

Linguistics and Institute for Advanced Computer Studies, University of Maryland

"Modeling early phonetic learning from natural speech"



Abstract: Theories of language acquisition have typically been developed using an idealization of the phonetic learning problem. For example, phonetic category learning models have used input that is much less variable than the speech children hear and have assumed that learners already know which dimensions of the speech signal to pay attention to. In this talk, I use a series of modeling studies to argue that taking seriously the complexity of children's speech input has major implications for theories of phonetic learning.

We have worked to create models that work on naturalistic speech after finding that phonetic learning models that were developed on simplified data fail when trained on more realistic data. Our first strategy has been to question theories of what is being learned: perhaps infants are acquiring a language-specific perceptual space during their first year of life, rather than a set of phonetic categories. Our second strategy has been to question theories of the learning mechanism: perhaps rather than looking for distinct acoustic clusters of sounds corresponding to phones, learners can use statistical information that is more reliable in naturalistic speech. In each case, we have found that the models that succeed in phonetic learning on naturalistic speech differ in important ways from previous theories. This work raises new questions about what young infants know about the sounds of their language and underscores the need to take into account the complexity of the data that children hear when building theories of language acquisition.

This is joint work with Kasia Hitczenko, Thomas Schatz, Stephanie Antetomaso, Xuan-Nga Cao, Yevgen Matusevych, Kouki Miyazawa, Emmanuel Dupoux, Micha Elsner, Sharon Goldwater, and Reiko Mazuka.

October 18, 2022 11:00AM-12:30PM Location: SSPB 1222 Zoom link: <u>https://uci.zoom.us/j/91644840724</u>