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“Enhancing clinical voice assessment with smartphone-based ambulatory voice monitoring”

An estimated 30% of the adult U.S. population suffers from a voice disorder at some point in their lives and often experience significant communication disabilities with far-reaching social, professional, and personal consequences. Most voice disorders are chronic or recurring conditions and result from inefficient and/or abusive patterns of vocal behavior, termed vocal hyperfunction. Thus, an ongoing clinical research goal is the prevention, diagnosis, and treatment of vocal hyperfunction through noninvasive, long-term monitoring of an individual’s daily voice use. This talk will describe current work investigating vocal hyperfunction in voice patients and matched healthy controls using smartphone-based ambulatory voice monitoring. Voice use and vocal function measures were derived from neck-surface acceleration recordings using vocal dose theory and novel impedance-based acoustic modeling to yield glottal airflow estimates. Results demonstrate that the clinical characterization of vocal hyperfunction could be improved by the ability to unobtrusively monitor and quantify detrimental voice use and ultimately provide real-time biofeedback to facilitate the learning of healthier vocal behaviors. Future research aims to enhance clinical voice assessment through integrating innovations in wearable sensor technology and laryngeal endoscopic imaging.

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Room 3-417 ♦ Frances Searle Building ♦ Evanston Campus