

Sonic Shapes

Analysis and Visualization of Vocalizations in Autism

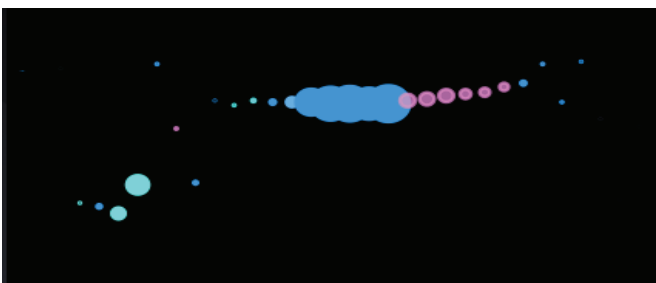
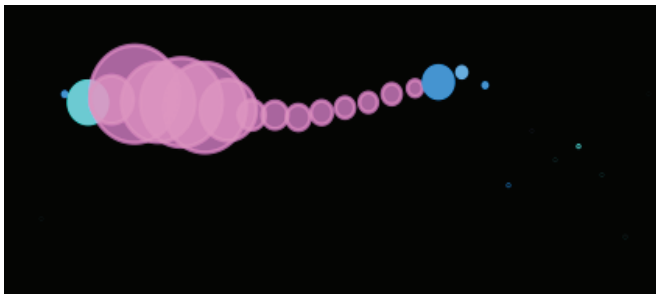
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● Project Motivation

- Visualization of speech patterns in autism
- Opportunity for early analysis of voice
- Support for speech & occupational therapy
- Visualization of social interaction & identity
- Concurrent visualization of speech and EDA
- Mobile platform useful in practice



Top: A child saying “no”

Bottom: The same child saying “now”

● Features


- Phonetic recognition
- Online analysis
- Spectral, prosodic, and qualitative analysis
- Pitch tracking
- Desktop and mobile platforms
- Multiple Visualization Styles

● User Studies & Evaluation

- Comparison of visualization styles
- Representation of social identity

● Future Work

- Expansion of analytics
- Expansion of visualization repertoire
- Performance optimization
- Exploration of social identity and social interaction
- Applications to support therapy

 Obstruent Consonants: e.g.
s, sh, ch, j, p, k

 Vowels, e.g., key, cut, cot

 Sonorant Consonants: e.g.,
n, m, l, r, w, y



A child trying to say “Ooooohhh! Train...”. Note: He is nasal and can’t say his “r’s” yet.