

An Open Platform That Allows Non-Expert Users to Build and Deploy Speech-Enabled Online CALL Courses (demo description)

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Abstract

We demonstrate Open CALL-SLT, a framework which allows non-experts to design, implement and deploy online speech-enabled CALL courses. The demo accompanies two long papers [1, 2] also appearing at the SLaTE 2015 workshop, which describe the platform in detail.

1. Content

Open CALL-SLT is a platform that has been under development at Geneva University since mid-2014 and is currently in alpha testing; it builds on ideas developed in the earlier CALL-SLT project [3, 4], but amounts to a complete redesign. The primary goal of the new framework is to support rapid construction of multimodal speech-enabled online language-learning resources by non-expert users. The basic form of a CALL-SLT course is spoken multimedia prompt/response: the system issues a multimedia prompt, the student responds using speech, and the system either accepts or rejects, possibly giving additional feedback on a rejection. This allows the student to practise both pronunciation and productive competence. The platform can be accessed both on normal browsers and on Android devices; the screenshot in Figure 1 illustrates the user interface. Recognition uses course-specific grammar-based language models compiled from the course descriptions, which offer accurate feedback to students. Measured on recorded data collected from a large evaluation carried out with Swiss German school students in 2013/2014 (15 classes, 200 students, 43K logged interactions; [5]), we estimate that the system rejects utterances annotated as linguistically incorrect about five times as often as those annotated as linguistically correct [2].

In order to accommodate a wide range of potential course designers, functionality is organised in six levels of increasing sophistication. The simplest levels assume only basic web-literacy, and essentially amount to speech-enabled multimedia flashcards; the prompt consists of a piece of text and an optional piece of multimedia (an audio file, JPEG, MP4 or similar), and the course designer explicitly lists possible responses. Higher levels add functionality that requires acquaintance with some basic concepts from computer science: minimal versions of templates, regular expressions and context-free grammar make it possible to write more elaborate sets of prompts and responses, a simple XML-based scripting language allow the designer to link up prompts into interactive multimodal dialogues, and a score/badge system supports gamification of the courses.

Courses are uploaded to a set of shared servers, where they can be remotely compiled, tested and deployed. The main technical challenge is to minimize the probability that one user's content can break the system for other users. This is addressed by arranging deployment in a number of stages; the user starts by compiling new content on its own and is only allowed to add it to the shared resources when it has compiled correctly.



Figure 1: Screenshot showing CALL-SLT user interface.

A tutorial introduction and reference can be found in the online documentation [6]. Examples of Open CALL-SLT courses can be freely accessed at <http://callslt.unige.ch/demos-and-resources/>.

We will demo courses developed using the platform as well as the process of remotely modifying and redeploying a course. The current alpha testing phase is scheduled to finish shortly before the date of the workshop, and we are interested in meeting people who may want to participate in beta testing.

2. References

- [1] M. Rayner, C. Baur, C. Chua, P. Bouillon, and N. Tsourakis, "Helping non-expert users develop online spoken CALL courses," in *Proceedings of the Sixth SLaTE Workshop*, Leipzig, Germany, 2015.
- [2] M. Rayner, C. Baur, C. Chua, and N. Tsourakis, "Supervised learning of response grammars in a spoken CALL system," in *Proceedings of the Sixth SLaTE Workshop*, Leipzig, Germany, 2015.
- [3] M. Rayner, P. Bouillon, N. Tsourakis, J. Gerlach, M. Georgescu, Y. Nakao, and C. Baur, "A multilingual CALL game based on speech translation," in *Proceedings of LREC 2010*, Valetta, Malta, 2010.
- [4] M. Rayner, N. Tsourakis, C. Baur, P. Bouillon, and J. Gerlach, "CALL-SLT: A spoken CALL system based on grammar and speech recognition," *Linguistic Issues in Language Technology*, vol. 10, no. 2, 2014.
- [5] C. Baur, M. Rayner, and N. Tsourakis, "Using a serious game to collect a child learner speech corpus," in *Proceedings of LREC 2014*, Reykjavik, Iceland, 2014.
- [6] CALLSLT, *Writing CALL-SLT Lite Courses*, <http://www.issco.unige.ch/en/research/projects/LiteDocSphinx/build/html/index.html>, 2015, as of 10 April 2015.