

ASA Fall 2022

View Abstract

CONTROL ID: 3795299**TITLE:** Developing a voice monitoring smartphone app: Acoustic acquisition and processing considerations**AUTHORS (FIRST NAME, LAST NAME):** [Victoria S. McKenna](#)¹, Andres F. Llico², Aaron Friedman³, Savannah N. Shanley¹, Thomas S. Talavage², Leigh M. Bamford⁴**INSTITUTIONS (ALL):** 1. Communication Sciences and Disorders, University of Cincinnati, Cincinnati, OH, United States.

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ABSTRACT BODY:

Abstract (200 words): With the advent of smartphone technology, there has been an increase in at-home health monitoring. Yet, there are few applications (apps) available to track voice acoustics for those with voice disorders. Therefore, we completed two investigations into the acquisition and processing of the acoustic signal to help develop a voice monitoring app. Study 1: We investigated how microphone distance and phone tilt impact the accuracy of acoustic measures of voice. A total of 58 participants with (n=47) and without (n=11) voice disorders completed speech tasks of sustained vowels and the rainbow passage. Concurrent recordings were collected using the participant's phone, as well as a stationary headset microphone for comparison. We determined that the voice measures of fundamental frequency (Hz), voicing duration (seconds), and cepstral peak prominence (dB) were impervious to phone distance and tilt. Study 2: Focusing on the three acoustic measures from study 1, we investigated the correspondence between acoustic measures attained with clinically available software (e.g., Praat) and those from our own lab-developed algorithms specialized for on-app processing. Preliminary results show strong relationships ($r > .90$) between the different processing techniques. Further work is needed to understand how participant-specific factors (age, dysphonia severity) may improve algorithm accuracy.

CURRENT TECHNICAL COMMITTEE: Speech Communication**CURRENT SPECIAL SESSION:** None**PRESENTATION TYPE:** Contributed Submission : Poster**PRESENTER:** Victoria Sue McKenna**AWARDS:****PACS Numbers:** 43.72.Ar**Additional Comments:** Available to present in-person**Author Disclosure 1:** Yes**Author Disclosures 2:** Yes**Author Disclosure 3:** Neither of the above**Ethical Principles:** I have complied with the ASA Ethical Principles.

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