

BIOGRAPHICAL

Name: Christopher A. Brown
Address: Department of Communication Science and Disorders
The University of Pittsburgh
6036 Forbes Tower
Pittsburgh, PA 15260
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EDUCATION and TRAINING

2004-2009	Arizona State University Tempe, Arizona	Post-doctoral fellowship	Cochlear implant processing
2000-2004	Loyola University Chicago Chicago, Illinois	Ph.D., 2004	Perception, Psychoacoustics
1993-1999	University of Wisconsin-Milwaukee Milwaukee, Wisconsin	M.S., 1999	Cognition and Perception Minors: Statistics, Linguistics
1989-1993	University of Rhode Island Kingston, Rhode Island	B.A., 1993	Psychology

APPOINTMENTS and POSITIONS

2018-present	Department of Communication Science and Disorders University of Pittsburgh	Associate Professor
2012-2018	Department of Communication Science and Disorders University of Pittsburgh	Assistant Professor
2009-2012	Department of Speech and Hearing Science Arizona State University	Associate Research Professor

MEMBERSHIP in PROFESSIONAL and SCIENTIFIC SOCIETIES

- The Association for Research in Otolaryngology Since 2001
- The Acoustical Society of America Since 1995
- The American Auditory Society Since 2008

PUBLICATIONS (student names are italicized)

Refereed articles

1. *Liang, W.*, **Brown, C.A.**, and Shinn-Cunningham, B. (in prep). Bottom-up Interrupters Interfere with Behavioral Performance on a Spatial Auditory Attention Task. *Journal of the Acoustical*

Society of America.

2. *Jagadeesh, A.*, Corbin, N.E., and **Brown, C.A.** (in prep). The effect of face coverings on children's speech perception in noise. *International Journal of Audiology*.
3. *Zhang, M.*, and **Brown, C.A.** (under review). Unvoiced Speech Recognition in Amplitude-Modulated Noise as a Measure of Temporal Envelope Processing.
4. **Brown, C.A.**, *Sezginel, K.B.*, and Pastore, M.T. (under review). Frequency-place mismatch and speech intelligibility in simulated cochlear implant processing.
5. Spencer, N.J., *Helms Tillery, K.*, and **Brown, C.A.** (2018). Effects of dynamic-range compression on sentence intelligibility with a speech masker in simulated cochlear implant listening. *Ear & Hearing*. <https://doi.org/10.1097/AUD.0000000000000653>.
6. **Brown, C.A.** (2018). Corrective binaural processing for bilateral cochlear implant patients. *PLOS-One*. 13(1): e0187965. <https://doi.org/10.1371/journal.pone.0187965>.
7. **Brown C.A.**, *Helms Tillery, K.*, Apoux, F., *Doyle, N.M.*, Bacon, S.P. (2016). Shifting fundamental frequency in simulated electric-acoustic listening: Effects of F0 variation. *Ear & Hearing*, 37, 18-25. PMID: 26565786. <http://dx.doi.org/10.1097/AUD.0000000000000227>.
8. **Brown, C.A.** and Yost, W.A. (2015). Spectral overlap and interaural time difference sensitivity: Possible role of binaural interference. *Journal of the Acoustical Society of America*, 137, 374-380. PMID: 25994736. <http://dx.doi.org/10.1121/1.4916798>.
9. **Brown, C.A.** (2014). Binaural enhancement for bilateral cochlear implant users. *Ear & Hearing*, 35, 580-584. PMID: 25144252. <http://dx.doi.org/10.1097/AUD.0000000000000044>.
10. Dorman, M.F., *Loiselle, L.*, Stohl, J., Yost, W.A., Spahr, A., **Brown, C.A.**, and *Cook, S.* (2014). Interaural level differences and sound source localization for bilateral cochlear implant patients. *Ear & Hearing*. PMID: 25127322. <http://dx.doi.org/10.1097/AUD.0000000000000057>.
11. **Brown, C.A.** and Yost, W.A. (2013). Interaural time processing when stimulus bandwidth differs at the two ears. *Advances in Experimental Medical Biology*, 787, 247-54. PMID: 23716230 doi: 10.1007/978-1-4614-1590-9_28. (Annual collection of peer-reviewed primary research articles).
12. Dorman, M.F., Spahr, A., *Loiselle, L.*, Zhang, T., *Cook, S.*, **Brown, C.A.**, and Yost, W.A. (2013). Localization and speech understanding by a patient with bilateral cochlear implants and bilateral hearing preservation. *Ear & Hearing*, 34, 245-248. PMID: 23183045. <http://dx.doi.org/10.1097/AUD.0b013e318269ce70>.
13. Yost, W.A., *Loiselle, L.*, Dorman, M.F., Burns, J. and **Brown, C.A.** (2013). Sound source localization of filtered noises by listeners with normal hearing: A statistical analysis. *Journal of the Acoustical Society of America*, 133, 2876-2882. PMID: 23654393. <http://dx.doi.org/10.1121/1.4799803>.
14. Yost, W.A., and **Brown, C.A.** (2013). Localizing the Sources of Two Independent Noises: Role of Time Varying Amplitude Differences. *Journal of the Acoustical Society of America*, 133, 2301-2313. PMID: 23556597. <http://dx.doi.org/10.1121/1.4792155>.
15. Gifford, R.H., Dorman, M.F., **Brown, C.A.**, & Spahr, A.J. (2012). Hearing and psychophysics: implications for individuals with presbycusis considering cochlear implantation. *Journal of Hearing Science*, 2, 9-17.

16. *Helms-Tillery, K., Brown, C.A., and Bacon, S.P. (2012). Comparing the effects of reverberation and of noise on speech recognition in simulated electric-acoustic listening. Journal of the Acoustical Society of America, 131, 416-423. PMID: 22280603. <http://dx.doi.org/10.1121/1.3664101>.*
17. **Brown, C.A., and Yost, W.A. (2011). Interaural spectral asymmetry and sensitivity to interaural time differences. Journal of the Acoustical Society of America, 130, EL358-EL364. PMID: 22088041. <http://dx.doi.org/10.1121/1.3647263>.**
18. Apoux, F., Millman, R.E., Viemeister, N.F., **Brown, C.A.**, and Bacon, S.P. (2011). On the mechanisms involved in the recovery of envelope information from temporal fine structure. *Journal of the Acoustical Society of America, 130, 273-282. PMID: 21786897. <http://dx.doi.org/10.1121/1.3596463>.*
19. **Brown, C.A., Scherrer, N.M., & Bacon, S.P. (2010). Shifting fundamental frequency in simulated electric-acoustic listening: Effects of sensation level. Journal of the Acoustical Society of America, 128, 1272-1279. PMID: 20815462. <http://dx.doi.org/10.1121/1.3463808>.**
20. **Brown, C.A., & Bacon, S.P. (2010). Fundamental frequency and speech recognition in noise. Hearing Research, 266, 52-59. PMID: 19748564. <http://dx.doi.org/10.1016/j.heares.2009.08.011>.**
21. Gifford, R., Dorman, M. and **Brown, C.A.** (2010). Psychophysical properties of low-frequency hearing: Implications for electric and acoustic stimulation (EAS). In *Cochlear Implants and Hearing Preservation*, van de Heyning (ed), *Advances in ORL, 67, 51-60. PMID: 19955721.*
22. **Brown, C.A., & Bacon, S.P. (2009a). Low-frequency speech cues and simulated electric-acoustic hearing. Journal of the Acoustical Society of America, 125, 1658-1665. PMID: 19275323. <http://dx.doi.org/10.1121/1.3068441>.**
23. **Brown, C.A., & Bacon, S.P. (2009b). Achieving electric-acoustic benefit with a modulated tone. Ear and Hearing, 30, 489-4903. PMID: 19546806. <http://dx.doi.org/10.1097/AUD.0b013e3181ab2b87>.**
24. Dye, R.H. Jr., **Brown, C.A.**, Gallegos, J.A., Yost, W.A., and Stellmack, M.A. (2006). The influence of later-arriving sounds on the ability of listeners to judge the lateral position of a source. *Journal of the Acoustical Society of America, 120, 3946-3956. PMID: 17225421.*
25. **Brown, C.A.** (2004). Acoustic Environmental Learning. *Perspectives on Hearing and Hearing Disorders: Research and Diagnostics, 8, 2-4.*
26. Bashford, J.A., Jr., Warren, R.M., & **Brown, C.A.** (1996). Use of Speech-Modulated Noise Adds Strong Bottom-up Cues for Phonemic Restoration. *Perception and Psychophysics, 58(3), 342-350.*
27. Brennan, J.F., **Brown, C.A.**, & Jastreboff, P.J. (1996). Salicylate-Induced Changes in Auditory Thresholds of Adolescent and Adult Rats. *Developmental Psychobiology, 29(1), 69-86.*

Published Abstracts

1. Corbin, N.E., *Jagadeesh, A.*, and **Brown, C.A.** (2021). The effect of face coverings on children's speech perception in noise. The 44th Midwinter Research Meeting of the Association for Research in Otolaryngology, Meeting held virtually due to COVID-19 restrictions.
2. *Welch, B., Peagler, M.*, **Brown, C.A.**, and Helou, L. (2021). Rater Reliability in Different Listening Conditions. 48th Annual Meeting of the American Auditory Society, Meeting held virtually due to COVID-19 restrictions.

3. Zhang, M., and **Brown, C.A.** (2020). Masking release of unvoiced speech in amplitude modulated noise. 48th Annual Meeting of the American Auditory Society, Scottsdale, AZ.
4. **Brown, C.A.** (2016). Speech intelligibility by BCI users with more consistent interaural level cues. *Journal of the Acoustical Society of America*, 140, 2227.
5. Spencer, N.J., and **Brown, C.A.** (2016). Measured Lateral Position as a Function of Stimulus Interaural Level Difference and Overall Level. The 39th Midwinter Research Meeting of the Association for Research in Otolaryngology, Baltimore, MD.
6. **Brown, C.A.** (2015). The effect of manipulating interaural level differences on lateralization by bilateral cochlear implant users. *Journal of the Acoustical Society of America*, 137, 2321.
7. Spencer, N.J., and **Brown, C.A.** (2015). Effects of compression channel number and linked compression on masked lateralization performance in simulated bilateral cochlear implant listening. *Journal of the Acoustical Society of America*, 137, 2227.
8. **Brown, C.A.** (2014). Understanding the benefits of electric-acoustic stimulation. *Journal of the Acoustical Society of America*, 135, 2220.
9. Ardoint, M., Sheft, S., *Helms Tillery, K.*, **Brown, C.A.**, & Bacon, S.P. (2011). Discrimination of stochastic FM as a predictor of electro-acoustic stimulation (EAS) benefit. *Journal of the Acoustical Society of America*, 129, 2528.
10. *Helms Tillery, K.*, **Brown, C.A.**, Yost, W.A. & Bacon, S.P. (2011). Influence of a single reflection on speech intelligibility in simulated electric-Acoustic stimulation. *Journal of the Acoustical Society of America*, 129, 2528.
11. Yost, W.A., **Brown, C.A.** & *Walling, F.M.* (2011). Locating two sound sources: The role of amplitude modulation and spectral content. *Journal of the Acoustical Society of America*, 129, 2528.
12. Yost, W.A., **Brown, C.A.** & *Walling, F.M.* (2011). Localization of two simultaneous sound sources: Role of amplitude modulation. The 34th Midwinter Research Meeting of the Association for Research in Otolaryngology, Baltimore, MD.
13. Ardoint, M., Sheft, S., *Helms Tillery, K.*, **Brown, C.A.**, & Bacon, S.P. (2011). Discrimination of stochastic FM as a predictor of electro-acoustic stimulation (EAS) benefit. *Journal of the Acoustical Society of America*, 129, 2528.
14. **Brown, C.A.** & Bacon, S.P. (2010). Lowering mean fundamental frequency to improve speech intelligibility in noise under simulated electric-acoustic stimulation. *Journal of the Acoustical Society of America*, 127.
15. Yost, W.A., **Brown, C.A.** & *Walling, F.M.* (2010). F0 and Pitch-Shift Discrimination. *Journal of the Acoustical Society of America*, 127.
16. **Brown, C.A.** & Bacon, S.P. (2009). Signal-processing strategies for electric-acoustic stimulation. *Journal of the Acoustical Society of America*, 125, 2528.
17. **Brown, C.A.** & Yost, W.A. (2009). The effect of flanking bands on sensitivity to interaural time differences. *Journal of the Acoustical Society of America*, 125, 2522.
18. **Brown, C.A.** & Bacon, S.P. (2008a). Learning effects in simulated electric-acoustic hearing. Midwinter meeting of the Association for Research in Otolaryngology, Phoenix, AZ.

19. **Brown, C.A.** & Bacon, S.P. (2008b). A new approach to electric-acoustic stimulation. *Journal of the Acoustical Society of America*, 123, 3054.
20. **Brown, C.A.** & Yost, W.A. (2008). The effect of spectral overlap on sensitivity to interaural time differences. *Journal of the Acoustical Society of America*, 121, 3093.
21. **Brown, C.A.** & Bacon, S.P. (2007a). The effect of fundamental frequency in simulated electric-acoustic hearing. *Journal of the Acoustical Society of America*, 121, 3093.
22. **Brown, C.A.** & Bacon, S.P. (2007b). The effect of interaural differences of time on speech intelligibility in simulated electric-acoustic hearing. *Journal of the Acoustical Society of America*, 121, 3093.
23. Apoux, F., Millman, R.E., **Brown, C.A.**, Bacon, S.P. & Viemeister, N.F. (2004). Psychophysical evidence for the existence of envelope information in the internal auditory representation of signal fine structure. *Journal of the Acoustical Society of America*, 113(4), 2270.
24. **Brown, C.A.**, Jeung, C. & Bacon, S.P. (2004). A psychophysical measure of level-dependent shifts in the peak of the traveling wave. *Journal of the Acoustical Society of America*, 113(4), 2270.
25. **Brown, C.A.**, Whitmer, W.M. & Yost, W.A. (2003). The effect of background noise on the perception of auditory distance. *Journal of the Acoustical Society of America*, 113(4), 2270.
26. Whitmer, W.M., **Brown, C.A.**, Dye, R.H. Jr. & Jurcin, N.F. (2003). Cocktails for Franssen: Asynchronous transient bias and other attentional factors in auditory localization. *Journal of the Acoustical Society of America*, 113(4), 2285.
27. **Brown, C.A.** & Yost, W.A. (2002a). Distance judgments in a reverberant room. *Association for Research in Otolaryngology Abstracts*, 25, 181.
28. Whitmer, W.M., Sheft, S.E. & **Brown, C.A.** (2002). Stochastic signals and the Franssen effect. *Association for Research in Otolaryngology Abstracts*, 25, 17.
29. **Brown, C.A.**, Sheft, S.E., Yost, W.A. & Dye, R.H. Jr. (2001). Localization of noise bursts in echoic space. *Association for Research in Otolaryngology Abstracts*, 24, 310.
30. Dye, R.H. Jr., Gallegos, J., Jr. & **Brown, C.A.** (2001). Observer weighting of interaural delays in echo clicks preceded by source clicks that have been attenuated. *Journal of the Acoustical Society of America*, 109(5), 2486.
31. Bashford, J.A., Jr., Warren, R.M. & **Brown, C.A.** (1994). Researchers beware: Use of speech-modulated noise adds strong bottom-up cues for phonemic restoration. *Journal of the Acoustical Society of America*, 95(5), 2975.
32. Brennan, J.F., **Brown, C.A.** & Jastreboff, P.J. (1992). Salicylate-Induced Shifts in Intensity Thresholds At Varying Frequencies in Young Rats. *Society for Neuroscience Abstracts*, 18(2), 1035.

PROFESSIONAL ACTIVITIES

TEACHING

Course instruction, University of Pittsburgh

Graduate-level courses:

CSD 3049: Neuroscience of Hearing Seminar

Dates of course: Fall semesters, 2019-present

Total number of students: approximately 13

Length of course: 15 weeks

Contact time: 45 hours

Seminar designed to expose Ph.D. students to various empirical approaches to the study of cognitive auditory neuroscience.

CSD 2038: Physical, Physiological and Psychological Acoustics

Dates of course: Fall semesters, 2013, 2015-present

Total number of students: approximately 100

Length of course: 15 weeks

Contact time: 45 hours

Course designed to expose Au.D. students to sensory and perceptual issues involved in the basic principles of the perception of sound.

CSD 2048: Sound and Vibration

Dates of course: Fall 2012, Fall 2014

Total number of students: 67

Length of course: 15 weeks

Contact time: 45 hours

Au.D.-level introduction to the physics of sound, covering relevant topics such as simple harmonic motion, waveform propagation, digital signals and systems, and transduction.

CSD 3049: Scientific Bases of Cochlear Implantation and Related Treatments

Dates of course: Spring 2014, 2018

Total number of students: 21

Length of course: 15 weeks

Contact time: 45 hours

Ph.D. seminar covering the theoretical and scientific bases for and recent technological advances of the modern cochlear implant.

Undergraduate courses:

CSD 1025: Hearing Science

Dates of course: Spring semesters, 2013-present

Total number of students: approximately 600

Length of course: 15 weeks

Contact time: 45 hours

Course designed to expose undergraduate students to sensory and perceptual issues involved in the basic principles of the perception of sound.

Course instruction, other institutions

Arizona State University

SHS 3060: Computational Methods in Research

Dates of course: Fall 2008, 2011

Total number of students: 37

Length of course: 15 weeks

Contact time: 45 hours

Ph.D.-level technical introduction to statistical and methodological approaches to behavioral research.

Loyola University Chicago

PSY 240: Cognitive Psychology

Dates of course: Spring 2002, 2003

Total number of students: 80-90

Length of course: 15 weeks

Contact time: 45 hours

Undergraduate introduction to cognitive psychology.

PSY 210: Psychological Statistics

Dates of course: Fall 2002, 2003

Total number of students: 90-100

Length of course: 15 weeks

Contact time: 45 hours

Undergraduate introduction to statistical methods for the behavioral sciences.

ADVISING

Student advising and committees (students for whom CA Brown was their primary advisor are marked with a *)

Department of Speech and Hearing Science, Arizona State University

* Kate Helms Tillery (Ph.D.)	2007-2013
* Farris Walling (Au.D.)	2008-2012
* Nicole Scherrer (Doyle) (Au.D.)	2007-2010
Louise Loiselle (Ph.D.)	2006-2011
Erica Williams (Ph.D.)	2004-2006
Changmo Jeung (Ph.D.)	2004-2005

Department of Communication Science and Disorders, University of Pittsburgh

* Sydney Sepkovic (U.G.)	Since 2020
* Olivia Gall (U.G.)	Since 2018

* Maria Roa (Au.D.)	Since 2018
Jacie McHanie (Ph.D.)	Since 2018
Kutay Sezginel (Ph.D.)	Since 2016
* Mengchao Zhang (Ph.D.)	2017-2020
Carrie Donohue (Ph.D.)	2017-2020
Linmin Kang (Ph.D.)	2013-2020
* Mary Rose Bethel (Au.D.)	2018-2019
* Weston Enterline (Au.D.)	2018-2019
* Kayleigh Bostain (Au.D.)	2017-2019
* Carson Kegel (Au.D.)	2017-2019
* Yuxiang Wang (Ph.D.)	2017-2018
Kristen Nunn (M.S.)	2017-2018
Annette Askren (Csc.D.)	2017-2018
Reem Mulla (Ph.D.)	2016-2018
Mengchao Zhang (Ph.D.)	2016-2017
Hyun Seung (Ph.D.)	2016-2018
* Ryan Shea (Au.D.)	Since 2016
* Jenna Goldstein (Au.D.)	Since 2016
* Margaret Anne Bedison (Au.D.)	2016-2018
* Lauren Eckhart (Au.D.)	Since 2016
* Courtney Wallace (Au.D.)	2015-2019
* Brandon Levine (Au.D.)	2015-2019
* Mary Rincon (Au.D.)	2015-2019
* Molly Brown (Au.D.)	2014-2018
* Elizabeth Lucius (Au.D.)	2014-2018
* Sarah Brand (Au.D.)	2013-2017
* Karry Smith (Au.D.)	2013-2017
Gabrielle DeFazio (M.S.)	2016-2017
* Katrina Killian (M.S.)	2014-2016
Allison Martin (M.S.)	2014-2017
Min Zhang (Ph.D.)	2013-2017
* Lauren Dubyne (Au.D.)	2013-2017
Pitchulee Uayporn (Ph.D.)	Since 2013

* Katrina Killian (U.G.)	2013-2014
Ye Yi (Ph.D.)	2013-2014
* Arifa Gir (Au.D.)	2013
* Stephanie Sanders (Au.D.)	2013
* William Dillon (Au.D.)	2012-2014
* Nicole Devon (Au.D.)	2013-2014
Kristie Kovacyk (Ph.D.)	2012-2014
Chayadevie Nanjundeswaran (Ph.D.)	2012-2013
* Nichole Reed (Au.D.)	2012

Undergraduate theses and projects (those advised by CA Brown are marked with a *)

Department of Speech and Hearing Science, Arizona State University

* Farris Walling	2007
* Nicole Scherrer (Doyle)	2006-2007

Department of Communication Science and Disorders, University of Pittsburgh

Isabelle Husson (B.Phil.)	2018-2019
Janani Perera (B.Phil.)	2017-2018
Katherine McNeilly (B.Phil.)	2016-2017
Amanda Monaco (B.Phil.)	2016-2017
Kristen Nunn (B.Phil.)	2015-2016
Julia Dawson (B.Phil.)	2015-2016
Mary Mitkish (B.Phil.)	2014-2015
* Katrina Killian (B.Phil.)	2013-2015

Graduate theses and projects (those directed by CA Brown are marked with a *)

Department of Speech and Hearing Science, Arizona State University

* Helms-Tillery, K. The Relationship between Loudness Balancing and Speech Intelligibility in Simulated Electric-Acoustic Listening. Ph.D. dissertation.	2007-2012
* Walling, F. Binaural Release from Masking in Simulated Electric-Acoustic Stimulation. Au.D. research project.	2007-2008

- * Scherrer, N. Combining vocoder stimulation with F0 and envelope cues in the low-frequency region: effects of frequency shift and sensation level. Au.D. research project. 2006-2007
- Williams, E.J. On the relation between compression and overshoot. Ph.D. research project (Directed by S Bacon). 2005-2006
- Jeung, C. A behavioral study of the shift in the peak of the basilar membrane traveling wave. Ph.D. research project (Directed by S Bacon). 2004-2005

Department of Electrical and Computer Engineering, Carnegie Mellon University

- Anjali M, Robust recognition of binaural speech signals using techniques based on human auditory processing. Ph.D. dissertation (Directed by R. Stern). 2017-2019

Department of Communication Science and Disorders, University of Pittsburgh

- Diewald, Stephanie. Speech-language pathology at the University of Pittsburgh: A reflection on preparedness to work with diverse populations. M.S. research project (directed by P. Leslie) 2017-2019
- Rozynek, Lindsay. Pharyngeal residue measurements in patients treated with radiation therapy for head and neck cancer. M.S. research project (directed by J. Coyle) 2017-2019
- Nunn, Kristen. The noisy channel model and sentence processing in individuals with simulated broadened auditory filters. M.S. research project (directed by M. Dickey) 2017-2018
- Perera, Janani. Neurophysiologic underpinnings of interaural asymmetry in young adults with and without binaural integration deficits on dichotic listening tests. B.Phil. research project (directed by D. Moncrieff) 2017-2018
- * Wang, Yuxiang. The head-related transfer function and binaural processing by cochlear implant users. Ph.D. research project. 2017-2018
- Mulla, Reem. Loudness perception with cochlear hearing loss: Models and correlates. Ph.D. research project (Directed by C. Palmer). 2016-2018
- * Eckhart, Lauren. Binaural processing in simulated bilateral cochlear implant processing. Au.D. Au.D. research project. 2016-2018
- * Bedison, Margaret. Frequency resolution and binaural processing in simulated bilateral cochlear implant processing. Au.D. research project. 2016-2018
- * Dobyne, Lauren. Using eye-tracking to assess speech reception by hearing impaired users. Au.D. research project. 2015-2017
- DeFazio, Gabrielle. Feeding and swallowing in the first two years of life: What role for the SLP? M.S. research project (Directed by P. Leslie) 2015-2016
- Zhang, Min. Listening Effort Allocation, Stimulus-Driven, Goal-Driven, or Both? Ph.D. research project (Directed by C. Palmer) 2015-2017

Zhang, Mengchao. Auditory profile analysis and its implication on identifying hidden hearing impairment. Ph.D. Dissertation (Directed by D. Moncrieff).	2015-2020
* Dillon, William. Pitch and speech understanding in simulated cochlear implant processing. Au.D. research project.	2013-2014
* Devon, Nicole. Temporal fine-structure processing in vocoded speech perception. Au.D. research project.	2013-2014
Uayporn, Pitchulee. The speech critical band in clear- and everyday-speech. Ph.D. research project (Directed by C. Palmer).	2013-2019
* Gir, Arifa. Processing and Function of Cochlear Implants. Au.D. research project.	2013
* Sanders, Stephanie. Speech understanding and Cochlear Implant processing. Au.D. research project.	2013
* Reed, Nichole. The signal processing of Cochlear Implants. Au.D. research project.	2012

Supervision of postdoctoral fellows (those whose research was directed by CA Brown are marked with a *)

Department of Speech and Hearing Science, Arizona State University

* Marine Ardoint	2010-2011
* Kang Li	2008-2010
Kumiko Boike (Directed by S Bacon)	2008

Department of Communication Science and Disorders, University of Pittsburgh

Nike Gurindapali (Directed by B Chandrasekaran)	Sine 2019
Fernando Llanos Lucas (Directed by B Chandrasekaran)	2018-2020
* Nathaniel Spencer	2014-2016

RESEARCH

Grants

Current grant support

Modifying spatial maps to improve localization, (C.A. Brown, PI), NIDCD R21 Research Grant, 07/2020-06/2022. Total direct costs: \$275,000.

Under Review or In Preparation

Auditory receptive field plasticity in schizophrenia, (C.A. Brown, Co-Investigator), NIMH R01 Research Grant. Total direct costs: Total direct costs: \$1,250,000. Under review.

Modifying spatial maps to improve localization (C.A. Brown, PI), NIDCD Administrative Supplement to Support Enhancement of Software Tools for Open Science. Total direct costs: \$150,000. In preparation.

Head-related transfer functions and machine learning (C.A. Brown, PI). University of Pittsburgh Chancellor's Gap Fund Program. Total direct costs: \$50,000. In preparation.

Binaural cues and the benefits to speech reception in hearing impaired listeners, (C.A. Brown, PI), NIDCD R01 Research Grant. Total direct costs: \$1,250,000. Unscored.

Precision medicine in tinnitus (C.A. Brown, Co-Investigator), NIDCD P50 Program Project Grant. Total direct costs: 7,485,825. Impact score: 61.

Prior grant support

Cochlear implantation and electrode-frequency mismatch, (C.A. Brown, PI), PA Lions Club Hearing Research Foundation Grant. Total direct costs: \$20,000.

Understanding the benefits of electric-acoustic stimulation (C.A. Brown, Co-PI; M.F. Dorman, Co-PI), NIDCD Multiple-PI R01 Research Grant, 07/11-06/19. Total direct costs: \$1,062,500.

Training in auditory and vestibular neuroscience, (C.A. Brown, Preceptor), NIDCD T32 training grant, 7/17-6/21. Total direct costs: \$193,250.

Professional diversity starts with a diverse student body: social and institutional barriers to recruitment, (C.A. Brown, Co-Investigator), ASHA Foundation Multicultural Research Grant, 8/17-12/19. Total direct costs: \$12,000.

Binaural cues and the benefits to speech reception in hearing impaired listeners (C.A. Brown, Principal Investigator), University of Pittsburgh Central Research Development Fund, 8/16-7/18. Total direct costs: \$16,000.

Sound source localization: An interaction of auditory and vestibular function (C.A. Brown, Co-Investigator), Arizona State University Facilities Grant, 7/12-6/13. Total direct costs: \$120,000.

"Understanding the benefits of electric-acoustic stimulation," (C.A. Brown, Co-Investigator), NIDCD R01 Research Grant, Administrative Supplement, 9/09-12/10. Total direct costs: \$121,028.

"Understanding the benefits of electric-acoustic stimulation," (C.A. Brown, Co-Investigator), NIDCD R01 Research Grant, 1/08-7/11. Total direct costs: \$711,711.

"The effect of inter-aural differences of time on speech intelligibility in simulated cochlear implant listening," (C.A. Brown, PI), National Organization for Hearing Research Foundation Annual Research Grant, 1/06-12/07, Total direct costs: \$20,000.

Major seminars, invited lectureships, and presentations related to research

Reviews, invited published papers, proceedings of conference and symposia, monographs, books, and book chapters

1. **Brown, C.A.** (November 2020). Solving the cocktail party problem for bilateral cochlear implant users, 179th meeting of the Acoustical Society of America, Meeting held virtually due to COVID-19 restrictions.
2. **Brown, C.A.** (March 2019). Manipulating ILDs to benefit bilateral CI users, Pittsburgh Auditory Cognitive Neuroscience (PCAN) Meeting, University of Pittsburgh.
3. **Brown, C.A.** (March 2019). Solving the cocktail party problem for cochlear implant users, SONARS Meeting, Department of Psychiatry, University of Pittsburgh.

4. **Brown, C.A.** (January 2019). Addressing the effects of frequency warping, Auditory Cognitive Neuroscience Meeting, Gainseville, FL.
5. **Brown, C.A.** (January 2019). CI Insertion Depth and Speech Intelligibility. The Mid-Atlantic Symposium on Hearing, College Park, MD.
6. **Brown, C.A.** (November 2018). Maximizing outcomes for CI patients given current surgical limitations. UPMC Audiology Clinic, Pittsburgh PA.
7. **Brown, C.A.** (April 2018). Improving speech understanding in noise by bilateral cochlear implant users. Electrical and Computer Engineering Graduate Seminar Series, Swanson School of Engineering, University of Pittsburgh, Pittsburgh, PA.
8. **Brown, C.A.** (April 2018). Bilateral cochlear implants and binaural hearing. Audiology First Friday Seminar Series, Department of Communication Science and Disorders, University of Pittsburgh, Pittsburgh, PA.
9. **Brown, C.A.** (January 2018). When cocktail parties go wrong. Auditory Cognitive Neuroscience Meeting, Tampa, FL.
10. **Brown, C.A.** (January 2018). Solving the cocktail party phenomenon. The Mid-Atlantic Symposium on Hearing, College Park, MD.
11. **Brown, C.A.** (October 2017). Binaural Hearing and the Cocktail Party Phenomenon. PAL/DDG Lecture Series, Carnegie Mellon University, Pittsburgh, PA.
12. **Brown, C.A.** (May 2017). Corrective binaural processing for bilateral cochlear implant users. Departmental Colloquium, Department of Communication Sciences and Disorders, Northwestern University, Evanston, IL.
13. **Brown, C.A.** (May 2017). Binaural processing and speech intelligibility by bilateral cochlear implant users. Auditory-Vestibular T32 training grant Journal Club, Department of Otolaryngology, University of Pittsburgh, Pittsburgh, PA.
14. **Brown, C.A.** (March 2017). Corrective binaural processing for bilateral cochlear implant users. Friday Conference Talk, Geriatric Research Education and Clinical Center, VA Pittsburgh Healthcare System, Pittsburgh, PA.
15. **Brown, C.A.** (January 2017). Binaural hearing en plein air: A veridical paradox in the horizontal plane. Auditory Cognitive Neuroscience Meeting, Gainseville, FL.
16. **Brown, C.A.** (January 2017). Improving localization for bilateral cochlear implant users. The Mid-Atlantic Symposium on Hearing, College Park, MD.
17. **Brown, C.A.** (January 2016). The benefits of two implants for speech understanding. Auditory Cognitive Neuroscience Meeting, Tucson, AZ.
18. **Brown, C.A.** (January 2016). Maximizing binaural benefit for bilateral cochlear implant users. The Mid-Atlantic Symposium on Hearing, College Park, MD.
19. **Brown, C.A.** (October 2015). ILD sensitivity and speech understanding in bilateral cochlear implant users. 2016 CRASH Conference, Madison WI.
20. **Brown, C.A.** (January 2015). Manipulating the perceptual space in the plane of azimuth for bilateral cochlear implant users. The Mid-Atlantic Symposium on Hearing, College Park, MD.

21. **Brown, C.A.** (January 2015). Doris in the Sky with Pretzels: Altering reality with signal processing. Auditory Cognitive Neuroscience Meeting, Tucson, AZ.
22. **Brown, C.A.** (May, 2014). Understanding the benefits of electric-acoustic stimulation. Meeting of the Acoustical Society of America.
23. **Brown, C.A.** (January 2014). Of square pegs and round holes: binaural hearing and bilateral CIs. Auditory Cognitive Neuroscience Meeting, Tucson, AZ.
24. **Brown, C.A.** (November 2013). Binaural hearing and bilateral cochlear implants. Hearing Science Session: Recent Advances and Technological Developments in the Design of Cochlear Implant Devices, ASHA Convention, Chicago IL.
25. **Brown, C.A.** (March 2013). A Devil's advocate case for bilateral cochlear implants. Otolaryngology Grand Rounds, Department of Otolaryngology, University of Pittsburgh Medical Center, Pittsburgh, PA.
26. **Brown, C.A.** (January 2013). A closed-set speech corpus for cochlear implant research. East Coast Cochlear-implant Conference, College Park, MD.
27. **Brown, C.A.** (January 2013). Improving speech reception for users of cochlear implants. University of Pittsburgh Audiology Clinical Seminar Series, Pittsburgh, PA.
28. **Brown, C.A.** (January 2012). Cochlear Implantation and Psychophysics. 2012 Presbicusis Research Meeting, Munich, Germany.
29. **Brown, C.A.** (January 2012). The binaural representation of bilateral cochlear implant users. Auditory Cognitive Neuroscience Meeting, Tucson, AZ.
30. **Brown, C.A.** (October 2011). Enhancing binaural cues for bilateral cochlear implant users . 2011 CRASH Conference, Madison WI.
31. **Brown, C.A.** (July 2011). Delivering fundamental frequency acoustically to cochlear implant patients. 2011 Conference on Implantable Auditory Prostheses, Asilomar CA.
32. **Brown, C.A.** (April 2011). Cochlear Implant Research Update. 2011 Arizona Speech-Language Hearing Association Convention, Tempe, AZ.
33. **Brown, C.A.** (February 2011). Strategies for augmenting cochlear implant processing. Department Colloquium, Department of Speech, Language, and Hearing Sciences, The University of Arizona, Tucson, AZ.
34. **Brown, C.A.** (February 2011). Combining acoustic and electric stimulation. 34th ARO MidWinter Meeting, Baltimore, Maryland.
35. **Brown, C.A.** (January 2011). Speech is Special-ly enhanced by low-frequency information. Auditory Cognitive Neuroscience Meeting, Tucson, AZ.
36. **Brown, C.A.** (October 2009). Overcoming the limitations of cochlear implants. Adult Loss Of Hearing Association (ALOHA) / Desert Cochlear Connections, Tucson, AZ.
37. **Brown, C.A.** (July 2009). The effects of manipulating F0 on the benefits of electric-acoustic stimulation. 2009 Conference on Implantable Auditory Prostheses, Lake Tahoe, California.
38. **Brown, C.A.** (April 2009). The role of fine structure cues in enhancing speech reception for cochlear implant users. Cochlear Corporation, Denver, Colorado.

39. **Brown, C.A.** (November 2006). The benefits of electric-acoustic stimulation. The Hearing Group, L'Université Paris Descartes, Paris, France.

Refereed conference presentations (presentations associated with refereed journal articles, conference proceedings or published abstracts not included)

1. *Zhang, M., & Brown, C.A.* (2020). Masking release of unvoiced speech in amplitude modulated noise. Meeting of the American Auditory Society, Scottsdale AZ.
2. **Brown, C.A.** (2019). Frequency warping and speech intelligibility in cochlear implant listeners. 2019 Conference on Implantable Auditory Prostheses, Lake Tahoe, CA.
3. **Brown, C.A.** (2019). Solving the cocktail party problem with the interaural level difference cue. 2019 Conference on Implantable Auditory Prostheses, Lake Tahoe, CA.
4. **Brown, C.A.** (2017). Corrective binaural processing improves localization performance by bilateral cochlear implant patients. 2017 Conference on Implantable Auditory Prostheses, Lake Tahoe, CA.
5. Spencer, N.J., and **Brown, C.A.** (2016). Dynamic range compression for bilateral CI users. The Mid-Atlantic Symposium on Hearing, College Park, MD.
6. **Brown, C.A.** and *Helms Tillery, K.* (2015). Manipulating the localization cues for bilateral cochlear implant users. 2015 Conference on Implantable Auditory Prostheses, Lake Tahoe, CA.
7. Apoux, F.A., *Yoho, S.*, Healy, E.W., **Brown, C.A.** (2014). Dual-Carrier Strategy: Preliminary Cochlear Implant Data. Conference of the American Auditory Society.
8. **Brown, C.A.** (2013). An algorithm to enhance the binaural cues available to bilateral cochlear implant users. 2013 Conference on Implantable Auditory Prostheses, Lake Tahoe, CA.
9. **Brown, C.A.** and *Helms Tillery, K.* (2013). Influence of expanded voice pitch contours on the intelligibility of spectrally reduced speech. 2013 Conference on Implantable Auditory Prostheses, Lake Tahoe, CA.
10. *Loiselle, L.*, Dorman, M., Yost, W.A., **Brown, C.A.**, and Spahr, T. (2012). Sound source localization in bilateral cochlear implant users. 12th International Conference on Cochlear Implants and Other Implantable Auditory Technologies, Baltimore, MD.
11. *Loiselle, L.*, Dorman, M., Yost, W.A., **Brown, C.A.**, and Spahr, T. (2012). Localization Ability in bilateral cochlear implant users. American Auditory Society, Scottsdale, AZ.
12. Ardoint, M., **Brown, C.A.**, *Helms Tillery, K.*, & Bacon, S.P. (2011). Presenting Low-Frequency Cues Visually In Simulations Of Electric-Acoustic Stimulation. 2011 Conference on Implantable Auditory Prostheses, Asilomar CA.
13. *Helms Tillery, K.*, **Brown, C.A.**, Yost, W.A. & Bacon, S.P. (2011). Low-frequency speech cues benefit electric-acoustic listening in reverberation. 2011 Conference on Implantable Auditory Prostheses, Asilomar CA.
14. *Helms Tillery, K.*, **Brown, C.A.** & Bacon, S.P. (2010). Low-frequency speech cues benefit simulated electric-acoustic listening in reverberation. American Auditory Society, Scottsdale, AZ.
15. *Helms Tillery, K.*, **Brown, C.A.** & Bacon, S.P. (2009a). Effects of reverberation on speech understanding in simulated electric-acoustic hearing. The 2009 Conference on Implantable Auditory Prostheses, Lake Tahoe, Nevada.

16. *Helms Tillery, K., Brown, C.A. & Bacon, S.P. (2009b)*. Spectral resolution and Intelligibility of reverberant speech in simulated electric-acoustic listening. American Auditory Society, Scottsdale, AZ.
17. *Helms Tillery, K., Brown, C.A. & Bacon, S.P. (2008)*. Relationship Between Loudness Balancing And Speech Intelligibility In Simulated EAS. American Auditory Society, Scottsdale, AZ.
18. *Scherrer, N.M., Brown, C.A. & Bacon, S.P. (2008)*. Effect Of Flattening f0 On Intelligibility In Simulated EAS. American Auditory Society, Scottsdale, AZ.
19. *Walling, F.M., Brown, C.A. & Bacon, S.P. (2008)*. Effects Of Simulated Low-Frequency Loss On Simulated EAS. American Auditory Society, Scottsdale, AZ.
20. *Scherrer, N.M., Brown, C.A. & Bacon, S.P. (2007)*. Effect of Fundamental Frequency on Intelligibility in Simulated Electric-Acoustic Listening. American Auditory Society, Scottsdale, AZ.
21. Yost, W.A., **Brown, C.A.** & Whitmer, W.M. (2003). Processing sounds in rooms. International Workshop on Spatial and Binaural Hearing.
22. Yost, W.A., **Brown, C.A.** & Whitmer, W.M. (2003). The effects of precedence and distance localization. University of Leipzig & the Max Planck Institute.
23. **Brown, C.A.** & Yost, W.A. (2002b) Distance Judgments improve with exposure to the acoustic environment, Auditory Perception, Cognition, and Action Meeting, Kansas City, 2002.

PATENTS

- Brown, C.A. (Aug 2, 2016). System and method for enhancing the binaural representation for hearing-impaired subjects. US Patent no. 9,407,999
- Bacon, S.P., Brown, C.A., & Apoux, F. (Oct 2, 2012). Delivering fundamental frequency and amplitude envelope cues to enhance speech understanding. US Patent no. 8,280,087.

Other Research Activities

Journal Refereeing

Editorial Board:

- Editorial Board Member, Ear & Hearing 2012-2017

Journal Editing:

- Ad Hoc Section Editor, Cochlear Implants, Ear & Hearing Since 2017
- Section Editor, Cochlear Implants, Ear & Hearing (5-year term) 2012-2017

Ad-hoc Reviewing:

- Journal of the Acoustical Society of America Since 2005
- Ear And Hearing Since 2008
- Journal of the Association for Research in Otolaryngology Since 2008

- Hearing Research Since 2009
- Journal of Speech, Language, and Hearing Research Since 2009
- International Journal of Audiology Since 2012
- Trends in Hearing Since 2016
- The Laryngoscope Since 2017

Conference Refereeing

Organizing and Technical Committees:

- Technical Program Organizer (two 2-year terms) 2013-2017
Psychological and Physiological Acoustics
Meeting of the Acoustical Society of America
- Convention Program Committee Member 2014
Hearing Science Topic Area Committee
ASHA Convention
- Technical Committee Member (3-year term) 2012-2015
Psychological and Physiological Acoustics
Meeting of the Acoustical Society of America
- Steering Committee Member 2010-2011
Conference On Implantable Auditory Prostheses

Session Chairing:

- Psychological and Physiological Acoustics: Honoring the Contributions of William Yost, 179th Meeting of the Acoustical Society of America, Meeting held virtually due to COVID-19 restrictions 2020
- Enhancing the use of CIs: Bilateral/binaural, Conference On Implantable Auditory Prostheses, Asilomar, California. 2019
- Psychological and Physiological Acoustics: Binaural Processing and Localization Session, 172nd Meeting of the Acoustical Society of America, Honolulu, HA 2016
- Psychological and Physiological Acoustics: Spatial Hearing and Localization Session, 169th Meeting of the Acoustical Society of America, Pittsburgh, PA 2015
- Combined Hearing, Pitch and Music Session, Conference On Implantable Auditory Prostheses, Asilomar, California. 2011
- Pitch, Binaural and Spatial Hearing Suppression Session, 153 Meeting of the Acoustical Society of America, Salt Lake City, Utah. 2007

Grant Reviewing

- National Institute for Health Research (U.K.), Hearing Science 2017
- ASHA Foundation, Hearing Science 2013

LIST of CURRENT RESEARCH INTERESTS

- Normal auditory function
- Hearing impairment
- Binaural processing
- Anatomical acoustics and head-related transfer functions
- Speech processing in noise
- Cochlear implant processing
- Temporal fine structure processing
- Pitch perception
- Psychoacoustic and psychophysical procedures
- Psycholinguistics
- Plasticity of the auditory and binaural systems

###DEPARTMENTAL & UNIVERSITY SERVICE

- Member, Mentoring Task Force, School of Health and Rehabilitative Science, University of Pittsburgh. Since 2019
- Member, Space Committee, School of Health and Rehabilitative Science, University of Pittsburgh. 2017-2019
- Member, Admissions Committee, Department of Communication Science and Disorders, University of Pittsburgh. Since 2012
- Faculty Representative, Academic Integrity Committee, School of Rehabilitative and Health Sciences, University of Pittsburgh. Since 2012
- Department Technology Liaison, Department of Communication Science and Disorders, University of Pittsburgh. Since 2012
- Chair, Technology Committee, Department of Speech and Hearing Science, Arizona State University. 2004-2012