

Videobooks

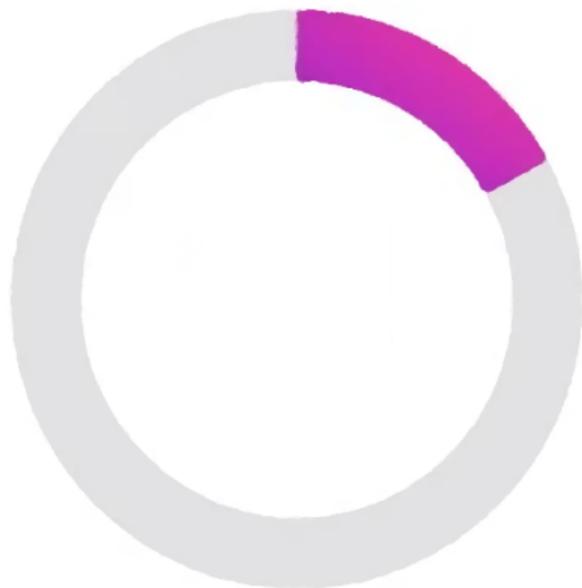
Augmenting the Reading Experience with Synchronous Reading and Listening

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Reading difficulties

Dyslexia affects 10 to 17 percent of the population¹



Up to 126 Million people in Europe alone

¹Wagner, R. K., Zirps, F. A., Edwards, A. A., Wood, S. G., Joyner, R. E., Becker, B. J., Liu, G., & Beal, B. (2020). The Prevalence of Dyslexia: A New Approach to Its Estimation. *Journal of Learning Disabilities*, 53(5), 354–365. <https://doi.org/10.1177/0022219420920377>.

Text to speech

Who uses TTS (text to speech software) or speech synthesis regularly?

Text to speech

Who listens to audio books regularly?

Text to speech

Would you still listen to audiobooks if they were read by the computer?

Criticisms

lacks of

- ▶ rythm
- ▶ intonation
- ▶ modulation
- ▶ emotion

A solution?

ebook
+
audiobook
=
?

A solution?

ebook
+
audiobook
=
videobook

The videobook

There were doors all round the hall, but they were all locked; and when Alice had been all the way down one side and up the other, trying every door, **she walked sadly down the middle**, wondering how she was ever to get out again.

Sie ging traurig die Mitte entlang,

The videobook, characteristics

There were doors all round the hall, but they were all locked; and when Alice had been all the way down one side and up the other, trying every door, she walked sadly down the middle, wondering how she was ever to get out again.

Sie ging traurig die Mitte entlang,

- ▶ synchronized human voice
- ▶ dynamic text highlighting
- ▶ adjustable speed
- ▶ displayable meta information (e.g. subtitles)

Example

Alice in Wonderland
<https://youtu.be/wEU8tvpuego>



Implementation

open ebook formats

EPUB3

<https://www.w3.org/epub3/>

an open ebook format that has media overlays in its specifications since **2011**

Implementation

e-reader apps with accurate read aloud function of audiofiles

- ▶ Books (iOS) - ✗
- ▶ Google Play Books (Android) - ✗
- ▶ FBReader (Android) - ✗
- ▶ Kobo Books (Android) - ✗
- ▶ ...
- ▶ Amazon Kindle - Whispersync function *proprietary*
- ▶ Thorium Reader (desktop OS) - ✓

Provisional fix

Video files

Audio files (e.g. `.mp3`) + ebook (e.g. `.txt`)



forced alignment tools (open Python libraries: `afaligner` and `aeneas`)



`epub3` audio e-book (e.g. `.epub`)



`python videobook-generator.py`



video file (e.g. `.mkv`)

Provisional fix

Video files

Advantages, e.g. VLC player

- ▶ familiar user interface
- ▶ dynamic text highlighting in video
- ▶ adjustable speed with pitch correction
- ▶ subtitles and chapter information

Disadvantages

- ▶ no customization of layout
- ▶ no customization of highlight granularity

The Smart Videobook project

ebooks and audiobooks in the public domain

Project
Gutenberg

A detailed line drawing of a traditional printing press, showing the complex mechanical system of rollers, galleys, and the printing bed.

+

LibriVox
free public domain audiobooks



Smart Videobooks

The Smart Videobook project

number of potential titles listed by language

possible material for public domain videobooks

- ▶ English: 9678
- ▶ German: 83
- ▶ Italien: 77
- ▶ Spanish: 66
- ▶ French: 65
- ▶ Portuguese: 29

Smart Videobooks

Outlook

- ▶ UX testing: layout, font
- ▶ learning effects
- ▶ target group research
- ▶ trial program for language learning

Thank you!

Q & A



<https://www.youtube.com/@SmartVideobooks>

<https://lerngeflechte.com>