

Dialogue Systems to practice English as a Foreign Language: Building evidence-based inclusive teaching and learning materials

Research project aims

The research fellow (“assegnista di ricerca”) will carry out research within the “UNiversally Inclusive Technologies to practice English (UNITE)” project, a research project financed by the Italian Ministry of University and Research under the PRIN funding scheme. The aim of UNITE is to explore the applications of Dialogue Systems (DS) as Artificial Intelligence (AI) powered agents to practice English as a Foreign Language (EFL). The ultimate objective is to produce evidence-based teaching and learning materials which might favour the uptake of DS in Italian university courses, and as tools for autonomous learning by university students, including those with disability and specific learning disorders (“studenti con disabilità e DSA”, as coded in the Italian university system).

With recent advances in AI, DS have improved considerably in terms of their ability to engage in plausible interactions, and research has shown their effectiveness in EFL contexts as a way to let students practice English outside the classroom. Yet, evidence is still scarce as to the effective integration of DS in formal education courses, as well as the degree to which they ensure that different learner groups can access and participate in meaningful learning opportunities. The UNITE project aims to fill this gap by creating and analysing a highly curated corpus of DS-learner interactions, collecting learner satisfaction data following interaction, and proposing a set of teaching guidelines and materials that will facilitate the integration of DS in classroom contexts and the learning of English by students with disability and specific learning disorders.

The specific objectives of UNITE to which the research fellow will contribute include: (1) annotating and analysing errors in learner production and their impact on the output of the DS within a corpus of DS-learner interactions; (2) producing a set of teaching materials and guidelines that will help teachers to better integrate DS in the English language classroom, and a set of independent learning materials for learners, and (3) distributing the produced materials as Open Educational Resources.

Activity plan

The research fellow will carry out and/or contribute to the following activities:

- annotation of learner errors (e.g., misspelt words and ungrammatical forms) in the project’s corpus of DS-learner interactions, followed by an analysis of the impact of such errors on the DS output. The error annotation is expected to provide insights into areas of difficulty for Italian learners related to grammatical and lexical aspects of the English language, while also revealing how different (types of) errors affect the ability of the DS to generate consistent and realistic responses and thus sustain meaningful interaction;

- production of guidelines and teaching/learning materials that will help to better align the needs of teachers and learners concerning the use of DS to practice English written production. The guidelines will feature an overview of available DS, with indications on their level of inclusivity, and will be linked to teaching materials consisting of a series of suggested topics and tasks for the interactions between learners and DS, with indications for teachers on potentially problematic points that might need explicit reinforcement to favour successful interactions. Methods for effectively collecting feedback from students and monitoring their progress will also be proposed. The materials will be informed by the results of the users' opinions collected during the corpus construction stage (collected by other project members), as well as the corpus-based analysis of the interactions carried out by the research fellow her/himself. Simple guides for learners will be produced in parallel, with the aim of improving independent use of DS in autonomous learning activities;
- distribution of the produced materials as Open Educational Resources. The distribution will involve finding an appropriate repository, deciding on the material format(s) and metadata, and actually publishing the materials.

The research fellow is expected to contribute to the publications (journal articles and/or book chapters) resulting from the aforementioned research activities, and to the workshops in which the materials will be presented and piloted.

Profile of the research fellow

The research fellow must possess (documented) skills in the field of modern languages or linguistics. It is desirable for the fellow to have had previous experience with language corpora and/or second language acquisition theory and pedagogy (in particular the creation of didactic materials and the use of technology in the language classroom). A native or near-native knowledge of English and Italian is essential.

Training

The training of the research fellow will be entrusted to the Tutor, Prof. Maja Miličević Petrović, and the Co-Tutors, Prof. Cristiana Cervini, Prof. Adriano Ferraresi and Silvia Bernardini. The Tutors will be supported by other members of the UNITE project, including the project Co-PIs Prof. Francesca Raffi (University of Macerata) and Anna Mongibello (University of Napoli L'Orientale).