Like a “Swiss knife which cuts in two directions”: On the development and use of SpeechIndexer as a documentation and teaching tool

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Language documentation (blade 1) and language teaching (blade 2) converge

- Lessons learned from indigenous languages for education: authenticity
- Returning to authentic recordings
  - Parallel developments in linguistic typology, documentation and teaching
  - A century of methodologies: From Direct method, Audiolingualism to CBI, struggle to capture real speech.
  - SpeechIndexer: Software for the documentation of speech, indexing and retrieval of audio-data.
- Centered on learner and researcher: How to raise the efficiency of exposure to speech.
- Learner/documenter deal only with real speech data.
- Learner/documenter decides on what to zoom in, they are in control.
- Learner/documenter decide on meaningful input.
- Constant motivation for the autonomous learner and a successful documentation.
SpeechIndexer: The first ten years

- Period of development: 2003 – today (and tomorrow)
- Original goal: Documentation of indigenous languages (endangered Austronesian in Taiwan), to make a research archive of hundreds of hours of recordings with transcriptions accessible, retrievable.

Motivation:
- Simple access and export of sound data, correlated to transcriptions (hundreds of hours of recordings – there should be no limit on data size)
- Previously lacking software for easy and speedy mark-up.
- Previously no possibility of directly generating teaching materials from authentic recordings (by teacher/learner).

Goal: a flexible, simple, adaptable Software for PC, which does what the others don’t, but does not what the others do, however still compatible in input and output.

Implementation: Windows, C#/.NET
SpeechIndexer: Core functions

- Displaying audio signal, transcribed text, commands, etc.
- Automatic segmentation of speech file in pauses and voice segments.
- Manual confirmation/modification of voiced units and their linking to written segments (Indexing)
  - Text parts linked appear marked.
  - Speech segments can be played by clicking the linked text.
- Editing functions for text, links, corrections of time-range.
- Project structures for Audio-, Text-, Segmentations- and Index files.
- Search and retrieval functions on indexed recordings: throughout the complete recording, and on concatenated archives.
- Search results are listed and can be exported or heard directly by clicking on the text.
SpeechFinder: a mature learning assistant

- SpeechFinder is a read-only modified version of SpeechIndexer.
- Functions as a self-contained language learning lab.
- TextbookMaker versus TextbookBrowser: The concept of working on diverse aspects of the same speech data.
- Availability of audio recordings on the internet:
  - Free audios and texts on www.gutenberg.org, Podcasts with audiofiles and related texts at www.podclub.ch (Service of Migros Klubschulen)
  - Indexed audiobooks at empamedia.ethz.ch/software: The files can be loaded in SpeechFinder.
SpeechIndexer: DEMO

White
Good evening. Tonight: it’s been quite a week for travellers' tales hasn’t it; but what are the additional problems if you're stranded 9,000 miles from home, don't speak the language, and all the information is in an inaccessible form? We return to the issue of denying your blindness, with a case to take your breath away.

Clip
It took me 30 years to carry a white stick because I could not bear being associated with that shuffling group of no hopers.
SpeechIndexer: Planned developments

- **E-Learning Software for language teaching**
  - A flexible and independent tool for instructors to generate teaching materials.
  - Training of listening skills on the basis of authentic materials (audio-books, podcasts, CDs of teaching packages)
  - Automatic indexing in the process of realisation selbst realisiert for German, French, English, Italian, Spanish, independently of other commercial software licences.

- **Video Indexing**
  - Analogous to SpeechIndexer
  - Indexing on various levels of hierarchy: complete video, selected parts, szenes, phrases.
  - Search functions on single videos or videoarchives.
  - Output on the list pointing to positions in video recording.
Availability of the software

- SpeechFinder (free): [www.empamedia.ethz.ch/software](http://www.empamedia.ethz.ch/software)

- SpeechIndexer for language documentation without automatic indexing function (free): Mail to [ulrike.glavitsch@empa.ch](mailto:ulrike.glavitsch@empa.ch) or [ctszaki@polyu.edu.hk](mailto:ctszaki@polyu.edu.hk) for recent version, otherwise [www.speechindexer.ethz.ch](http://www.speechindexer.ethz.ch) for version of 2010.

- SpeechIndexer for language teaching/learning, including automatic Indexing through a commercial software integration (Annosoft) after Dezember 2013 as a deliverable product costing > USD 2700: Mail to [ulrike.glavitsch@empa.ch](mailto:ulrike.glavitsch@empa.ch).
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