Courtesy Assistant Professor:** Department of Hearing and Speech
University of Kansas Medical Center, Kansas City, KS
- 2013–present **Affiliate Faculty:** Graduate Program in Neuroscience
University of Kansas, Lawrence, KS
- 2013–2017 **Affiliate Faculty:** Graduate Program in Bioengineering
University of Kansas, Lawrence, KS
- 2013–present **Affiliate Faculty:** Cognitive and Brain Sciences (Psychology)
University of Kansas, Lawrence, KS
- 2013–present **Affiliate Faculty:** Biobehavioral Neurosciences in Communication Disorders (BNCD) Center
University of Kansas, Lawrence, KS
- 2013–present **Affiliate Faculty:** Center, Child Language Doctoral Program
University of Kansas, Lawrence, KS
- 2012–2018 **Assistant Professor:** Department of Speech-Language-Hearing: Sciences & Disorders
University of Kansas, Lawrence, KS
- 2012–2018 **Assistant Professor:** Intercampus Program in Communicative Disorders
University of Kansas, Lawrence, KS
- 2012–present **Director:** Speech and Applied Neuroscience Laboratory
University of Kansas, Lawrence, KS
- 2011–2014 **Adjunct Professor:** Department of Electrical and Computer Engineering
Georgia Institute of Technology, Atlanta, GA
- 2011–2012 **Research Assistant Professor:** Center for Computational Neuroscience and Neural Technology
Boston University, Boston, MA
- 2010–2012 **Research Assistant Professor:** Department of Speech, Language and Hearing Sciences
Boston University, Boston, MA

2010–2011	Research Assistant Professor: Department of Cognitive and Neural Systems <i>Boston University, Boston, MA</i>
2010–2012	Faculty Member: Graduate Program for Neuroscience: Computational Neuroscience <i>Boston University, Boston, MA</i>
2010–2012	Faculty Member: Center of Excellence for Learning in Education, Science and Technology (CELEST) <i>Boston University, Boston, MA</i>
2010–2012	Co-director Neural Prosthesis Laboratory <i>Boston University, Boston, MA</i>
2008–2010	Research Associate: Department of Cognitive and Neural Systems <i>Boston University, Boston, MA</i>
2003–2008	Research Assistant: Department of Cognitive and Neural Systems <i>Boston University, Boston, MA</i>
2002–2003	Research Assistant: Psychology Department <i>Temple University, Philadelphia, PA</i>

Consultant and scientific positions

2022 –	Research Consultant: Wispr AI <i>San Francisco, CA</i>
2009 – 2013	Research Consultant: Communication Analysis and Design Laboratory (CADLAB) <i>Northeastern University, Boston, MA</i>
2008 – 2009	Research Scientist <i>Neural Signals, Inc., Duluth, GA</i>

University, College, & Departmental Committees

Committee Leadership

2023	Interim Chair, Institutional Review Board
2021–2022	Chair, Faculty Search Committee, Department of Speech-Language-Hearing
2020–present	Chair, University Core Curriculum Committee, University of Kansas
2020–2022	Co-Lead Facilitator, Faculty Peer Mentoring Program, KU Office of Faculty Development
2018–2023	Director of Undergraduate Studies, Department of Speech-Language-Hearing
2014	Chair, PhD Admissions Committee, Department of Speech-Language-Hearing

University Committees

2023–	Member, Competency Based Education Workgroup, KU
2022–	Member, Higher Learning Commission Review Quality Initiative, KU
2021	Member, Institute & Center Review Committee, KU Office of Research
2021–2022	Member, Statewide Gen Ed Working Group, KU Provost Office
2021–present	Ex-officio, Academic Program Coordinating Committee, KU
2020–present	Member, Self Memorial Scholarship Advisory Board
2020–2021	Member, Jayhawk Rising, COVID-19 Design Team for Faculty Success, KU Office of the Provost
2020–present	Faculty Representative, Transfer and Articulation Council, Kansas Board of Regents
2019–2020	Facilitator, Faculty Peer Mentoring Program, KU Office of Faculty Development
2019–present	Member, University Core Curriculum Committee, University of Kansas
2018–2020	Member, Research Faculty Advisory Board, KU Center for Undergraduate Research
2018–2020	Member, Working Group on Research in Departmental Curriculum, KU Center for Undergraduate Research
2017	Member, New Faculty Gathering on Getting Students Engaged in Research, KU Office of Faculty Development
2015–present	Member, Institutional Review Board
2013–2017	Faculty Judge, University of Kansas Graduate Research Competition

College Committees

2021	Reviewer, Argersinger Dissertation Award Committee, KU College of Liberal Arts and Sciences
2018, 2020	Reviewer, Research Excellence Fund Review Committee, KU College of Liberal Arts and Sciences
2019–present	Member, College Academic Council, KU College of Liberal Arts and Sciences
2016	Reviewer, Scholarship Selection Committee, KU Graduate School

2015–	Member, Graduate Teaching Assistant Award Committee
2014–2016	Reviewer, Behavioral Science General Research Fund Committee, University of Kansas
2012–2013	Presenter, KU Majors Fair

Departmental Committees

2019–	Member, Promotion and Tenure Committee, KU Department of Speech-Language-Hearing
2019–2020	Member, AuD Faculty Search Committee, KU/KUMC Intercampus Program for Communicative Disorders
2018–	Member, MA-SLP Admissions Committee, KU/KUMC Intercampus Program for Communicative Disorders
2018–	Member, MS/PhD Admissions Committee, KU Graduate Bioengineering Program
2017–2020	Coordinator, Undergraduate Research, KU Department of Speech-Language-Hearing
2016	Member, CAPCSD Scholarship Selection Committee, KU Department of Speech-Language-Hearing
2016	Member, PhD Admissions Committee, KU Department of Speech-Language-Hearing
2014–	Member, Steering Committee, KU Graduate Neuroscience Program
2014–2015	Member, Speech-Language-Hearing Department Faculty Search Committee
2013–2014	Member, Speech-Language-Hearing Department Faculty Search Committee
2012–2016	Member, University of Kansas, AuD Admissions committee
2013	Member, PhD Admissions Committee, SPLH
2012–present	Member, University of Kansas, AuD Task Force

Awards and Honors

2016	Meritorious submission, Annual Convention of ASHA, “Speech & non-speech motor control of prosody by individuals with congenital & acquired dysarthria.”
2015	EURASIP Best Paper Award, “Silent Speech Interfaces” <i>Speech Communication</i>
2014	Friends of the Lifespan Investigator Award (\$7500)
2014	Meritorious submission, Annual Convention of ASHA, “Effects of operational competency & environmental distractors on a brain-computer interface.”
2011	BCI Award Finalist (top ten out of 64 entries)
2011	Awarded Conference Fellowship, ASHA/NIDCD Lessons for Success Research Conference

Research Funding

Current research support

NIDILRR 90REG0014 (PI: J. Light, PSU), Biobehavioral Technology Core Contract	07/2020 – 06/2025
National Institute on Disability, Independent Living, and Rehabilitation Research <i>Rehabilitation Engineering Research Center on Augmentative and Alternative Communication</i> Funded amount: \$25,000/year	
NIH R01 DC016343-01A1, Principal Investigator (PI: J. Brumberg)	07/01/2018 – 06/30/2023
National Institute of Deafness and Other Communication Disorders (NIDCD) <i>A virtual vocal tract for speech output using non-invasive brain-computer interface</i> Funded amount: \$1,270,537 TDC, 5 years (no-cost extension: 2024)	

Completed research support

NIH U54 HD090216, Co-Director, Clinical Outcomes & Biobehavioral Technology Core (PI: J. Colombo)	09/2016 – 08/2021
Eunice Kennedy Shriver National Institute of Child Health and Human Development <i>Kansas Intellectual and Developmental Disabilities Research Center</i>	
Frontiers: University of Kansas Clinical and Translational Science Institute Pilot Grant (PI: J. Brumberg)	07/2019 – 06/2021
NCATS, University of Kansas Medical Center Research Institute <i>Selecting and evaluating a brain computer interface for communication for individuals with severe dystonic cerebral palsy</i> Funded amount: \$50,000	
New Century Scholars Research Grant (PI: J. Brumberg)	12/01/2015 – 11/31/2016
American Speech-Language-Hearing Foundation	

Evaluating control of commercial AAC devices via brain-computer interface by individuals with neuromotor deficits

Funded amount: \$25,000 total costs, 1 year

New Faculty General Research Fund (PI: J. Brumberg)

09/12/2014 – 09/11/2016

University of Kansas

Translating brain-computer interface research to commercial augmentative and alternative communication devices for clinical practice

Funded amount: \$8000

NIH R21 DC013095, Co-Investigator (PI: R. Patel)

12/01/2013 – 11/30/2015

National Institute of Deafness and Other Communication Disorders (NIDCD)

no-cost extension: 2016

Prosody in congenital and acquired dysarthria

Subcontract funded amount: \$59,947 TDC, 2 years

NSF SMA-0835976, Sub-contract (PI: B. Shinn-Cunningham)

03/01/2013 – 02/28/2015

National Science Foundation

no-cost extension: 2016

Subcontract for developing sensorimotor rhythm functionality for Unlock Framework, supported by

NSF Science of Learning Center: CELEST under ABCI capstone

Subcontract funded amount: \$26,041 TDC, 2 years

NIH R03 DC011304, Principal Investigator (PI: J. Brumberg)

09/21/2011 – 08/31/2014

National Institute of Deafness and Other Communication Disorders (NIDCD)

no-cost extension: 2016

Investigating output modality for a brain-computer interface for communication

Funded amount: \$300,000 TDC, 3 years

Mentored student funding

College of Liberal Arts and Sciences Graduate Scholarly Development Fund (N. Dickerson, SPLH)

2022

University of Kansas

Travel to National Black Association for Speech-Language-Hearing Meeting

Office of Graduate Studies Doctoral Student Research Fund (J. Kidwai, SPLH)

2020

University of Kansas

Funded amount: \$1200

College Research Excellence Initiative Graduate Student and Post-Doctoral Fund Award (K. Pitt, SPLH)

2019

College of Liberal Arts and Sciences, University of Kansas

Funded amount: \$1000

Undergraduate Research Award (H. Schippers, SPLH)

Fall 2019

University of Kansas

Woodcock Institute Doctoral Grant (K. Pitt, SPLH)

2018–2019

Texas Women's University

Astronaut Scholarship (B. Marsh, Neuroscience)

May 2018

Astronaut Scholarship Foundation

Research Mentoring Pair Travel Award (J. Kidwai, SPLH & J. Brumberg)

Fall 2018

American Speech-Language-Hearing Association

Funded amount: \$750 (J. Kidwai), \$250 (J. Brumberg)

Summer Research Scholarship (K. Pitt, SPLH)

Summer 2018

University of Kansas

Trialing brain-computer interfaces for augmentative and alternative communication: Evaluating BCI

learning and changes in personal preference

Funded amount: \$5000

Undergraduate Research Award (B. Marsh, Neuroscience)

Spring 2018, Spring 2019

University of Kansas

The Role of the CNV in Intent to Speak

Funded amount: \$2000 (\$1000 per sem)

Collaborative Research Experiences for Undergraduates (CREU) Erick Oduniyi & Rebekah Manweiller Computing Research Association - Women (CRA-W) & Institute for African-American Mentoring in Computing Sciences (iAAMCS) <i>Funded amount: \$3000 / student (co-mentoring 2 students)</i>	2017–2018
Student Research Travel Award for ASHA Convention (K. Pitt, SPLH) American Speech-Language-Hearing Association Highest-rated student authored paper in Motor Speech: “Inter-Institutional, Cutting Edge ALS Research Across the Disease Course, From Motor Speech to AAC BCI” <i>Funded amount: \$500</i>	Fall 2016
Doctoral Student Research Fund (J. Burnison, NURO) University of Kansas Effects of stimuli relevance on auditory driven brain-computer interface <i>Funded amount: \$1800</i>	Spring 2016
Undergraduate Research Award (S. Stasi, SPLH) University of Kansas <i>Effect of Glottal Source Characteristics on Speech Perception</i> <i>Funded amount: \$2000 (\$1000 per sem)</i>	Spring 2016, Fall 2016
Undergraduate Research Award (J. Marple, EECS) University of Kansas <i>An Alternative Eye Tracking System</i> <i>Funded amount: \$2000 (\$1000 per sem)</i>	Spring 2015, Fall 2015
Graduate Research Consultant (N. Castro, Psychology) University of Kansas <i>SPLH 320: The Communicating Brain</i> <i>Funded amount: \$500</i>	Spring 2015
Graduate Research Consultant (J. Burnison, Neuroscience) University of Kansas <i>SPLH 462: Speech Science, Anatomy & Physiology</i> <i>Funded amount: \$500</i>	Fall 2015
NIH F31 DC011663, Co-sponsor (candidate: E. Stephen) National Institute of Deafness and Other Communication Disorders (NIDCD) <i>Decoding imagined vowel productions using electroencephalography</i> Sponsor: F. Guenther; <i>Funded amount: (\$111,082 over 3 years)</i>	08/01/2011 – 05/31/2014

Publications

† Authors contributed equally

* Student author

Refereed research papers

1. *Kidwai, J., **Brumberg, J. S.**, and Gatts, J. (2022). “Aphasia and high-tech communication support: a survey of SLPs in USA and India”. *Disability and Rehabilitation: Assistive Technology*, 1–10. PMID: In Process. doi: 10.1080/17483107.2022.2109072.
2. *Kidwai, J., Sharma, S., Peper, M., and **Brumberg, J. S.** (2022b). “Investigating NIBS for language rehabilitation in aphasia”. *Aphasiology*, 1–30. PMID: In Process. doi: 10.1080/02687038.2022.2089972.
3. Simonyan, K., Ehrlich, S. K., Andersen, R., **Brumberg, J. S.**, Guenther, F. H., Hallett, M., Howard, M. A., Mill’an, J. d. R., Reilly, R. B., Schultz, T., and Valeriani, D. (2022). “Brain-computer interfaces for treatment of focal dystonia”. *Movement Disorders*, 1–6. PMID: In Process. doi: 10.1002/mds.29178.
4. *Kidwai, J., **Brumberg, J. S.**, and *Marsh, B. M. (2021). “A neural marker of speech intention: evidence from contingent negative variation”. *Journal of Speech, Language, and Hearing Research* 64(6S), 2392–2399. PMID: PMC8758324. doi: 10.1044/2020_JSLHR-20-00277.
5. Pitt, K. M. and **Brumberg, J. S.** (2021a). “Evaluating person-centered factors associated with brain-computer interface access to a commercial augmentative and alternative communication paradigm”. *Assistive Technology*, 1–10. PMID: In Process. doi: 10.1080/10400435.2021.1872737.

6. Pitt, K. M. and **Brumberg, J. S.** (2021b). "Evaluating the perspectives of those with severe physical impairments while learning BCI control of a commercial augmentative and alternative communication paradigm". *Assistive Technology*, 1–9. PMID: In Process. doi: 10.1080/10400435.2021.1949405.
7. **Brumberg, J. S.** and *Pitt, K. M. (2019b). "Motor induced suppression of the N100 ERP during motor-imagery control of a speech synthesizer brain-computer interface". *Journal of Speech, Language, and Hearing Research* **62**(7), 2133–2140. PMID: PMC6808362. doi: 10.1044/2019_JSLHR-S-MS18-18-0198.
8. *Pitt, K. M., **Brumberg, J. S.**, Burnison, J. D., Mehta, J., and *Kidwai, J. (2019). "Behind the scenes of non-invasive brain-computer interfaces: A review of electroencephalography signals, how they are recorded, and why they matter". *Perspectives of the ASHA Special Interests Groups* **4**(6), 1622–1636. PMID: PMC7288588. doi: 10.1044/2019_pers-19-00059.
9. *Pitt, K. M., **Brumberg, J. S.**, and *Pitt, A. R. (2019). "Considering Augmentative and Alternative Communication Research for Brain-Computer Interface Practice". *Assistive Technology Outcomes and Benefits* **13**, 1–20.
10. **Brumberg, J. S.**, *Nguyen, A., *Pitt, K. M., and *Lorenz, S. D. (2018). "Examining sensory ability, feature matching, and assessment-based adaptation for a brain-computer interface using the steady-state visually evoked potential". *Disability and Rehabilitation: Assistive Technology* **14**(3), 1–9. PMID: PMC6068003. doi: 10.1080/17483107.2018.1428369.
11. **Brumberg, J. S.**, *Pitt, K. M., and *Burnison, J. D. (2018). "A non-invasive brain-computer interface for real-time speech synthesis: the importance of multimodal feedback". *IEEE Transactions on Neural Systems and Rehabilitation Engineering* **26**(4), 874–881. PMID: PMC5906041. doi: 10.1109/TNSRE.2018.2808425.
12. **Brumberg, J. S.**, *Pitt, K. M., Mantie-Kozlowski, A., and *Burnison, J. D. (2018). "Brain-Computer Interfaces for Augmentative and Alternative Communication: A Tutorial". *American Journal of Speech-Language Pathology* **27**(1), 1–12. PMID: PMC5968329. doi: 10.1044/2017_AJSLP-16-0244.
13. **Brumberg, J. S.**, Thorson, J. C., and Patel, R. (2018). "The Prosodic Marionette: a method to visualize speech prosody and assess perceptual and expressive prosodic abilities". *Speech Communication* **104**, 95–105. PMID: PMC6516857. doi: 10.1016/j.specom.2018.09.009.
14. *Pitt, K. M. and **Brumberg, J. S.** (2018a). "A Screening Protocol Incorporating Brain-Computer Interface Feature Matching Considerations for Augmentative and Alternative Communication". *Assistive Technology*. PMID: In Process. doi: 10.1080/10400435.2018.1512175.
15. *Pitt, K. M. and **Brumberg, J. S.** (2018b). "Guidelines for Feature Matching Assessment of Brain-Computer Interfaces for Augmentative and Alternative Communication". *American Journal of Speech-Language Pathology* **27**(3), 950–964. PMID: PMC6195025. doi: 10.1044/2018_AJSLP-17-0135.
16. Schultz, T., Wand, M., Hueber, T., Krusienski, D., and **Brumberg, J.** (2017). "Biosignal-based Spoken Communication: A Survey". *IEEE Transactions on Audio, Speech and Language Processing* **25**(17), 2257–2271. PMID: In Process. doi: 10.1109/TASLP.2017.2752365.
17. **Brumberg, J. S.**, Krusienski, D. J., Chakrabarti, S., Gunduz, A., Brunner, P., Ritaccio, A. L., and Schalk, G. (2016). "Spatio-temporal Progression of Cortical Activity Related to Continuous Overt and Covert Speech Production in a Reading Task". *PLoS ONE* **11**(11), e0166872. PMID: PMC5119784. doi: 10.1371/journal.pone.0166872.
18. †Lotte, F., †**Brumberg, J. S.**, Brunner, P., Gunduz, A., Ritaccio, A. L., Guan, C., and Schalk, G. (2015). "Electrocorticographic representations of segmental features in continuous speech". *Frontiers in Human Neuroscience* **9**(97), 1–13. PMID: PMC4338752. doi: 10.3389/fnhum.2015.00097.
19. Chakrabarti, S., Sandberg, H. M., **Brumberg, J. S.**, and Krusienski, D. J. (2015). "Progress in speech decoding from the electrocorticogram". *Biomedical Engineering Letters* **5**(1), 10–21. doi: 10.1007/s13534-015-0175-1.
20. Stephen, E., LePage, K. Q., Eden, U. T., **Brumberg, J. S.**, Guenther, F. H., and Kramer, M. A. (2014). "Assessing dynamics, spatial scale, and uncertainty in task-related brain network analyses". *Frontiers in Computational Neuroscience* **8**(31). PMID: PMC3958753. doi: 10.3389/fncom.2014.00031.
21. Terband, H., Maassen, B., Guenther, F. H., and **Brumberg, J. S.** (2014). "Neurocomputational modeling of speech motor control in developmental speech disorders: testing hypotheses about underlying neurological mechanisms". *Journal of Communication Disorders* **47**, 17–33. PMID: PMC3971843. doi: 10.1016/j.jcomdis.2014.01.001.
22. **Brumberg, J. S.**, Wright, E. J., Andreasen, D. S., Guenther, F. H., and Kennedy, P. R. (2011). "Classification of intended phoneme production from chronic intracortical microelectrode recordings in speech-motor cortex". *Frontiers in Neuroscience* **5**, 65. PMID: PMC3096823. doi: 10.3389/fnins.2011.00065.
23. Maguire, M. J., **Brumberg, J.**, Ennis, M., and Shipley, T. F. (2011). "Similarities in Object and Event Segmentation: A Geometric Approach to Event Path Segmentation". *Spatial Cognition & Computation* **11**(3), 254–279. doi: 10.1080/13875868.2011.566955.
24. **Brumberg, J.**, Nieto-Castanon, A., Kennedy, P., and Guenther, F. (2010). "Brain-computer interfaces for speech communication". *Speech Communication* **52**(4), 367–379. PMID: PMC2829990. doi: 10.1016/j.specom.2010.01.001.
25. **Brumberg, J. S.** and Guenther, F. H. (2010). "Development of speech prostheses: current status and recent advances." *Expert Review of Medical Devices* **7**(5), 667–79. PMID: PMC2953242. doi: 10.1586/erd.10.34.
26. Denby, B., Schultz, T., Honda, K., Hueber, T., Gilbert, J., and **Brumberg, J.** (2010). "Silent speech interfaces". *Speech Communication* **52**(4), 270–287. doi: DOI: 10.1016/j.specom.2009.08.002.

27. Guenther, F. H., **Brumberg, J. S.**, Wright, E. J., Nieto-Castanon, A., Tourville, J. A., Panko, M., Law, R., Siebert, S. A., Bartels, J. L., Andreassen, D. S., Ehirim, P., Mao, H., and Kennedy, P. R. (2009). "A Wireless Brain-Machine Interface for Real-Time Speech Synthesis". *PLoS ONE* 4(12), e8218. PMID: PMC2784218. doi: 10.1371/journal.pone.0008218.
28. Terband, H., Maassen, B., Guenther, F. H., and **Brumberg, J.** (2009). "Computational Neural Modeling of Speech Motor Control in Childhood Apraxia of Speech (CAS)". *Journal of Speech Hearing and Language Research* 52(6), 1595–1609. PMID: PMC2959199. doi: 10.1044/1092-4388(2009/07-0283).

Papers in conference proceedings (refereed)

1. *Pirhosseinloo, S. and **Brumberg, J. S.** (2019a). Dilated convolutional recurrent neural network for monaural speech enhancement. In: *Proceedings of the 2019 Asilomar Conference on Signals, Systems and Computers of the IEEE Signal Processing Society*. accepted.
2. *Pirhosseinloo, S. and **Brumberg, J. S.** (2019b). Monaural speech enhancement with dilated convolutions. In: *20th Annual Conference of the International Speech Communication Association (INTERSPEECH 2019)*. Graz, Austria, pp.3143–3147.
3. *Pirhosseinloo, S. and **Brumberg, J. S.** (2018). A new feature set for masking-based monaural speech separation. In: *Proceedings of the 2018 Asilomar Conference on Signals, Systems and Computers of the IEEE Signal Processing Society*, pp.828–832. doi: 10.1109/ACSSC.2018.8645469.
4. **Brumberg, J. S.**, *Burnison, J. D., and *Pitt, K. M. (2016b). Using motor imagery to control brain-computer interfaces for communication. In: *Foundations of Augmented Cognition: Neuroergonomics and Operational Neuroscience*. Ed. by D. Schmorow and C. Fidopiastis. Toronto, Canada: Springer International Publishing Switzerland.
5. **Brumberg, J. S.**, *Castro, N., and *Rao, A. (2015). Temporal dynamics of the speech readiness potential, and its use in a neural decoder of speech-motor intention. In: *16th Annual Conference of the International Speech Communication Association (INTERSPEECH 2015)*. Dresden, Germany.
6. **Brumberg, J. S.**, *Lorenz, S. D., *Galbraith, B. V., and Guenther, F. H. (2012). The Unlock Project: A Python-based framework for practical brain-computer interface communication "app" development. In: *Proceedings of the 34th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC '12)*. San Diego, CA. doi: 10.1109/EMBC.2012.6346473. PMID: PMC3694612.
7. Guenther, F. H. and **Brumberg, J. S.** (2011). Brain-machine interfaces for real-time speech synthesis. In: *Proceedings of the 33rd Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC '11)*. Boston, MA. doi: 10.1109/IEMBS.2011.6091326. PMID: PMC3637898.
8. Matthews, B., Kim, J., **Brumberg, J. S.**, and Clements, M. (2010). A Probabilistic Decoding Approach to a Neural Prosthesis for Speech. In: *2010 4th International Conference on Bioinformatics and Biomedical Engineering*. IEEE, pp.1–4. doi: 10.1109/ICBBE.2010.5515784.
9. **Brumberg, J. S.**, Kennedy, P. R., and Guenther, F. H. (2009). Artificial speech synthesizer control by brain-computer interface. In: *10th Annual Conference of the International Speech Communication Association (Interspeech 2009)*. Brighton, U.K.: International Speech Communication Association.

Posters & Abstracts (refereed)

1. Dickerson, N. and Brumberg, J. S. (2022). Perceptions of individuals with ALS on speech therapy services, healthcare communication, and research opportunities. In: *American Speech-Language-Hearing Association Convention 2022*. New Orleans, LA.
2. Kidwai, J., Sharma, S., Peper, M., and Brumberg, J. S. (2022a). A scoping review of non-invasive brain stimulation approaches for aphasia rehabilitation. In: *American Speech-Language-Hearing Association Convention 2022*. New Orleans, LA.
3. Kidwai, J. and Brumberg, J. S. (2020). Investigating a neural marker of speech intention. In: *2020 Motor Speech Conference*. Santa Barbara, CA.
4. Brucker, M. K., Castro, N., Brumberg, J. S., and Thompson, D. E. (2019). EEG correlates of the verbal transformation effect. In: *2019 Neuroscience Meeting Planner*. Chicago, IL: Society for Neuroscience, 2019. Online.
5. Brumberg, J. S. and Pitt, K. M. (2019a). Commercial Augmentative and Alternative Communication Device Control via Brain-Computer Interface. In: *2019 Assistive Technology Industry Association*. Orlando, FL.
6. Kidwai, J. and Brumberg, J. S. (2019). Investigating a neural marker of speech intention. In: *American Speech-Language-Hearing Association Convention 2019*. Orlando, FL.
7. Brumberg, J. S. and Biro, T. (2018). Decoding articulatory information from electrocorticography during speech production. In: *2018 Motor Speech Conference*. Savannah, GA.
8. Brumberg, J. S. and Pitt, K. M. (2018). Motor induced suppression of the N100 ERP during motor-imagery while controlling a speech synthesizer brain-computer interface. In: *2018 Motor Speech Conference*. Savannah, GA.
9. Kidwai, J., Marsh, B., and Brumberg, J. S. (2018). Can CNV indicate speech intention in aphasia. In: *American Speech-Language-Hearing Association Convention 2018*. Boston, MA.
10. Manweiller, R., Oduniyi, E., Beckage, N., and Brumberg, J. S. (2018). Evaluation of Child-directed Speech Using Automatic Speech Recognition and Network Analysis. In: *2018 ACM Richard Tapia Celebration of Diversity in Computing Conference*. Orlando, FL.
11. Pitt, K. and Brumberg, J. S. (2018). Brain-computer interfaces for AAC: Addressing Training Needs for Moving From Bench to Bedside. In: *American Speech-Language-Hearing Association Convention 2018*. Boston, MA.

12. Pitt, K. and Brumberg, J. S. (2017). A multidisciplinary feature matching based assessment protocol for evaluation across varied AAC brain-computer interfaces. In: *American Speech-Language-Hearing Association Convention 2017*. Los Angeles, CA.
13. Pitt, K., Zarifa, K., Brumberg, J. S., and Brady, N. (2017). Clinically translating AAC brain-computer interface training protocols by utilizing single-subject design and motor-imagery techniques. In: *American Speech-Language-Hearing Association Convention 2017*. Los Angeles, CA.
14. Brumberg, J. S., Burnison, J. D., and Pitt, K. M. (2016a). Development of a Real Time Speech Synthesizer Based Brain Computer Interface. In: *Sixth International Brain-Computer Interface Meeting*. Pacific Grove, CA. PMID: In Process.
15. Brumberg, J. S., Thorson, J. C., Pitt, K. M., and Patel, R. (2016). Speech & non-speech motor control of prosody by individuals with congenital & acquired dysarthria. In: *American Speech-Language-Hearing Association Convention 2016*. Philadelphia, PA.
16. Burnison, J. D. and Brumberg, J. S. (2016). Effects of Stimuli Relevance on Auditory BCI. In: *Sixth International Brain-Computer Interface Meeting*. Pacific Grove, CA.
17. Masterson, C., Pitt, K. M., and Brumberg, J. S. (2016). Motor-imagery performance by individuals with neuromotor deficits for application to AAC brain-computer interface intervention. In: *American Speech-Language-Hearing Association Convention 2016*. Philadelphia, PA.
18. Pitt, K. M., Brumberg, J. S., and Masterson, C. (2016). Development of a clinical decision tree to assess user candidacy for brain-computer interfaces for AAC. In: *American Speech-Language-Hearing Association Convention 2016*. Philadelphia, PA.
19. Pitt, K. M., Burnison, J. D., and Brumberg, J. S. (2016). Brain Computer Interfaces as a New AAC Access Modality for Individuals with Advanced Paralysis. In: *Sixth International Brain-Computer Interface Meeting*. Pacific Grove, CA.
20. Thorson, J., Brumberg, J. S., and Patel, R. (2016). Prosodic Abilities in Individuals with Congenital versus Acquired Dysarthria. In: *2016 Motor Speech Conference*. Newport Beach, CA.
21. Pitt, K. M., Brumberg, J. S., Burnison, J. D., and Duff, J. (2015). CNV potentials during overt & covert hand movements for use in communicative brain-computer interfaces. In: *American Speech-Language-Hearing Association Convention 2015*. Denver, CO.
22. Salazar, T. and Brumberg, J. S. (2015). Effects of glottal source modulation on speech perception and production. In: *Neuroscience Meeting Planner 2015*. Chicago, IL.
23. Brumberg, J. S. and Burnison, J. (2014). Auditory and phonetic contributions to the neural mechanisms underlying vowel perception. In: *167th Meeting of the Acoustical Society of America*. Providence, RI.
24. Brumberg, J. S. and Nguyen, A. (2014). Effects of operational competency & environmental distractors on a brain-computer interface. In: *American Speech-Language-Hearing Association Convention 2014*. Orlando, FL.
25. Burnison, J. D. and Brumberg, J. S. (2014). The mismatched negativity as a marker for acoustic and phonological distinctions between vowel sounds. In: *Neuroscience Meeting Planner 2014*. Washington, DC.
26. Castro, N. and Brumberg, J. S. (2014). Predicting speech onset using the bereitshaftspotential: An ERP application for brain-computer interfaces. In: *American Speech-Language-Hearing Association Convention 2014*. Orlando, FL.
27. Chakrabarti, S., Brumberg, J. S., Schalk, G., and Krusienski, D. J. (2014). Modeling the Mel Frequency Cepstral Coefficients of Continuous Speech from Electrographic High-Gamma Activity. In: *2014 Neural Interfaces Conference*. Dallas, TX.
28. Patel, R., Brumberg, J. S., Shattuck-Hufnagel, S., Velleux, N., and Usher, N. (2014). The developmental trajectory of linguistic prosody. In: *2014 Motor Speech Conference*. Sarasota, FL.
29. Chakrabarti, S., Brumberg, J. S., Gunduz, A., Brunner, P., Schalk, G., and Krusienski, D. J. (2013). Using ECoG gamma activity to model the mel-frequency cepstral coefficients of speech. In: *Fifth International Brain-Computer Interface Meeting*. Pacific Grove, CA.
30. Chakrabarti, S., Krusienski, D. J., Schalk, G., and Brumberg, J. S. (2013). Predicting mel-frequency cepstral coefficients from electrographic signals during continuous speech production. In: *6th International IEEE EMBS Conference on Neural Engineering*. San Diego, CA.
31. Panko, M., Brincat, S., Salazar-Gómez, A., Jia, N., Brumberg, J. S., Kennedy, P. R., Miller, E., and Guenther, F. H. (2013). Comparison of invasive chronic electrodes for brain-computer interface applications. In: *Fifth International Brain-Computer Interface Meeting*. Pacific Grove, CA.
32. Stephen, E. P., LePage, K. Q., Eden, U. T., Brumberg, J. S., Guenther, F. H., and Kramer, M. A. (2013). Assessing dynamics, spatial scale, and uncertainty in task-related brain functional network analyses. In: *2013 Neuroscience Meeting Planner*. New Orleans, LA: Society for Neuroscience, 2013. Online.
33. Brumberg, J. S., Krusienski, D. J., and Schalk, G. (2012). Spatiotemporal dynamics of electrographic high gamma activity during continuous overt and covert speech. In: *2012 Neural Interfaces Conference*. Salt Lake City, UT.
34. Brumberg, J. S., Salazar-Gomez, A., and Guenther, F. H. (2012). Controlling a formant synthesizer using a non-invasive brain-machine interface. In: *2012 Motor Speech Conference*. Santa Rosa, CA.
35. Galbraith, B. V., Brumberg, J. S., Lorenz, S. D., and Guenther, F. H. (2012). Unlock: A Python-based framework for rapid development of practical brain-computer interface applications. In: *Proceedings of the 11th Python in Science conference (SciPy 2012)*. Austin, TX.

36. Stephen, E. P., Kramer, M. A., LePage, K. Q., Eden, U. T., Brunner, P., Guenther, F. H., Schalk, G., and Brumberg, J. S. (2012). Characterizing the dynamically evolving functional networks of speech. In: *2012 Neuroscience Meeting Planner*. New Orleans, LA: Society for Neuroscience, 2012. Online.
37. Brumberg, J. S. and Guenther, F. H. (2011). A non-invasive brain-machine interface for control of a speech synthesizer. In: *Neuroscience Meeting Planner 2011*. Program No. 816.02. Washington, DC: Society for Neuroscience.
38. Panko, M., Brincat, S., Brumberg, J., Salazar-Gomez, A., Roy, J., Overduin, S., Kennedy, P., Miller, E. K., and Guenther, F. (2011). Signal stability in chronic invasive brain-machine interfaces. In: *Neuroscience Meeting Planner 2011*. Program No. 280.13. Washington, DC: Society for Neuroscience.
39. Stephen, E. P., Brumberg, J. S., and Guenther, F. H. (2011). Distinguishing imagined movement from rest using electroencephalography. In: *Neuroscience Meeting Planner 2011*. Program No. 711.05. Washington, DC: Society for Neuroscience.
40. Brumberg, J. S., Kim, J., Matthews, B., Wright, E. J., Guenther, F. H., Clements, M., and Kennedy, P. R. (2010). Evaluation of supervised classification techniques for direct phoneme prediction by a brain-computer interface. In: *Neuroscience Meeting Planner 2010*. Program No. 86.11. San Diego, CA: Society for Neuroscience.
41. Law, R., Brumberg, J., and Guenther, F. (2010). Nonlinear Bayesian filters for EEG-based speech prostheses. In: *Proceedings of the Fourteenth International Conference on Cognitive and Neural Systems (ICONS)*. Boston, MA.
42. Kennedy, P., Andreasen, D., Brumberg, J., Clements, M., Guenther, F., Kim, J., Matthews, B., Ramos, C., Velliste, M., and Wright, E. (2009). Human speech cortex [2]: Tuning of single units during listening and imagined singing of tones and musical notes using feedback. In: *Neuroscience Meeting Planner 2009*. Program No. 181.11. Chicago, IL USA: Society for Neuroscience.
43. Panko, M., Brumberg, J. S., Nieto-Castanon, A., Wright, E. J., Law, R., Kennedy, P. R., and Guenther, F. H. (2009). Decoding intended speech with a brain-machine interface utilizing a Neurotrophic Electrode. In: *Berlin Brain-Computer Interface Workshop: Advances in Neurotechnology, July 8-10, 2009*.
44. Velliste, M., Brumberg, J. S., Perel, S., Fraser, G. W., Spalding, M. C., Whitford, A. S., McMorland, A. J. C., Wright, E. J., Guenther, F. H., Kennedy, P. R., and Schwartz, A. B. (2009). Modular software architecture for neural prosthetic control. In: *Neuroscience Meeting Planner 2009*. Program No. 985.1. Chicago, IL USA: Society for Neuroscience.
45. Brumberg, J., Nieto-Castanon, A., Guenther, F., Bartels, J., Wright, E., Siebert, S., Andreasen, D., and Kennedy, P. (2008). Methods for construction of a long-term human brain machine interface with the Neurotrophic Electrode. In: *Neuroscience Meeting Planner 2008*. Program No. 779.5. Washington, DC: Society for Neuroscience.
46. Guenther, F., Brumberg, J., and Nieto-Castanon, A. (2008). A brain-computer interface for real-time speech synthesis by a locked-in individual implanted with a Neurotrophic Electrode. In: *Neuroscience Meeting Planner 2008*. Program No. 712.1. Washington, DC: Society for Neuroscience.
47. Terband, H., Maassen, B., Brumberg, J. S., and Guenther, F. H. (2008). Increased levels of neural noise as the core deficit in childhood apraxia of speech (CAS). In: *Conference on Motor Speech*. Monterey, CA.
48. Brumberg, J. S., Andreasen, D. S., Bartels, J. L., Guenther, F. H., Kennedy, P. R., Siebert, S. A., Schwartz, A. B., Velliste, M., and Wright, E. J. (2007). Human speech cortex long-term recordings [5]: formant frequency analyses. In: *Neuroscience Meeting Planner 2007*. Program No. 517.17. San Diego, CA.
49. Siebert, S. A., Andreasen, D. S., Bartels, J. L., Brumberg, J. S., Guenther, F. H., Kennedy, P. R., and Wright, E. J. (2007). Human speech cortex long-term recordings [1]: spike sorting and noise reduction. In: *Neuroscience Meeting Planner 2007*. Program No. 728.14. San Diego, CA: Society for Neuroscience.
50. Terband, H., Maassen, B., and Brumberg, J. (2007). Motor speech in adults and children: computational-neurological modeling of childhood apraxia of speech (CAS). In: *American Speech-Language-Hearing Association Conference 2007*. Boston, MA.
51. Wright, E. J., Andreasen, D. S., Bartels, J. L., Brumberg, J. S., Guenther, F. H., Kennedy, P. R., Miller, L., Rebesco, J., Schwartz, A. B., Siebert, S. A., and Velliste, M. (2007). Human speech cortex long-term recordings [3]: neural net analyses. In: *Neuroscience Meeting Planner 2007*. Program No. 517.18. San Diego, CA: Society for Neuroscience.
52. Shipley, T. F., Maguire, M. J., and Brumberg, J. (2004). "Segmentation of event paths". *Journal of Vision* 4(8), 562–562. doi: 10.1167/4.8.562.
53. Shipley, T. F., Maguire, M. J., and Brumberg, J. S. (2003). "Top down effects on search for biological motion". *Abstracts of the Psychonomics Society* 8(51).

Tech reports & professional papers

1. Guenther, F. H. and Brumberg, J. S. (2013, January 01). "Unchained Mind". *The ASHA Leader*, 48–53.
2. Brumberg, J. S., Kennedy, P. R., and Guenther, F. H. (2011). *An auditory output brain-computer interface for speech communication*. Tech. rep. BCI Award 2011.
3. Shipley, T. F. and Brumberg, J. S. (2003). *Markerless motion-capture for point-light displays*. Tech. rep. Philadelphia, PA: Temple University, Temple University Vision Laboratory.

PhD thesis

1. Brumberg, J. (2008). "An electrophysiological investigation of human motor cortex and its application to speech restoration". PhD thesis. Boston, MA, p. 147.

Student advising, mentorship, & committees**Doctoral students, primary mentor (University of Kansas)**

<u>Belinda Okimeng</u> , PhD Graduate Bioengineering Program	2022 – present
<u>Christine Kosirog</u> , PhD Intercampus Program in Communicative Disorders	2021 – present
<u>Nicole Dickerson</u> , SLPD & PhD Intercampus Program in Communicative Disorders	2020 – present
<u>Lauren Mann</u> , PhD Intercampus Program in Communicative Disorders	2019 – 2021
Chair, comprehensive exam committee	2019
Chair, dissertation exam committee	2021
Title: “Clinical assessment of tinnitus following concussion”	
<u>Juhi Kidwai</u> , PhD Intercampus Program in Communicative Disorders	2018 – 2021
(co-mentor with Jackson 2018-2020)	
Co-chair, comprehensive exam committee	2019
Chair, dissertation exam committee	2021
Title: “Playing with neurons: identifying non-invasive tools for neural rehabilitation in aphasia”	
<u>Shadi Pir Hosseinloo</u> , PhD Electrical Engineering and Computer Science	2017 – 2020
Chair, comprehensive exam committee	2018
Chair, dissertation exam committee	2020
<u>Tiffany Biro</u> , Intercampus Program in Communicative Disorders	2016 – 2018
(co-mentor with Viswanathan)	
<u>Kevin Pitt</u> , PhD Intercampus Program in Communicative Disorders	2014 – 2019
Chair, comprehensive exam committee	2017
Chair, dissertation exam committee	2019
Title: “Evaluating person centered factors associated with brain-computer interface access to a commercial augmentative and alternative communication device”	
<u>Jeremy Burnison</u> , PhD Graduate Neuroscience Program	2012 – 2017
Chair, comprehensive exam committee	2015
Chair, dissertation exam committee	2017
Title: “Use of task relevant stimuli in an auditory brain-computer interface”	

Doctoral students, secondary research

<u>Tamara Iccaoui</u> , Intercampus Program in Communicative Disorders, University of Kansas	2022 –
Committee member, comprehensive exam committee	2022
<u>Jamea Sale</u> , Music Education & Music Therapy, University of Kansas	2021 –
Grad studies representative, comprehensive exam committee	2021
<u>Shannon Kelly</u> , Psychology, University of Kansas	2021 –
Grad studies representative, comprehensive exam committee	2021
<u>A. Winston Sullivan</u> , Music Education & Music Therapy, University of Kansas	2020 –
Grad studies representative, comprehensive exam committee	2020
<u>Adam Brazil</u> , Education Leadership & Policy Studies, University of Kansas	2019
Outside member, dissertation exam committee	
Title: “Selecting the common book: anarchy and ambiguity in action”	
<u>Adrienne Pitt</u> , Intercampus Program in Communicative Disorders, University of Kansas	2019
Committee member, comprehensive exam committee	
<u>Jordan Craig</u> , Graduate Bioengineering Program, University of Kansas	2018
Outside member, dissertation exam committee	
Title: “Quantifying gait stability based on body segment coordination relationships measured with wireless sensors”	
<u>Adam Sterczala</u> , Health, Sport, and Exercise Science, University of Kansas	2018
Outside member, dissertation exam committee	
Title: “The effects of resistance training on motor unit firing rates and recruitment during submaximal contractions”	
<u>Ember Krech</u> , Graduate Bioengineering Program, University of Kansas	2018
Committee member, qualifying exam committee	
<u>Aryn Kamerer</u> , Intercampus Program in Communicative Disorders, University of Kansas	2017
Committee member, dissertation exam committee	

<p>Title: "Identifying the cellular sources of the low-frequency cochlear response" <u>Maxwell Murphy</u>, Graduate Bioengineering Program, University of Kansas</p>	<p>2017 – 2020 2017 2018 2020</p>
<p>Title: "Neurophysiological mechanisms of sensorimotor recovery from stroke" <u>Alan Martin</u>, Music Education & Music Therapy</p>	<p>2016 – 2017 2016 2017</p>
<p>Title: "The use and reported perception of university voice students during self-guided practice sessions: a quantitative content analysis" <u>Corinne Walker</u>, Intercampus Program in Communicative Disorders, University of Kansas</p>	<p>2016 – 2021 2019 2021</p>
<p>Title: "Parent-implemented AAC narrative intervention" <u>Breanna Krueger</u>, Intercampus Program in Communicative Disorders, University of Kansas</p>	<p>2016 – 2017 2016 2017</p>
<p>Title: "Age as a factor in the treatment of late acquired sounds" <u>Stephanie Knollhoff</u>, Intercampus Program in Communicative Disorders, University of Kansas</p>	<p>2016</p>
<p>Title: "ANOW response recorded via electrocorticography in normal hearing adults" <u>Hana Almohammad</u>, Intercampus Program in Communicative Disorders, University of Kansas</p>	<p>2015 – 2016 2015 2016</p>
<p>Title: "ANOW response recorded via electrocorticography in normal hearing adults" <u>Andr�s Salazar-Gomez</u>, Graduate Program for Neuroscience, Boston University</p>	<p>2016</p>
<p>Title: "Use of error-related potentials for adaptive decoding and for direct binary control in brain-machine interfaces" <u>Amelia Rollings</u>, Music Education & Music Therapy, University of Kansas</p>	<p>2014 – 2015 2014 2015</p>
<p>Title: "Head over heels: the effects of three heel heights on postural and acoustical measures of university female voice majors, and measured relationships between heel height, pitch, vowel, behavior, head position, jaw opening and dB SPL" <u>Gina DeBarthe</u>, Intercampus Program in Communicative Disorders</p>	<p>2014 – 2017 2014 2017</p>
<p>Title: "The impact of augmentative & alternative communication on the utterance length of children with limited speech" <u>Nikki Go</u>, Intercampus Program in Communicative Disorders, University of Kansas</p>	<p>2014 – 2016 2016</p>
<p>Title: "An analysis of semantic and phonological associations using network science" <u>Nichol Castro</u>, Child Language Doctoral Program / Department of Psychology, University of Kansas</p>	<p>2013 – 2017 2016 2017</p>
<p>Title: "Effects of intensity on N100 cortical potentials to tonal and speech stimuli" <u>Ashley Lombardi</u>, Intercampus Program in Communicative Disorders (Au.D.), University of Kansas</p>	<p>2013 – 2014</p>
<p>Title: "The effects of actual recital hall and four digitally-produced variable practice room environments on phonatory, acoustical, and perceptual measures of vocal performances by experienced female singers" <u>Heather Nelson</u>, Music Education & Music Therapy, University of Kansas</p>	<p>2013 – 2016 2013 2016</p>
<p><u>Christine Kosirog</u>, Graduate Neuroscience Program, University of Kansas</p>	<p>2013</p>

<u>Austin Oder</u> , Intercampus Program in Communicative Disorders, University of Kansas	2013
Committee member, comprehensive exam committee	2013
<u>Kian Bee Ng</u> , Queensland Brain Institute, University of Queensland	2013
External reviewers, dissertation exam committee	
<u>Brett Matthews</u> , Electrical Engineering and Computer Science, Georgia Institute of Technology	2012
External committee member, dissertation exam committee	
<u>Emily Stephen</u> , Graduate Program in Neuroscience, Boston University	2011 – 2015
(co-sponsored NIH F31 predoctoral fellowship)	
External member, dissertation exam committee	2015
Title: “Characterizing dynamically evolving functional networks in humans with application to speech”	
<u>Misha Panko</u> , Graduate Program in Neuroscience, Boston University	2010 – 2014
External reviewer, dissertation exam committee	
<u>Sean Lorenz</u> , Program in Cognitive and Neural Systems, Boston University	2010 – 2012
2 nd Reader, dissertation exam committee	2012
Title: “Context-specific user interface design for a brain-computer communication device”	
<u>Rob Law</u> , Program in Cognitive and Neural Systems, Boston University	2009 – 2013
2 nd Reader, dissertation exam committee	2013
Title: “Calculation of synchronous activity on arbitrary networks of nonlinear cells with application to brain-computer interface design”	

Masters thesis students and committees

<u>Kimia Memar</u> , Graduate Bioengineering Program, University of Kansas	2019
Chair, masters thesis exam committee	
Title: “Use of multi-scale entropy to characterize fetal autonomic development”	
<u>Corinne Walker</u> , Intercampus Program in Communicative Disorders, University of Kansas	2016
Committee member, masters thesis exam committee	
Title: “Intensive eye gaze training for AAC access: a case study”	
<u>Akshatha Rao</u> , Electrical Engineering & Computer Science, University of Kansas	2015
Committee member, masters thesis exam committee	
<u>Breanna Steidley</u> , Intercampus Program in Communicative Disorders, University of Kansas	2013
Committee member, masters thesis exam committee	
Title: “The effect of misarticulation on preschoolers’ word recognition”	
<u>Anh Nguyen</u> , Speech, Language and Hearing Sciences, Boston University	2013
Advisor & chair, masters thesis exam committee	
Title: “An application of steady state visually evoked potential (SSVEP) brain-computer interface as an augmentative and alternative communication system for individuals with locked-in syndrome”	

Masters students, secondary research

<u>Sarah Schrader</u> , Intercampus Program in Communicative Disorders, University of Kansas	2020 – 2021
<u>Jessica Akalis</u> , Intercampus Program In Communicative Disorders, University of Kansas	2020 – 2021
<u>Nicole Jong</u> , Intercampus Program in Communicative Disorders, University of Kansas	2020 – 2021
<u>Jennica Mosier</u> , Intercampus Program in Communicative Disorders, University of Kansas	2019
<u>Natalie Block</u> , Intercampus Program in Communicative Disorders, University of Kansas	2018–2019
<u>Akshatha Rao</u> , Electrical Engineering & Computer Science, University of Kansas	2014
<u>Jarrod Purkeypille</u> , Intercampus Program in Communicative Disorders, University of Kansas	2013–2014
<u>Kaylan Conner</u> , Intercampus Program in Communicative Disorders, University of Kansas	2013

Undergraduate students, research mentor

<u>Rylie Mueller</u> , Speech-Language-Hearing	2022–
<u>Amy Edgington</u> , Speech-Language-Hearing	2022–
<u>Sarah Zingg</u> , Speech-Language-Hearing	2021–2022
<u>Alina Ward</u> , Speech-Language-Hearing	2021–2022

<u>Elizabeth Santillan</u> , Speech-Language-Hearing	2020
<u>Sarah Brooks</u> , Speech-Language-Hearing	2020
<u>Jennifer Turner</u> , Neuroscience	2019 – 2020
<u>Hollie Mullen</u> , Neuroscience	2019 – 2020
<u>Nikii Vuong</u> , Neuroscience	2019 – 2020
<u>Bhavna Gupta</u> , Neuroscience	2018 – 2020
<u>Haley Schippers</u> , Speech-Language-Hearing	2018 – 2020
“Neural and Behavioral Integrations of Masked Feedback During Speech: An ERP Study,” awarded UGRA Fall 2019	
<u>Kacie Inderhees</u> , Speech-Language-Hearing	2018 – 2019
“Brain Responses During Word Learning in Children with Nonverbal Autism”	
<u>Maggie Olson &</u> , Speech-Language-Hearing	2018 – 2019
<u>Darcy Koesterer</u> , “Interview Protocol for BCI Users”	
<u>Erick Oduniyi</u> , Electrical Engineering & Computer Science	2017 – 2019
“Computational Stories Pt 1: Developing a Framework for Processing Language & Culture” (presented at KU undergraduate research symposium & 2019 Cognitive Science Conference)	
<u>Rebekah Manweiler</u> , Electrical Engineering & Computer Science	2017 – 2019
“Exploring The Network Structure of Child Directed Speech” (presented at KU undergraduate research symposium; awarded Sigma Xi membership (one of eight presentations))	
<u>Bri Marsh</u> , Neuroscience	2018 – 2019
“Decoding the Neural Substrates of Intent to Speak” (presented at 2018 KU Initiative for Maximizing Student Deveopment research symposium & 2019 KU undergraduate research symposium)	
<u>Anna Schauer &</u> , Speech-Language-Hearing	2017 – 2018
<u>Bridget Rennard</u> , “Lemurs and BCI, What’s the Big Deal?”	
<u>Lexi Oatman</u> , Speech-Language-Hearing	2018
“Alpha Waves During Language Preparation”	
<u>Ellarie Woolpert</u> , Speech-Language-Hearing	2017
“Incorporating Explicit and Implicit Motor Imagery Training for Application to AAC-BCI Control”	
<u>Mallory Miller</u> , Speech-Language-Hearing	2016 – 2017
“Effects of spatial cues and repetitions on word recognition reaction time”	
<u>Lauren Mason</u> , Speech-Language-Hearing	2016 – 2017
“Investigating Prosody in Congenital and Acquired Dysarthria using the Prosodic Mari-onette Computer Interface”	
<u>Shaina Stasi</u> , Speech-Language-Hearing	2016 – 2017
“Effect of Glottal Source Characteristics on Speech Perception” (presented at KU undergraduate research symposium; awarded UGRA Spring & Fall 2016)	
<u>Ginna Long</u> , Speech-Language-Hearing	2015 – 2016
“Brain-computer interface speech synthesizer”	
<u>Courtney Huffman</u> , Speech-Language-Hearing	2015
“CNV Potentials During Overt and Covert Hand Movements”	
<u>Amy Morrison</u> , Speech-Language-Hearing	2015
“Effects of Glottal Source Modulation on Speech Perception and Maintenance”	
<u>Joshua Marple</u> , Electrical Engineering & Computer Science	2015 – 2016
“An Alternative Eye Tracking System” (presented at 2016 KU undergraduate research symposium ACE talks; awarded UGRA Spring & Fall 2015)	
<u>Thomas Salazar</u> , KU PREP	2014 – 2015
“Glottal source modulation and speech perception maintenance”	
<u>Jackie Duff</u> , Speech-Language-Hearing	2014 – 2015
“Coordination of Cognitive Preparation and Motor Commands in an EEG Study of Overt and Covert Movements for Brain-Computer Interfaces” (contributed to ASHA poster presentation)	
<u>Paige Gundelfinger</u> , Speech-Language-Hearing	2014 – 2015

<u>Seth Polsley</u> , Electrical Engineering and Computer Science	2013 – 2014
“Control System Based on Electromyography” (presented at KU undergraduate research symposium; published in <i>KU Journal of Undergraduate Research</i>)	
<u>Rebecca Howard</u> , Speech-Language-Hearing	2013 – 2014
“Influence of synthesized vowel sounds on neural processing of speech perception” (presented at KU undergraduate research symposium)	
<u>Shelby Snyder</u> , Speech-Language-Hearing	2013 – 2015
“Prosodic Perception and Production Development in Children”	
<u>Sean Manton</u> , Boston University, Biomedical Engineering	2012
<u>Matt Kramer</u> , Boston University, Biomedical Engineering	2012
<u>Nadia Lonsdale</u> , Boston University, Biomedical Engineering	2011 – 2012
<u>Dante Smith</u> , Boston University, Biomedical Engineering	2011 – 2012

Student awards and honors

K. Pitt received Friends of the Lifespan Institute GRA award	2017
K. Pitt received ASHA SRTA	2016
K. Pitt received SPLH PhD student award	2016
J. Marple ACE talk & award for KU undergraduate research symposium	2016
J. Burnison selection to first Summer School in Adaptive Neurotechnologies, July 11-29, 2016, in Albany, New York.	2016
J. Burnison received SPLH GTA award	2015
N. Castro selected to summer school for computational sciences	2015

Presentations

Invited presentations

1. “Brain-machine interfaces for control of augmentative and alternative communication devices.” 15th Annual Eleanor M. Saffran Conference on the Cognitive Neuroscience & Rehabilitation of Communication Disorders, Philadelphia, PA. Rescheduled for September, 2021.
2. “Real-time decoding and control of a model-based articulatory speech synthesizer.” Workshop on: From Speech Decoding to Speech Neuroprostheses, 2020 (rescheduled for 2021) International Brain Computer Interface Meeting.
3. “Encoding Speech with BCIs.” Radcliffe Institute Seminar on Exploring brain-computer interfaces for transforming dystonia treatment. September 11, 2020, Boston, MA.
4. “Advancements in Brain-Computer Interfaces for Restoring Speech and Communication.” Callier Prize Conference, Callier Center, University of Texas Dallas, Dallas, TX, April 16, 2019 (Sole Presenter)
5. “Examining speech production using intracranial electrophysiological recordings.” 7th International Brain-Computer Interface Meeting, Workshop on Progress in Decoding Speech Processes using Intracranial Signals, Pacific Grove, CA, May 23, 2018. (Sole presenter)
6. “BCIs for Children.” Cerebral Palsy Alliance Research Foundation Technology Summit, San Francisco, CA, May 3, 2018. (Sole presenter)
7. “Using imagined and preparatory motor activity to control assistive devices for speech communication.” 38th Annual International Conference of the IEEE Engineering in Medicine and Biology Society, Workshop on Communication, Restoration of Function, and Consciousness Assessment with BCI, Orlando, FL, August 16, 2016. (Sole presenter)
8. “Using motor imagery to control brain-computer interfaces for communication.” 18th International Conference on Human-Computer Interaction, 10th International Conference on Augmented Cognition, Toronto, ON, Canada, July 20, 2016. (Lead presenter, co-authors: J. Burnison and K. Pitt)
9. “Examining speech production using intracranial electrophysiological recordings.” 6th International Brain-Computer Interface Meeting, Workshop on Decoding Speech Processes using Intracranial Signals, Pacific Grove, CA, May 30 – June 3, 2016. (Lead presenter, co-authors: D. J. Krusienski, F. Lotte, G. Schalk)
10. “Using speech and language neuroscience to develop a brain-machine interface for communication.” Center for Brain, Biology & Behavior (CB3), Colloquium Series 2015–2016, University of Nebraska, Lincoln, NE, October 5, 2015.

11. "Tenure track: the job search & the interview process" American Speech-Language-Hearing Association Convention 2014, Orlando, FL, November 21, 2014. (Presented with: E. Zimmerman, J. Hoover, S. Adlof and A. Sterling).
12. "Auditory considerations for a motor imagery brain-computer interface for speech synthesizer control" 48th Annual Asilomar Conference on Signals, Systems, and Computers, Pacific Grove, CA, November 2–5, 2014
13. "Interdisciplinary collaborations at work in brain-machine interface research" Merrill Research Retreat, Lied Lodge, Nebraska City, NE, July 16–18, 2014
14. "SLC alumni academic panel." iSLC Conference, Pittsburgh, PA, March 8, 2014
15. "Brain-computer interfaces for communication." Science of Learning Centers PI Awardee Meeting, Washington, DC, October 14, 2010.

Competitively reviewed presentations

1. "Evolution in Technology to Aid and Restore Communication" 2019 American Association for the Advancement of Science Annual Meeting, session on "Talking without Speaking: Overcoming Communication Challenges with Technology," Washington, DC, February 17, 2019. (Presented with C. Binger, A. Dietz).
 2. "AAC Technology for Individuals With Severe Physical Impairment: Current Practice & Future Trends" American Speech-Language-Hearing Association Convention 2018, Philadelphia, PA, November 17, 2018. (Presented with K. Pitt, S. Fager, L. Biggs-Heidrick)
 3. "A new feature set for masking-based monaural speech separation" 52nd Annual Asilomar Conference on Signals, Systems, and Computers, Pacific Grove, CA, October 28-31, 2018, (Lead Presenter: S. Pir Hosseinloo)
 4. "Evaluation of Child-directed Speech Through Network Analysis and Automatic Speech Recognition" 2018 ACM Richard Tapia Celebration of Diversity in Computing Conference, Orlando, FL, September 22, 2018 (Lead Presenter: R. Manweiler)
 5. "Assessing Child-directed Speech Through Automatic Speech Recognition" 2018 Cognitive Science Association for Interdisciplinary Learning, Hood River, OR, July 27, 2018 (Lead Presenter: E. Oduniyi)
 6. "Evaluating control of commercial AAC devices via brain-computer interface by individuals with neuromotor deficits" American Speech-Language-Hearing Association Convention 2016, Philadelphia, PA, November 17, 2016. (Lead presenter, co-authors: K. Pitt, J. Burnison).
 7. "Inter-institutional, cutting edge ALS research across the disease course, from motor speech to AAC BCI" American Speech-Language-Hearing Association Convention 2016, Philadelphia, PA, November 18, 2016. (Presented with K. Pitt, J. Searl, M. Kuruvilla-Dugdale)
 8. "The spatiotemporal dynamics of speech at segmental and suprasegmental timescales" 2016 Motor Speech Conference, Newport Beach, CA, March 6, 2016. (Lead Presenter, co-authors: F. Lotte, D. J. Krusienski, G. Schalk)
 9. "State of the science update: brain-computer interfaces for augmentative & alternative communication" American Speech-Language-Hearing Association Convention 2015, Denver, CO, November 12, 2015. (Presented with B. Peters, A. Mooney, D. Zeitlin, M. Fried-Oken)
 10. "Temporal dynamics of the speech readiness potential, and its use in a neural decoder of speech-motor intention" Interspeech 2015, Dresden, Germany, September 6–10, 2015 (Lead presenter, co-authors: N. Castro, A. Rao)
 11. "Biological signal acquisition and analysis for speech production and perception: electromyography, electroencephalography and magnetoencephalography (EMG, EEG and MEG)" Interspeech 2015, Dresden, Germany, September 6–10, 2015 (Lead presenter, Presented with C. Stepp, A. Lee, E. Lalor)
 12. "What you need to know: surface electromyography & electroencephalography in speech & hearing." American Speech-Language-Hearing Association Convention 2013, Chicago, IL, November 16, 2013. (Presented with C. Stepp)
 13. "Games for assessment and rehabilitation of speech and language impairments." American Speech-Language-Hearing Association Convention 2012, Atlanta, GA, November 15, 2012. (Presented with C. Stepp and R. Patel)
 14. "Artificial speech synthesizer control by brain-computer interface." Interspeech 2009, Brighton, UK, September 7, 2009.
 15. "Real-time speech synthesis for neural prosthesis." Acoustical Society of America, Portland, OR, May 18, 2009.
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Professional development

Fellow, Senior Administrative Fellows, KU Office of Faculty Development	2021 – 2022
Participant, Faculty Peer Mentoring Program, KU Office of Faculty Development	2018 – 2019
Participant, Research in Departmental Curriculum Working Group, KU Center for Undergraduate Research	2018
Trainee, NSF CAREER Writers Workshop, KU Office of Research	2017
Trainee, Best Practices Institute, KU Center for Teaching Excellence	2014
Trainee, American Speech-Language-Hearing Foundation, Grant Review and Reviewer Training	2013
Trainee, ASHA/NIDCD Lessons for Success Research Conference	2011

Professional Memberships

Member, Society for Neuroscience	2017 – present
Member, American Speech-Language-Hearing Association	2012 – present
Member, BCI Society	2016 – present

Service to the Profession

Grant Review

<i>Ad hoc</i> reviewer, Motor Function, Speech and Rehabilitation Study Section (MFSR)	Jun 2021 Oct 2020 Jun 2019
<i>Ad hoc</i> reviewer, Clinical Research Center (P50) Review Panel (ZDC1 SRB X63)	Jun 2021
<i>Ad hoc</i> chair, U01 Review Panel	Oct 2020 Jun 2020
<i>Ad hoc</i> reviewer, Voice, Speech, and Language Translational Research Review (ZDC1 SRB-R)	Jan 2020 Jun 2019
Reviewer, Frontiers Clinical Translational Science Institute: Pilot Grant Program	2020
<i>Ad hoc</i> reviewer, U01 Review Panel	Oct 2019
<i>Ad hoc</i> reviewer, Special Emphasis Panel 2020/01 (ZDC1 SRB-E)	Oct 2019
Reviewer, NSF Collaborative Research on Computational Neuroscience	May 2019
Reviewer, NSF Cyber Human Systems (CHS-CISE Medium)	Apr 2019
Reviewer, American Speech-Language-Hearing Foundation, Grant Review and Reviewer Training	2020 2018
Reviewer, American Speech-Language-Hearing Foundation, New Investigators Research Grant	2019
Reviewer, ASHA Students Preparing for Academic Research Careers (SPARC) Award	2017
Reviewer, Medical Research Council, UK (2014)	2014
Reviewer, NSF Perception, Action, Cognition	May 2019 Sep 2014

Journal, Conference, Workshop Review

Guest Editor, Journal of Speech, Language, and Hearing Research, Special Issue for 2020 Conference on Motor Speech	2020 – 2021
Guest Editor, Journal of Speech, Language, and Hearing Research, Special Issue for 2018 Conference on Motor Speech	2018 – 2019
Guest Editor, IEEE Transactions on Audio, Speech and Language Processing, Special issue on Biosignal based Speech Communication	2016 – 2018
Associate Editor / Editorial Board, <i>Brain-computer interfaces</i>	2014 – present
Reviewer, 2020 Motor Speech Conference	2019 – 2020
Reviewer, 2018 BCI Meeting	2018
<i>Ad hoc</i> reviewer, <i>Journal of Speech, Language and Hearing Research, Neuroscience, Journal of Cognitive Neuroscience, Sensors, IEEE Transactions on Neural Systems and Rehabilitation Engineering, BioMedical Engineering, Speech Communication, Neurorehabilitation and Neural Repair, Frontiers in Neuroprosthetics, Clinical EEG & Neuroscience, American Journal of Speech-Language Pathology, Brain Research, Augmentative and Alternative Communication, Journal of Neural Engineering, Disability and Rehabilitation: Assistive Technology, PLoS One, Frontiers in Neuroscience</i>	2009 – present

Outreach

Presenter, "Grant reviews - What is study section like?" ASD/NDD Post-doc proseminar	Oct 2020
Interview with BioNexus KC Blog, https://bionexuskc.org/ku-researcher-translating-brain-activity-into-communication-for-nonverbal-patients/	Feb 2020
Presenter, "Restoring communication using brain-computer interfaces" Museum at Prairiefire Science Happy Hour	Jan 2020
Presenter, "Engineering and neuroscience to develop a brain-machine interface for communication - with Python" PythonKC	Feb 2018
Workshop instructor, Project Discovery, KU High School Engineering Summer Camp	2017
Presenter, "Neuroscience applications of engineering and computer science" KU Student Association for Computing Machinery (ACM)	2016
Presenter, "Brain-computer interfaces for speech and communication" University Campus Forum, Lawrence, KS	2016
Presenter, "Engineering and neuroscience to develop a brain-machine interface for communication" Engineering in Medicine and Biology Society (EMBS) Kansas City Chapter, Kansas City, MO	2016
Organizer, University of Kansas Brain-computer interface workshop	2014
Mentor, Jackson Heights Middle School Job Shadow Program	2013

Student Mentoring

Mentor, KU University Scholars Mentoring Program	2020
Mentor, Collaborative Research Experiences for Undergraduates (CREU)	2017 – 2018
Mentor, Mentoring Academic Research Careers (MARC)	2017 – 2018
Mentor, PROMoting the Next GENeration of Researchers (PROGENY)	2016

Courses taught**University of Kansas: Department of Speech-Language-Hearing**

SPLH 462 *Principles of Speech Science: Anatomy & Physiology*, 2012–present

SPLH 320 *The Communicating Brain*, 2014–2015

SPLH 861 *Seminar in Research Methodology in Speech Pathology and Audiology: Applications in MATLAB programming*, 2015, 2016

AUD 816 / SPLH 716 *Speech Perception*, 2014, 2016–present

AUD 940 / SPLH 764 *Seminar in Imaging*, 2013, 2015

SPLH 852 *Augmentative and Alternative Communication*, 2012

Northeastern University, Department of Speech-Language Pathology and Audiology

Guest lecture in *Motor Speech Disorders*: Special lecture on brain implants for deep brain stimulation and brain-machine interfacing. Spring 2011

Boston University, Department of Health Sciences

Guest lecture in *Introduction to Computational Neuroscience of Speech, Language and Hearing*: Special lecture on speech neuroscience & brain computer interfacing for speech, communication and control. Fall 2010