"Smart Abstract Summarization and Ranking System Using C# and .NET"

With the increasing number of research papers being published, researchers often struggle to find concise summaries of relevant papers that can be reviewed quickly. This paper proposes a smart abstract summarization and ranking system using C# and the .NET framework to address this challenge. The system extracts abstracts from research papers and applies advanced natural language processing (NLP) techniques to generate concise summaries. The summarization process involves two stages: extractive summarization and abstractive summarization. In the first stage, the system identifies key sentences from the abstract using techniques such as sentence ranking based on TF-IDF and frequency analysis. In the second stage, a neural network-based approach is employed to generate abstractive summaries that rephrase the original abstract in a concise manner. The system also ranks the abstracts based on their relevance to the user's query using machine learning algorithms such as Naive Bayes and Support Vector Machines (SVM). Semantic analysis is incorporated through Word2Vec embeddings to improve the ranking by considering the contextual meaning of words and phrases. The system features a C#-based application built on the .NET Core platform, with a user-friendly interface that allows researchers to upload PDFs, input queries, and view summarized abstracts ranked by relevance. The application can be used to quickly review and categorize papers based on abstract summaries, saving researchers time. Evaluation of the system's performance through precision, recall, and F1-score shows that it provides accurate and effective summarization and ranking. This paper concludes by discussing the future potential of integrating deep learning models and expanding the system to include full-text analysis.