

## ABSTRACT

Machine Reading Comprehension (MRC) is a fundamental task within question-answering systems, aimed at generating context-aligned answers to given questions. Traditionally, MRC systems focus on providing answers to posed questions. However, contemporary research explores the realm of unanswerable questions, where responses genuinely acknowledge the absence of an answer. This research its efforts on addressing unanswerable questions using a retriever-reader approach, leveraging a sentence transformer for semantic-based document retrieval. Evaluation is performed through metrics like Exact Match and F1-score, showcasing significant performance improvements compared to previous retriever-reader methods. Additionally, the sentence transformer proves superior in document and context retrieval compared to the traditional Tf-Idf approach. The proposed method successfully answers questions that have no answers or unanswerable questions with an exact match rate of 89% and an F1-Score of 89% for the unanswerable dataset.

**Keywords:** Machine Reading Comprehension, Unanswerable Question, Sentence Transformer