RYAN RHODES

Assistant Teaching Professor
*Rutgers University Center for Cognitive Science
(RuCCS)*, Rutgers University
Piscataway, NJ

✉ *ryan.rhodes@rutgers.edu*
⚓ *wavyphd.com*
▶ *@RYANRHODES-cogsci*
▶ *@LanguageofMind*

RESEARCH INTERESTS

Sound Representation

The representation, learnability, and neural instantiation of phonological knowledge.

Phonotactic Learnability

Using Artificial Grammar Learning (AGL) to probe the complexity bounds of the Faculty of Language.

Neurobiology of Language

Neural instantiation of the FoL, especially as it intersects with linearization and working memory.

EMPLOYMENT

2021-pres	**Assistant Teaching Professor,** Center for Cognitive Science, *Rutgers University*, New Brunswick, NJ.
2019-2021	**Postdoctoral Assistant Professor,** Center for Cognitive Science, *Rutgers University*, New Brunswick, NJ.

EDUCATION

2019	**Ph.D. Linguistics,** *University of Delaware*, Newark, DE.
	Phonetic and Phonemic Predictions in Auditory Memory. Committee: Arild Hestvik (advisor), William Idsardi, Zhenghan Qi, Valerie Shafer.
2013	**M.A. Linguistics,** California State University, Fresno, CA.
	Clausal architecture of Chukchansi Yokuts. Thesis advisor: Brian Agbayani.
2009	**B.A. Linguistics,** *University of California*, Davis, CA.

PUBLICATIONS

Papers

2023   Coretta, S., Casillas, J. V., Roessig, S., Franke, M., Ahn, B., Al-Hoorie, A. H., … **Rhodes, R.** … & Wood, A. (2023). Multidimensional Signals and Analytic Flexibility: Estimating Degrees of Freedom in Human-Speech Analyses. *Advances in Methods and Practices in Psychological Science*, 6(3), 25152459231162567.

2022   Avcu, E., & **Rhodes, R.** (2022). Experimental linguistics: bridging subregular linguistics and cognitive neuroscience. *Theoretical Linguistics*, 48(3-4), 185-198.

2022   **Rhodes, R.,** Avcu, E., Han, C., & Hestvik, A. Auditory predictions are phonological when phonetic information is variable. *Language, Cognition and Neuroscience.* doi: 10.1080/23273798.2022.2043395

2021   Dong, Z., **Rhodes, R.,** & Hestvik, A. Active gap filling and island constraint in processing the Mandarin "gap-type" topic structure. *Frontiers in Communication*, *6*, 71. doi:10.3389/fcomm.2021.650659

2020   Palaz, B., **Rhodes, R.,** & Hestvik, A. Informative use of "not" is N400-blind. *Psychophysiology*, 57:e13676. https://doi.org/10.1111/psyp.13676

2019   **Rhodes, R.,** Han, C., & Hestvik, A. Phonological memory traces do not contain phonetic information. *Attention, Perception, & Psychophysics: Special Issue – In Honor of Randy Diehl*, 1-15. doi:10.3758/s13414-019-01728-1

Proceedings Papers

2019   **Rhodes, R.,** Han, C., & Hestvik, A. Ad hoc phonetic categorization and prediction. In Sasha Calhoun, Paola Escudero, Marija Tabain & Paul Warren (eds.) *Proceedings of the 19th International Congress of Phonetic Sciences, Melbourne, Australia 2019* (pp. 1223-1227).

2019   Avcu, E., **Rhodes, R.,** & Hestvik, A. Neural underpinnings of phonotactic rule learning. In Katherine Hout, Anna Mai, Adam McCollum, Sharon Rose & Matt Zaslansky (eds.), *Supplemental Proceedings of the 2018 Annual Meeting on Phonology*. Washington, DC: Linguistic Society of America.

Submitted and in preparation

submitted   Begus, G., Dąbkowski, M., & **Rhodes, R**. Large Linguistic Models: Analyzing theoretical linguistic abilities of LLMs. Submitted to *Cognitive Science. lingbuzz/007269.*

In prep   Avcu, E., **Rhodes, R.,** & Hestvik, A. The effect of explicit and implicit learning on the acquisition of long distance phonotactic patterns.

Avcu, E., **Rhodes, R.,** & Hestvik, A. Locality matters: laboratory learners show strictly local but not strictly piecewise learning.

PRESENTATIONS

2020   Palaz, B., **Rhodes, R.,** & Hestvik, A. *Informative use of "not" is N400-blind.* Poster presented at the 12th Annual Meeting of the Society for the Neurobiology of Language. Virtual Meeting.

2020   Avcu, E., **Rhodes, R.** *Locality matters: neural responses show local, but not piecewise, learning.* Talk presented at PhonolEEGy: Electrophysiology and phonological theory. Virtual Meeting.

2020   **Rhodes, R.,** Avcu, E. *Encoding and representation of phonetically-varying speech sounds.* Poster presented at PhonolEEGy: Electrophysiology and phonological theory. Virtual Meeting.

2019   **Rhodes, R.,** Avcu, E., & Hestvik, A. *Phonemic and phonetic representation in auditory prediction.* Poster presented at the Annual Meeting on Phonology, Stony Brook, NY.

2019   Avcu, E., **Rhodes, R.,** & Hestvik, A. *Computational complexity in phonotactics modulates brain response: evidence from EEG.* Poster presented at the Annual Meeting on Phonology, Stony Brook, NY.

2019   Palaz, B., **Rhodes, R.,** & Hestvik, A. *On the non-incremental processing of negation: Evidence from ERPs.* Talk presented at Discourse Expectations: Theoretical, Experimental, and Computational Perspectives (DETEC) 2019, Berlin, Germany.

2019   Dong, Z., **Rhodes, R.,** & Hestvik, A. *Gap predicting and island constraint in processing Mandarin topic structure: an ERP study.* Talk presented at Psycholinguistics in Iceland – Parsing and Prediction, Reykjavik, Iceland.

2019   Avcu, E., **Rhodes, R.,** & Hestvik, A. *Neural tracking of implicit vs explicit phonotactic learning.* Talk presented at the 42nd GLOW Conference, Oslo, Norway.

2019   Avcu, E., **Rhodes, R.,** & Hestvik, A. *Neural tracking of implicit vs explicit phonotactic learning.* Talk presented at the 43rd Annual Penn Linguistics Conference, Philadelphia, PA.

2019   Avcu, E., **Rhodes, R.,** Han, C., & Hestvik, A. *P300 as an Index of Phonotactic Violation.* Poster presented at the 93rd Annual Meeting of the Linguistic Society of America (LSA), New York, NY.

2018   Avcu, E., **Rhodes, R.,** Han, C., & Hestvik, A. *Neurophysiological signature of phonotactic rule-learning*. Poster presented at the 59th Psychonomic Society Annual Meeting, New Orleans, LA.

2018   Avcu, E. & **Rhodes, R.** *Neural underpinnings of phonotactic rule learning*. Poster presented at the Annual Meeting on Phonology, San Diego, CA.

2018   **Rhodes, R.,** Han, C., & Hestvik, A. *Phonetic content of auditory representations*. Poster presented at the 10th Annual Meeting of the Society for the Neurobiology of Language, Québec City, Canada.

2018   Avcu, E. & **Rhodes, R.** *Phonotactic rule-learning without semantics: an EEG study*. Poster presented at the 10th Annual Meeting of the Society for the Neurobiology of Language, Québec City, Canada.

2018   **Rhodes, R.,** Han, C., & Hestvik, A. *The ad hoc representations of speech sounds in the varying standards oddball paradigm*. Poster presented at the 8th Mismatch Negativity Conference, Helsinki, Finland.

2018   **Rhodes, R.** *Acoustic change detection to variance in two dimensions*. Talk presented at the Linguistics and Cognitive Science Student Conference at the University of Delaware, Newark, DE.

2017   Dong, Z., **Rhodes, R.,** & Hestvik, A. *Island constraint and reanalysis in processing Mandarin topic structure: an ERP study*. Poster presented at the 30th Annual CUNY Conference on Sentence Processing, Cambridge, MA.

2017   Han, C., **Rhodes, R.,** & Hestvik, A. *The ad hoc perceptual grouping of speech sounds in the varying standards oddball paradigm*. Poster presented at the 24th Annual Meeting of the Cognitive Neuroscience Society, San Francisco, CA.

2016   **Rhodes, R.** *Do open specifier positions at clause edges alleviate working memory load?* Poster presented at the 38th Annual Meeting of the Cognitive Science Society, Philadelphia, PA.

2016   Donovan, M., & **Rhodes, R.** *Using transducers to construct minimalist trees from linear word order*. Talk presented at the Cognitive Science Graduate Student Conference at the University of Delaware, Newark, DE.

2013   **Rhodes, R.** *Clausal architecture of Chukchansi Yokuts*. Talk presented at the 34th Annual Central California Student Research Symposium at California State University, Fresno, CA.

INVITED TALKS

2023   **Rhodes, R.** *Artificial Languages for Artificial Intelligence.* E-Talks series, International Erguvan Art and Academy. March 18, 2023.

2022   **Rhodes, R.** *Learning in the limit: What we can learn from experimental investigation in formal learning theory.* Cognitive Science Colloquium, Rutgers University. April 12, 2022.

2021   **Rhodes, R.** *Learning in the limit: What we can learn from experimental investigation in formal learning theory.* Linguistics Colloquium, California State University, Fresno. October 7, 2021.

2019   **Rhodes, R.** *Neural representation of speech: perception, prediction, and learning.* Linguistics Colloquium, California State University, Fresno. December 5, 2019.

TEACHING

Instructor

2022-2023   **Research in Cognitive Science,** *Rutgers University*, Cognitive Science.

2023   **Advanced Topics II: Speech Perception,** *Rutgers University*, Cognitive Science.

2023   **Language and Cognition,** *Rutgers University,* Cognitive Science.

2022-2023   **Undergraduate Seminar in Cognitive Science,** *Rutgers University,* Cognitive Science.

2020-2022   **Neural Structure of Language,** *Rutgers University,* Cognitive Science.

2020-2023   **Cognitive Science: A Multidisciplinary Introduction,** *Rutgers University,* Cognitive Science.

2020   **Advanced Topics II: Neural Structure of Language,** *Rutgers University*, Cognitive Science.

2016, 2019   **Introduction to Cognitive Science,** *University of Delaware,* Linguistics and Cognitive Science.

2017-2019   **Introduction to Linguistics,** *University of Delaware,* Linguistics and Cognitive Science.

2017-2018   **Psycholinguistics,** *University of Delaware,* Linguistics and Cognitive Science.

Teaching Assistant

2019-2022   **Introduction to Cognitive Science,** *Rutgers University*, Cognitive Science.

2018   **Cognition,** *University of Delaware,* Psychology.

2015-2017   **Introduction to Psychology,** *University of Delaware,* Psychology.

2015   **Introduction to Cognitive Science,** *University of Delaware,* Linguistics and Cognitive Science.

2014   **First Language Development,** *University of Delaware,* Linguistics and Cognitive Science.

2013-2014   **Introduction to Linguistics,** *University of Delaware,* Linguistics and Cognitive Science.

Guest Lectures

2023 **EEG Methods,** *Rutgers University*, Cognitive Science. Lecture for the course 185:320 Research Methods in Cognitive Science. March 20, 2023.

2022 **Neurolinguistics: imaging brain activity,** *The College of New Jersey*, World Languages and Cultures. Lecture for the course WLC 215: Introduction to Linguistics. March 31, 2022.

2022 **Neural bases of universal grammar,** *Far Eastern University*, Institute of Education. Lecture for the course Language Acquisition and Development Studies. March 9, 2022.

2020 **Sentence processing using EEG,** *UC Riverside*, Linguistics. Lecture for the course LING 162: Language and the Brain. December 3, 2020.

2020 **Chukchansi Yokuts language documentation project,** *UC Riverside*, Linguistics. Lecture for LING 131: Morphology. August 11, 2020.

2016 **Language processing and EEG,** *University of Delaware*, Linguistics and Cognitive Science. Lecture for LIN 101: Introduction to Linguistics.

AWARDS AND GRANTS

2023 Award for Distinguished Contributions to Undergraduate Education.

Rutgers University, School of Arts and Sciences.

2023 Cog Sci Mind Challenge, second place. $500

Cognitive Science Society.

2021-2023 National Science Foundation DDRIG BCS-2041266 $19,200

Role: External collaborator. Arild Hestvik: PI. Chao Han: Co-PI. Doctoral Dissertation Research Improvement Grant: "Evoked Category Representations."

2016-2019 Summer Funding Scholarship $4,000

University of Delaware, Linguistics & Cognitive Science.

MENTORING

2022-2023 Supervised Rutgers undergraduate honors capstone projects in cognitive science.

2022-2023 Supervised undergraduate independent study students in psycholinguistic EEG research.

2019	Supervised one University of Delaware Summer Fellow in independent EEG research.
2018	Supervised one University of Delaware McNair Scholar in independent EEG research.

SERVICE

2020-2023	Undergraduate Academic Advising, Rutgers University Center for Cognitive Science, Rutgers University.
2022-2023	Reader for cognitive science undergraduate honors theses.
2022-2023	Cognitive Science Education Committee, Rutgers University.
2023	Faculty advisor for Cognitive Science Club, Rutgers University.
2021	Ad hoc grant reviewer, NSF.
2020-2022	Ad hoc reviewer for *Auditory Perception & Cognition*, *Brain & Language*, *Collabra: Psychology*, *Frontiers in Human Neuroscience, Journal of Experimental Psychology: Learning, Memory, and Cognition*, and Oxford University Press.
2020-2021	Faculty reviewer for Aresty Rutgers Undergraduate Research Journal.
2019	Reviewer for *Psycholinguistics in Iceland – Parsing and Prediction.*

RESEARCH EXPERIENCE

Research Positions

2022-2023	PI, Psychology & Cognitive Science shared lab space, Rutgers University.
2019	Lab Manager, Experimental Psycholinguistics Lab, University of Delaware.
	Supervisor: Arild Hestvik

Fieldwork

2012-2013	Chukchansi Yokuts Language Documentation Project, CSU Fresno. In-person elicitations with two native speakers in Fresno, CA.