OVERVIEW

I am a scientist trained in acoustic phonetics, speech perception, and auditory neuroscience. I study the perception and representation of speech sounds, especially as it relates to distinctive feature theory, auditory attention, and speech intelligibility.

Current position: postdoctoral research associate, Laboratory for Auditory Brain Science & Neuroengineering ($[LABS]^N$, PI: Adrian KC Lee), part of the Institute for Learning & Brain Sciences at the University of Washington.

Current projects: Characterizing speech sound representation using EEG; measuring effort-related pupillary response in auditory attention tasks.

EDUCATION

ACADEMIC DEGREES

- PhD in Linguistics (University of Washington, 2013): "Prosody, intelligibility and familiarity in speech perception" (PDF). Committee: Richard Wright (chair), Erick Gallun, Sharon Hargus, Gina-Anne Levow.
- MA in Linguistics (University of Washington, 2009): "The semantics of implicitly relational predicates" (PDF). Thesis advisor: Toshiyuki Ogihara.
- BA in Philosophy (University of Washington, 2002).
- BS in Neurobiology (University of Washington, 2002).

OTHER EDUCATION / TRAINING

- Computational Perspectives on Language Prediction in the Brain; Computational Perspectives on the Brain in Psychiatric and Neurological Disorders (Kavli Summer Institute in Cognitive Neuroscience, UC Santa Barbara, 2017).
- Machine Learning (Stanford University / Coursera, 2016).
- Software Carpentry instructor certification (2016).
- Biomedical Research Integrity Program (University of Washington, 2013, 2016, 2017).
- Protection of Human Research Subjects: Biomedical, Social/Behavioral, HIPAA (University of Washington / CITI, 2011, 2013).
- International Chinese Language Program (National Taiwan University, 2008).

RESEARCH PRODUCTS

Structured bibliographic information for all items is available in this BibTeX file.

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PREPRINTS

○ O'Brien, **McCloy**, Kubota, & Yeatman (2018). Investigating the relationship between phoneme categorization and reading ability. *bioRxiv.* DOI: 10.1101/305748

PEER-REVIEWED ARTICLES

○ **McCloy**, Lau, Larson, Pratt, & Lee (2017). Pupillometry shows the effort of auditory attention switching. *The Journal of the Acoustical Society of America*, *141*(4), 2440–2451.
DOI: 10.1121/1.4979340 (published version | supplement | preprint | repo)

○ Hasegawa-Johnson, Jyothi, **McCloy**, Mirbagheri, di Liberto, Das, Ekin, Liu, Manohar, Tang, Lalor, Chen, Hager, Kekona, Sloan, & Lee (2017). ASR for under-resourced languages from probabilistic transcription. *IEEE/ACM Transactions on Audio, Speech and Language Processing*, *25*(1), 46–59.
DOI: 10.1109/TASLP.2016.2621659 (preprint | repo)

○ **McCloy**, Larson, Lau, & Lee (2016). Temporal alignment of pupillary response with stimulus events via deconvolution. *The Journal of the Acoustical Society of America*, *139*(3), EL57–EL62.
DOI: 10.1121/1.4943787 (published version | preprint | repo).

○ **McCloy**, & Lee (2015). Auditory attention strategy depends on target linguistic properties and spatial configuration. *The Journal of the Acoustical Society of America*, *138*(1), 97–114.
DOI: 10.1121/1.4922328 (published version | preprint | repo).

○ **McCloy**, Wright, & Souza (2015). Talker versus dialect effects on speech intelligibility: A symmetrical study. *Language and Speech*, *58*(3), 371–386. DOI: 10.1177/0023830914559234 (preprint)

○ Barrack, **McCloy**, & Wright (2014). Did murmur spread in Pre-Proto-Indo-European? *Indogermanische Forschungen: Zeitschrift für Indogermanistik und historische Sprachwissenschaft*, *119*(1), 149–158. DOI: 10.1515/if-2014-0009 (preprint)

○ Souza, Gehani, Wright, & **McCloy** (2013). The advantage of knowing the talker. *Journal of the American Academy of Audiology*, *24*, 689–700. DOI: 10.3766/jaaa.24.8.6 (preprint)

○ Moran, **McCloy**, & Wright (2012). Revisiting population size vs. phoneme inventory size. *Language*, *88*(4), 877–893. DOI: 10.1353/lan.2012.0087 (preprint | Data and R script (.zip))

CONFERENCE PROCEEDINGS, WORKING PAPERS & TECHNICAL REPORTS

○ **McCloy**, Wright, & Souza (2014). Modeling intrinsic intelligibility variation: Vowel-space size and structure. *Proceedings of Meetings on Acoustics*, *18*, 060007. DOI: 10.1121/1.4870070 (proceedings)

○ **McCloy** (2014). Phonetic effects of morphological structure in Indonesian vowel reduction. *Proceedings of Meetings on Acoustics*, *12*, 060009. DOI: 10.1121/1.4870068 (proceedings)

○ **McCloy** (2013). Corpus-based productivity measures of English -er agentives and instrumentals. *UW Working Papers in Linguistics*, *31* (published version)

○ **McCloy** (2012). Vowel normalization and plotting with the phonR package. Technical Report 2012-01, UW Linguistic Phonetics Laboratory, Seattle, WA. (original PDF | updated web version)

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○ **McCloy** (2010). The semantics of implicitly relational predicates. In *Proceedings of the 26th Northwest Linguistics Conference (SFU Working Papers in Linguistics)* (published version)

CONFERENCE PRESENTATIONS

○ **McCloy**, & Lee (2016). Modeling native phonology and non-native speech perception using EEG signals. Poster presented at the 172nd Meeting of the Acoustical Society of America, Honolulu, HI. (poster)

○ **McCloy**, & Lee (2016). Estimating speech sound categorization from electrophysiological responses. Poster presented at the Northwest Auditory and Vestibular Research Meeting, Portland, OR. (poster)

○ **McCloy**, Yurong, & Puthuval (2016). Phonetically-conditioned vowel devoicing in Chahar Mongolian. Poster presented at the 90th Annual Meeting of the Linguistic Society of America, Washington, DC. (poster)

○ **McCloy**, Kishline, & Lee (2014). Listener strategy and performance in linguistic and non-linguistic auditory divided attention tasks. Poster presented at the Gordon Research Conference on the Auditory System — Encoding Hearing: From Genes to Behavior, Lewiston, ME. (poster)

○ **McCloy**, & Lee (2014). Effects of cognitive load on selective and divided auditory spatial attention. Poster presented at the 167th Meeting of the Acoustical Society of America, Providence, RI. (poster)

○ Kishline, **McCloy**, Larson, & Lee (2014). Can you divide attention across two streams or are you rapidly switching between them? Poster presented at the 37th Annual MidWinter Meeting of the Association for Research in Otolaryngology, San Diego, CA. (poster)

○ **McCloy**, & Lee (2013). Effects of auditory spatial attention in a semantic classification task. Poster presented at the 166th Meeting of the Acoustical Society of America, San Francisco, CA. (poster)

○ **McCloy** (2013). Separating segmental and prosodic contributions to intelligibility. Poster presented at the 4th International Summer School on Speech Production and Perception: Speaker-Specific Behavior, Aix-en-Provence, FR. (poster)

○ **McCloy**, Moran, & Wright (2013). Revisiting 'The role of features in phonological inventories'. Paper presented at the CUNY Conference on the Feature in Phonology and Phonetics, New York, NY. (slides)

○ **McCloy**, Wright, & McGrath (2012). Modelling talker intelligibility variation in a dialect-controlled corpus. Poster presented at the 164th Meeting of the Acoustical Society of America, Kansas City, MO. (poster)

○ Moran, **McCloy**, & Wright (2012). Revisiting the population vs phoneme-inventory correlation. Paper presented at the 86th Meeting of the Linguistic Society of America, Portland, OR. (slides | extended abstract)

○ **McCloy** (2011). Vowel laxing in Indonesian as a test case for interaction of morphological and syllabic structure. Poster presented at the 161st Meeting of the Acoustical Society of America, Seattle, WA. (poster)

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DANIEL R. MᶜCLOY

- **McCloy** (2010). The semantics of implicitly relational predicates. Paper presented at the 26th Northwest Linguistics Conference, Burnaby, BC. (institutional repo)

INVITED LECTURES

- **McCloy** (2018). Evaluating phonological feature theories against EEG measures of speech perception. Talk presented at the UBC Linguistics Department, Vancouver, BC.
- **McCloy** (2017). Pupillometry and auditory attention switching: Methods and interpretations. Talk presented at the Pupillometry in Neuroscience Workshop, Boston University Center for Research in Sensory Communication and Emerging Neural Technology, Boston, MA. (slides)
- **McCloy** (2016). What pupillometry can do for linguistic research. Talk presented at the UCSB Linguistics Department, Santa Barbara, CA.

SOFTWARE & CORPORA

- **Co-editor**: PHOIBLE, a database of over 1600 phonological inventories. (repo | docs | web).
- **Co-developer**: PN/NC Corpus, a 2-dialect, 20-talker corpus of 200 parallel sentences of English.
- **Co-developer**: python library "expyfun: Experimental paradigm functions." (repo | DOI).
- **Developer**: R package "phonR" (vowel normalization and plotting). (CRAN | repo | tutorial | DOI).
- **Developer**: Praat script library "Praat Semi-Auto," a set of scripts designed to streamline manual acoustic measurements for cases where forced alignment and automatic measurement are not precise enough. (repo).

OTHER RESEARCH ACTIVITIES

- BrainHack Global (2017)
- Mozilla Open Science Global Code Sprint (2016)
- Probabilistic Transcription team: Jelenik Speech and Language Technology Workshop (2015)

TEACHING EXPERIENCE

COURSES TAUGHT

- **Instructor**: Introduction to Phonetics (LING 450), five-week intensive course (2010, 2011).
- **Teaching Assistant**: Introduction to Linguistics (LING 200), four sections (2008–2009).
- **Co-facilitator**: New Majors Seminar (PHIL 199), proseminar for incoming Philosophy students (2001, 2002).

TUTORIALS & GUEST LECTURES

- "Programming with python." Software Carpentry Workshop, UW eScience Institute (2018).
- "Diphthong plotting in python and R" (repo). UW Phonetics Lab (2017).
- "Psycholinguistics & Neurolinguistics." LING 400: Survey of linguistic method and theory (2017).
- "Spectrograms." SPHSC 261: The nature of sound (2017).

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○ "The Unix shell." Software Carpentry Workshop, UW eScience Institute (2017).
○ "Version control with git." Software Carpentry Workshop, UW eScience Institute (2016).
○ "Statistical models for psychophysics: ANOVA vs. mixed models." *[LABS]^N* (2014).
○ "Advanced vowel plotting with phonR: Normalization, ellipses, polygons, and heatmaps." UW Phonetics Lab (2012).
○ "Introduction to R." LING 553: Experimental Phonetics (2012).
○ "Fitting and Plotting Linear Mixed Models in R." UW Phonetics Lab (2011).
○ "Design guidance for linguistics lecture slides." TA Training Workshop, UW Department of Linguistics (2011).
○ "Troubleshooting SNR Problems in Laboratory Recordings." UW Phonetics Lab (2011).
○ "Teaching Linguistics with Moodle." TA Training Workshop, UW Department of Linguistics (2010).
○ "Effective Team Teaching." TA Training Workshop, UW Department of Linguistics (2009).
○ "Linguistics, Cognitive Science, and Philosophy of Mind." PHIL 464: Philosophical Issues in the Cognitive Sciences (2009).

OTHER INSTRUCTIONAL ACTIVITIES

○ **Mentor**: Tesla STEM High School, 2017 Central Sound Regional Engineering and Science Fair.
○ **Volunteer**: Pacific Science Center's Paws On Science Weekend (2016).
○ **Discussion leader**: Biomedical Research Integrity Program (2013, 2016).
○ **Member**: Doctor of Audiology capstone commitee for N. Gehani, Northwestern University Department of Communication Sciences & Disorders (2011–2012).
○ **Curriculum Development Associate**: Department of Linguistics (2009–2010).
○ **Tutor**: UW Center for Learning and Undergraduate Enrichment (2009).
○ **Tutor**: UW Philosophy Writing Center (2001–2002).

ACADEMIC SERVICE

CONFERENCE SERVICE

○ **Session organizer**: "Quantitative Methodology in Physiological and Psychophysical Data Analysis," 171st Meeting of the Acoustical Society of America, Salt Lake City (2016).
○ **Conference chair**: 24th Northwest Linguistics Conference, Seattle (2008).
○ **Referee**: LSA Annual meeting (2014, 2016), Northwest Linguistics Conference (2008, 2012).

COMMITTEE SERVICE

○ LSA Committee on Scholarly Communication in Linguistics (2014–present)
○ LSA Technology Advisory Committee (2013–2014).

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Postdoctoral Research Associate   Laboratory for Auditory Brain Science & Neuroengineering

AD HOC JOURNAL REVIEWS

Nature (2017), *Phonology* (2012, 2013, 2016), *Psychophysiology* (2016), *The Journal of the Acoustical Society of America* (2016, 2017), *UW Working Papers in Linguistics* (2007, 2012).

AWARDS AND FELLOWSHIPS

- Postdoctoral fellowship (NIH T32), UW Auditory Neuroscience Training Program (2016–2018).
- NIH LRP award (2014–2016).
- Postdoctoral fellowship (NIH T32), UW Department of Speech and Hearing Sciences (2013–2014).
- "Research Excellence Award," UW Department of Linguistics (2013).
- Foreign Language and Area Studies (FLAS) fellowship for study of Modern Standard Chinese, U.S. Department of Education (2007–2008).
- "Outstanding Graduating Senior," UW Department of Philosophy (2002).
- "Outstanding Undergraduate Scholar," UW Department of Philosophy (2001).
- *Phi Beta Kappa* scholarship (2000).

LANGUAGES & TECHNOLOGIES

- English (native), Modern Standard Chinese (intermediate), Spanish (limited reading knowledge).
- Python, R, Git (advanced); Octave/MATLAB, Praat (intermediate); Bash, GNU Make, LaTeX, Markdown, HTML, CSS (familiar).
- Pupillometry, EEG, MEG.

PROFESSIONAL AND SCHOLARLY AFFILIATIONS

Association for Research in Otolaryngology (2014–present), International Phonetic Association (2014–present), Acoustical Society of America (2011–present), Linguistic Society of America (2009–present), *Phi Beta Kappa* (2002–present).

OTHER RELEVANT SKILLS

- Solid grasp of experimental design, statistical analysis, and model interpretation.
- Knowledge of and contribution to open-source tools for scientific research.
- More than ten years' experience as a graphic designer & web developer. Strong skills in data visualization, color correction, and information structure and flow.

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