Patent Search

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Abstract:

The invention presents a novel multi-document summarization system combining Blue Monkey Integrated Coot Optimization (BMICO) with Hierarchical Attention Multimo Deep Learning (HAMDL). Utilizing BERT tokenization, the system extracts rich contextual embeddings from multiple documents and employs a hierarchical attention mech to focus on relevant words and sentences, effectively handling redundancy and semantic coherence. The BMICO algorithm optimizes the HAMDL model's weights, improvi training efficiency and summary quality. Extensive experimentation demonstrates superior performance in terms of ROUGE, precision, recall, and F-measure, surpassing e methods. The model is scalable, domain-adaptable, and capable of generating concise, coherent summaries from large document sets, facilitating efficient information re and knowledge synthesis across various applications such as journalism, academia, and legal domains.

Complete Specification

Description:The proposed invention relates to the field of natural language processing and machine learning, specifically focusing on multi-document text summarizatio addresses challenges in extracting relevant information from large collections of text documents by employing advanced deep learning techniques combined with metaheuristic optimization. The system integrates hierarchical attention mechanisms with multimodal deep learning models to effectively capture contextual relationshi and reduce redundancy in summaries. By utilizing Bidirectional Encoder Representations from Transformers (BERT) for tokenization and feature extraction, the inventior enhances the understanding of semantic content across multiple documents. The optimization of model weights through the Blue Monkey Integrated Coot Optimization (BMICO) algorithm further improves the accuracy and efficiency of the summarization process. This invention has practical applications in information retrieval, content management, and automated summarization tools, benefiting users who require concise, accurate summaries from vast and diverse sources of textual data.

Background of the invention:

With the rapid expansion of digital information, the volume of text data generated every day has reached unprecedented levels. This explosion of textual content poses significant challenges in efficiently extracting meaningful and concise information, especially when users need to assimilate knowledge from multiple documents. The sh volume makes manual reading and comprehension impractical and time-consuming. As a result, automatic text summarization has emerged as a crucial area in natural language processing (NLP), aiming to condense lengthy texts into shorter versions without losing essential content. Among summarization methods, multi-document summarization (MDS) is particularly important, as it deals with synthesizing information from various sources, such as news articles, scientific papers, and reports, into a coherent summary that presents the core ideas collectively. However, MDS is a complex task due to the heterogeneity of source documents, semantic diversity, and potential information overlap, which often results in redundancy and inconsistency in summaries.

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