Visual Interactive System for Teaching and Assessment of Sign Languages

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Abstract:

The education of Deaf and hard of hearing individuals is critically hindered by a global shortage of qualified sign language (SL) teachers and a lack of accessible, personalized learning tools. This paper presents VISTA-SL, an innovative project that leverages advanced technology to address these challenges and promote the fundamental rights, dignity, and unique culture of the Deaf community. The project, implemented within the Erasmus+ programme, aims to develop a comprehensive SL teaching ecosystem. Its core objectives are to mitigate the teacher scarcity through the creation of a technology-enhanced teaching toolkit. This toolkit integrates real-time visual feedback using Augmented Reality (AR) and avatars, alongside a Large Language Model (LLM)-based virtual instructor for course personalization and coaching. To foster inclusion and diversity, the project is concurrently developing interactive curricula and educational games in four European sign languages. These resources will be disseminated via a low-cost, accessible e-learning platform. The implementation methodology encompasses the development of all software tools, the co-creation of pedagogical materials with SL linguists and educators, transnational consortium meetings, training activities, and wide-reaching dissemination through multiplier events. Expected outcomes include open-source software tools and detailed technical reports, interactive learning curricula, and comprehensive evaluation reports from diverse user groups. By integrating explainable visual feedback and machine learning, VISTA-SL aims to establish a new standard for SL education, enhance its quality and effectiveness, and significantly contribute to the inclusion and empowerment of Deaf learners and educators across Europe.