

## A Proposal for an Eye-Tracking Text-to-Speech System for Adults with Dyslexia

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### Abstract:

Developing eye-tracking text-to-speech software to assist adults with dyslexia, focusing on enhancing reading in educational and professional settings.

### Motivation:

We believe eye tracking technology may be used to greatly benefit individuals with dyslexia. By using interaction from the eyes, words currently being read can be identified and feed into a dynamic live-speed text-to-speech implementation. Existing solutions to date have not yet exploited this technology to its full potential. We seek to investigate the effectiveness of such a novel interactive system.

### Target demographics:

Focused on dyslexic adults, particularly university students and professionals. Educators, tutors, and parents also play a key role. This eye-tracking technology could also possibly help with reading for those with ADHD and other attention-related disorders.

### Proposed System:

A software that uses eye tracking to highlight the current and next words the user is looking at, and uses text-to-speech technology to read aloud the highlighted word.

### Impacts:

This project aims to increase the reading speed and accuracy for dyslexic readers.

The software is designed to facilitate reading and comprehension of written texts, with considerations for data privacy, user reliance, screen time, and confidentiality.

### Objectives:

We are developing a desktop application to assist dyslexic and visually impaired individuals. The software scans text from screens, adapting it for easier reading, and includes a text-to-speech feature for accessibility. Eye-tracking will be used for real-time text detection, focusing on the user's point of interest on the screen. Additional tools like linear guidance and phonetic assistance will support focused and comprehensive reading.

### Engagement with Stakeholders:

Seeking your participation in surveys and prototype testing for continuous feedback and refinement. Your insights are crucial for developing a tool that effectively meets the needs of dyslexic individuals.