

Enhancing Learning Through Technology: Evaluating AI-Powered Subtitling of YouTube Engineering Videos for English-Vietnamese Translation

In the context of global education, the demand for accessible and comprehensible technical content across linguistic boundaries is rapidly increasing. This trend is particularly pronounced in technical fields such as engineering, where specialized knowledge and terminology are prevalent and need to be accurately conveyed to diverse audiences. YouTube, a leading platform for educational content, plays a pivotal role in the dissemination of technical knowledge. This study examines the impacts of AI-powered subtitling tools in translating English engineering video content on YouTube into Vietnamese. Grounded in Speech Recognition Theory and Task Technology Fit Theory, the research aims to evaluate three core aspects: the precision and speed of AI-generated subtitles, the integration of these tools into established educational workflows, and the robustness of their quality control mechanisms. Utilizing a mixed-methods approach, the study involves quantitative assessments and qualitative feedback from HCM UTE English-majored students who are engaged in subtitling tasks. The research underscores the potential of AI to transform educational content delivery through improved linguistic accessibility, yet highlights the need for ongoing enhancements to address technical complexities. These insights aim to contribute to the broader field of educational technology and multilingual education, suggesting pathways for optimizing AI subtitling tools to better serve diverse educational needs. Key words: AI-Powered Subtitling, Speech Recognition Theory, Task Technology Fit, Technical English Translation

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