



Reading Error Annotation App

TECHNOLOGY NUMBER: 2022-347

OVERVIEW

A streamlined app reduces errors in clinical reading error and disfluency annotation

- Combines ASR and algorithmic annotation for improved efficiency and accuracy
- Clinical diagnostics, reading assessments, and language disorder analyses

BACKGROUND

Tracking reading errors and disfluencies is crucial for diagnosing and monitoring a variety of health conditions, including developmental and cognitive disorders. Traditionally, this involves a two-step manual process. Trained transcribers first convert audio recordings into text, then meticulously identify and annotate errors and disfluencies. While this approach has been standard practice for decades, it is labor-intensive, time-consuming, and highly error-prone. Mistakes can arise at both the transcription and annotation stages, ranging from misheard words to overlooked disfluencies. Such errors compromise the validity of clinical analyses that rely on these annotations. As patient populations and clinical demands grow, these inefficiencies highlight a pressing need for more accurate, reliable, and streamlined solutions to manage the ever-increasing volume of data.

INNOVATION

The proposed application introduces a semi-automated workflow leveraging advanced Automatic Speech Recognition (ASR) and algorithmic annotation. Instead of requiring transcribers to start from scratch, the app first generates an initial transcript from the audio via ASR. Transcribers then review and correct these transcripts, minimizing transcription errors by acting as quality control rather than sole creators. Once finalized, the platform applies machine learning algorithms to mark potential errors and disfluencies; transcribers again edit these preliminary annotations to ensure clinical accuracy. This two-step, technology-assisted process significantly reduces manual workload and error rates. The final annotations can be used in diagnosing reading disorders, tracking disease progression, and conducting linguistic research, offering transformative improvements in clinical workflows and data reliability.

ADDITIONAL INFORMATION

PROJECT LINKS:

DEPARTMENT/LAB:

Technology ID

2022-347

Category

Software

MOSS - Michigan Open Source
Software

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