

SEM24. Artificial intelligence and media accessibility: New frontiers and emerging challenges

13 September h. 8:30-11:00, S1 Moro

Convenors:

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Abstract

The rapid rise of Artificial Intelligence (AI) and other emerging technologies is profoundly reshaping the field of media accessibility, defined as the practices, tools, and technologies aimed at making media content accessible to all individuals, including those with disabilities or other special needs (Remael, 2012). In this evolving landscape, AI-powered technologies are increasingly being integrated into specific domains of media accessibility (Pereira & Duarte, 2023), ranging from traditional forms such as cinema and video games to streaming and digital platforms. More recent innovations, including virtual and augmented reality (Gluck et al., 2021), as well as interactive tools like chatbots and virtual assistants, are further transforming how media is accessed and experienced. These advancements prompt critical discussions about the future of creativity, the restructuring of traditional workflows, and the role of AI in learning processes, particularly in relation to accessibility (Huang et al., 2022). Additionally, they raise questions about the potential for these technologies to revolutionize user engagement and the ethical considerations surrounding AI-driven systems (Rane & Choudhary, 2024). While AI can contribute to democratizing access to media content and enhancing personalized experiences, it also carries the risk of inadvertently reinforcing existing biases due to the data used to train AI algorithms.

This seminar aims to explore the transformative potential of AI and other emerging technologies in reshaping media accessibility across media environments. It seeks contributions that explore innovative tools, theoretical approaches, and ethical considerations to ensure these advancements foster equitable and accessible outcomes. Topics may include, but are not limited to:

- AI-driven innovations: theoretical and practical studies on AI-powered tools for enhancing accessibility
- automation and creativity: investigating how AI is transforming creative and technical work in the media landscape
- linguistic and cultural accessibility: the role of AI in breaking down language and cultural barriers in media content
- ethical challenges: ethical implications of AI use for media accessibility
- personalized media: studies on AI's role in tailoring content delivery to meet individual needs.

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SEM24. Papers

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- *Accessible conversations? Investigating chatbot usability as tools to practice English* (Adriano Ferraresi, Alma Mater Studiorum Università di Bologna)
- *Beyond Standard English: Enhancing subtitles for d/Deaf and hard of hearing viewers through AI-powered sociolinguistic tagging* (Francesca Illiano, Università di Parma)

- *A.C.T.I.V.E-ting AI-literate learners: Balancing media accessibility and critical engagement in English language education* (Cristiana Pagliarusco, Università Ca' Foscari Venezia)
- *AI, accessibility, and democratization: Shifting the balance in the Italian AVT industry* (Angela Sileo, Università degli Studi di Milano)

SEM24. Abstracts

Accessible conversations? Investigating chatbot usability as tools to practice English

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Recent advances in Artificial Intelligence (AI) have reshaped how people access and engage with digital content, with profound implications for media accessibility (Marcus-Quinn et al., 2024). Conversational AI tools, often integrated into platforms resembling everyday messaging apps, offer new opportunities for interaction for all users, including users with diverse needs. When used in educational settings, these tools can also serve as accessible environments for foreign language practice, supporting learners through naturalistic, low-pressure communication (Bibauw et al., 2022). As these technologies become pervasive in educational contexts, assessing their usability and accessibility is essential to ensure they do not replicate or exacerbate existing barriers (Ruane et al., 2019). This paper reports on the results of a project investigating how non-specialized conversational chatbots can be used in ways that align with accessibility principles (cf. CAST 2018), while also supporting language acquisition through simulated, goal-oriented communication tasks. The study is based on data from a quasi-experiment in which university students learning English as a Foreign Language (EFL) interact in English with two chatbots, i.e. ChatGPT and Pi.AI. This quasi-experiment involved 326 Italian university students aged 19-25, with varying levels of L2 proficiency (from beginner to advanced) and including learners with disabilities and learning disorders. Each student was required to complete two tasks in a set order. These tasks were small talk, a conversation on a topic of choice with the chatbot, and a role play activity, in which each student simulated a real-life scenario and interacted with the chatbot to achieve a goal. Feedback from students was collected through a post-hoc questionnaire which included questions about their personal evaluation of the task, based on parameters that included engagement, immersion, discomfort and discrimination. The paper will present a corpus-based analysis of the chatbot interactions, linking students' language output to their perceptions as expressed in the questionnaire. The analysis will focus on two key aspects. First, students' willingness to communicate, an essential component of language practice and acquisition (Fathi et al., 2024), will be assessed through both their conversational behavior (e.g., number and length of turns) and their self-reported engagement. Second, the study will examine how the chatbots adapt linguistically to learners by analyzing language complexity and conversation management, in order to evaluate their potential for personalized, accessible interaction.

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Beyond Standard English: Enhancing subtitles for d/Deaf and hard of hearing viewers through AI-powered sociolinguistic tagging

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As artificial intelligence continues to redefine the landscape of media accessibility, its integration into audiovisual translation offers new opportunities to improve inclusion for d/Deaf and Hard of Hearing (DHH) viewers. Subtitles for the DHH (SDH) sometimes fail to represent the full range of linguistic variation in audiovisual content, particularly when it

comes to non-standard forms such as slang, dialects, some taboo language, and syntactically marked structures. These omissions can lead to the erasure of speaker identity, sociolinguistic nuance, and emotional tone, i.e., crucial elements for ensuring full access to meaning, cultural context, and engagement (Di Giovanni & Gambier, 2018; Romero-Fresco, 2019). In general, such non-standard features have tended to be sanitised or standardised in subtitles to guarantee readability and comprehension (Díaz Cintas & Remael 2007). The risk was that linguistic flattening would affect DHH audiences, who rely on subtitles not only to access narrative content but also to interpret social identities, dynamics, and affective nuances. Despite recent efforts to include more variation in subtitles (Díaz Cintas & Remael, 2021; Zárate, 2021), some gaps remain, particularly on streaming platforms.

This study introduces a computational framework designed to address this gap by improving the detection and classification of non-standard linguistic features in SDH. Working with a 4-million-word corpus of subtitles from four streaming platforms – Prime Video, AppleTV+, Disney+, Netflix – a hybrid AI model was created combining DistilBERT, i.e., a lightweight transformer-based architecture for semantic understanding (Sanh et al., 2020) with a Graph Neural Network (GNN) to model both local and global token relationships. This integration helps disambiguate word senses in ambiguous contexts, especially where informal or dialectal usage challenges standard NLP tools.

A custom sociolinguistic tag set was employed to label tokens as:

#_SWR: swear words, taboo expressions

#_SLG: slang, jargon, interjections, colloquialisms

#_DIAL: dialectal forms, accent-marked spellings

<MRK>: marked syntax (e.g., lack of inversion, subject-verb disagreement, copula omission).

To further refine predictions, the system incorporates curated lexical libraries and override logic based on external APIs. This post-processing step significantly reduces false positives and negatives while preserving ambiguous or marginalised forms often excluded from mainstream processing pipelines.

The result is a semi-supervised AI system that can assist not only in analysing existing SDH, but also in creating future SDH that are not only functionally accessible, but also socially and culturally representative. By maintaining linguistic variation and stylistic intention, this model enhances linguistic accessibility – a crucial but often overlooked dimension of media accessibility – ensuring that DHH audiences receive a fuller, more inclusive media experience.

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A.C.T.I.V.E-ting AI-literate learners: Balancing media accessibility and critical engagement in English language education

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This paper investigates the intersection of artificial intelligence, media accessibility, and English language education through a qualitative case study approach, grounded in educational technology theory and critical media literacy. Drawing on my dual role as a tenured high school English teacher and adjunct professor of English for Informatics undergraduates, the study examines how AI-powered tools—such as chatbots, machine translation systems, and adaptive media platforms—are being integrated into language learning environments.

While AI technologies hold promises for enhancing media accessibility—enabling multilingual support, neurodivergent-friendly interfaces, and personalized content delivery—they simultaneously pose epistemological and pedagogical risks. These include the erosion of critical thinking, ethical detachment in the use of algorithmic tools, and overdependence on AI-generated content. To address these tensions, the study proposes and implements the A.C.T.I.V.E. framework (Awareness, Critical Thinking, Technical Skills, Integrity, Versatility, Engagement), which is rooted in the principles of critical pedagogy (Freire, 1970), human-centred AI ethics (Floridi et al., 2018), and constructivist learning theory (Vygotsky, 1978).

The paper presents observations drawn from a three-hour lesson plan during which a class of 5th grade Liceo students prepared an oral presentation on James Joyce’s short story “Eveline” using AI tools such ChatGPT, Grammarly, AI slide assistants like Canva or Power Point Copilot following the A.C.T.I.V.E. framework. The aim was to understand how learners respond to and critically engage with AI-mediated resources through the A.C.T.I.V.E framework which is evaluated not only as a pedagogical model for fostering responsible and reflective AI use but also as a tool for promoting equitable media accessibility in multilingual, multicultural learning contexts. In doing so, the study wishes to contribute to emerging discussions on how educators can design AI-integrated learning environments that are both inclusive and both critically and intellectually empowering.

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AI, accessibility, and democratization: Shifting the balance in the Italian AVT industry

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The introduction of artificial intelligence (AI) in the Audiovisual Translation (AVT) panorama is transforming the Italian audiovisual industry, shifting the long-established balance, and redistributing the use of specific techniques, with voice-over and simil sync/linear sync being occasionally replaced by AI-driven dubbing. This was the case with the latest *Ballando con le Stelle* (2005-) edition, a TV show where AI was employed to dub a Turkish actor in pre-recorded clips which – in previous editions – used to be adapted by either voice-over or simil sync/linear sync techniques. Truth be told, the trend of utilizing AI in deepfakes – in other words, videos utilizing superimposed faces and synthetic voices – has been in vogue on social media for some time now and has lately been employed also in a local commercial advertising a furniture producing company – Arredissima – with the face and voice of renowned Italian showman Gerry Scotti impressed on each staff member and slightly adjusted to fit the original character’s gender and age. Even though some artificial voices still sound slightly robotic, and image superimpositions do not always prove to be seamless, recent developments seem rather promising.

At the same time, however, while democratizing access to audiovisual content, they spark debate about the future survival of human creativity as well as the transformation of conventional workflows and the reshaping of specific professional figures within the industry. This presentation aims to showcase the application and evaluate the efficiency of AI software in dubbing a short video clip, addressing multiple translation challenges and potential audiovisual pitfalls, especially in terms of multimodal consistency – i.e., synchronization between the aural and the visual components. The final product will be assessed based on five criteria revolving around efficiency and accessibility and ensuring a seamless and audience-friendly viewing experience, namely qualitative and quantitative sync, audio-visual match, translation accuracy, and voice naturalness.

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