

# COPECO-Speech: Multimodal Post-Editing with Speech and LLMs for Translation Teaching

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## Abstract

In this demo, we present COPECO-Speech, a multimodal post-editing workbench designed for translator training with AI-based translation technologies. It extends an existing pedagogical post-editing platform (COPECO) by integrating speech input and Large Language Model (LLM)-assisted editing. The workbench has different post-editing modalities and helps teachers annotate student tasks using either a shared or personalized annotation scheme. The system logs all interactions—including keystrokes, speech input, editing actions and LLM operations—enabling detailed analysis of post-editing processes.

## 1 Introduction

Machine translation (MT) and large language models (LLMs) are transforming translation workflows, requiring training approaches that emphasise interaction design, technical literacy and critical AI use (Bowker and Buitrago-Ciro, 2019; Jiao et al., 2023). Recent LLM-assisted post-editing workflows exist (Castaldo et al., 2025), but CAT tools (e.g. MateCat<sup>1</sup>) are largely keyboard-based and only support basic speech interaction and no LLM-driven editing.

We introduce a multimodal PE workbench for classroom use. It lets students perform PE using different modalities (typing, respeaking, and LLM-assisted editing), while logging process data

for instructor-led reflection and translation curricula integration.

## 2 System overview

Our work extends COPECO<sup>2</sup>, a collaborative pedagogical post-editing platform (Mutal et al., 2020; Liyana Pathirana et al., 2024), by integrating multimodal interaction and LLM-assisted PE. Instructors upload source texts and MT output from any system, assign PE tasks, and configure system behaviour through prompts and settings. The system supports multiple languages and can be extended to additional language pairs. This work represents the first integration of LLM-based functionality within the COPECO platform. PE is performed through two interaction modes:

- **Typing:** users directly edit the MT output using a standard text interface.
- **Speech interaction:** users interact through speech for both navigation and editing. A small set of predefined commands (e.g. "Next/Previous/Save segment") supports navigation, while spoken editing instructions (e.g. insertions, deletions, or reformulations) are interpreted and executed by an LLM to modify or regenerate the translation.

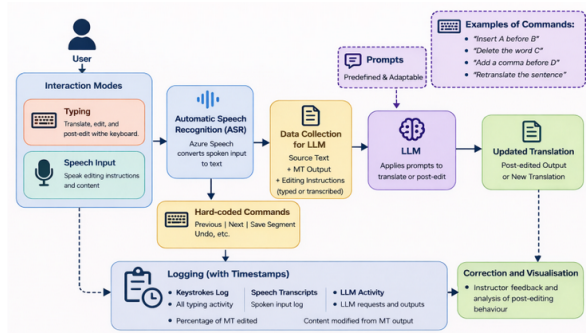
Speech input is recognized using Azure Speech services<sup>3</sup>. COPECO-Speech can replace ASR and LLM components. The speech instruction, the source text and MT output are sent to an LLM (currently GPT-4.1-mini), guided by prompts. The LLM performs the requested edits and returns an updated translation. (Figure 1).

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<sup>1</sup><https://guides.matecat.com/translate-1>

<sup>2</sup><https://copeco.unige.ch>

<sup>3</sup><https://learn.microsoft.com/en-us/azure/ai-services/speech-service/speech-to-text>



**Figure 1:** Workflow of COPECO-Speech, a multimodal speech-driven post-editing workbench

The prompt uses the input and guides the LLM in tasks (language detection, targeted PE or full re-translation, while ensuring consistency in the generated output). Users can switch between interaction modes. All actions—including keystrokes, speech input, and LLM activity—are logged for process-oriented analysis (Carl et al., 2016). The system currently supports English and French and can be extended for other language pairs.

### 3 Pedagogical use case

In a typical lab session, students post-edit texts using different interaction modes (e.g. typing, speech/LLM based editing). Instructors review, annotate and discuss the resulting translations and logs, providing targeted feedback and reflection on PE behavior. This supports discussion of PE strategies, efficiency, and use of AI (Koponen, 2016).

### 4 Demo description

In this demo, we will present the workbench and its main functionalities, focusing on speech-driven LLM-assisted post-editing. A live demo will illustrate how spoken commands can be used to modify and improve MT output, and how the system logs user interactions :

- **Loading:** Source text and MT output loaded into COPECO platform.
- **Post-editing via typing** (baseline): Direct keyboard-based corrections.
- **Speech interaction:**
  - **Navigation (hard-coded commands):** “Next”, “Previous”, “Save segment”, “Undo”.

- **Editing via LLM:** “Insert A before B”, “delete second occurrence of C”, “re-translate the sentence”.

- **Correction and visualization:** Instructor feedback through annotation, comparison with reference translations, and reports with post-editing statistics.
- **Logs:** Keystrokes log, spoken input log, time taken, teacher’s corrections, and LLM requests/outputs, percentage of MT content edited.

## 5 Conclusion

This workbench offers a practical tool for teaching multimodal PE and human–AI interaction. By logging spoken editing instructions and enabling comparison across interaction modes, it supports reflective pedagogy and the empirical exploration of PE strategies in AI-assisted translation workflows within the classroom.

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