**T5-**ICA-CRMAS: Intelligent Context-Aware Approach for Citation Recommendation based on Multi-Agent System . system leverages the power of deep learning, semantic analysis, and multimodal learning to overcome these limitations . ICA-CRMAS surpasses its closest competitor by a margin of 7.53 on accuracy, 6.07% on MRR and by 5.87 on Recall . user feedback further reinforces its effectiveness, with an overall system usability scale (SUS) score of 76. . . ­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­ ­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­

**Bart**-ICA-CRMAS is an intelligent system that leverages the power of deep learning, semantic analysis, and multimodal learning. It goes beyond the surface, delving into the rich tapestry of information within academic papers, including figures, which often hold vital contextual clues. By weaving this contextual data directly into its recommendation models, ICA-CR MAS generates highly personalized and relevant suggestions. This comprehensive approach unlocks enhanced accuracy, diversity, and serendipity, enabling researchers to effectively discover papers aligning with their interests and research objectives. Instead of opaque suggestions, the system provides clear explanations that justify and illustrate recommended citations. This transparency builds user confidence, allowing researchers to critically engage with and trust the system’s recommendations. It outperforms existing approaches across various metrics. it surpasses its closest competitor by a margin of 7.53 on accuracy, 6.07% on MRR and by 5.87 on Recall. User feedback further reinforces its effectiveness, with an Overall System Usability Scale (SUS) score of 76.73, exceeding benchmark scores for comparable systems. It is available for download now from the ICA website for $99.99 (US) or $99 (UK) with a two-year contract.

**Gemini-** ICA-CRMAS, an intelligent citation recommendation system, addresses the limitations of traditional approaches by incorporating deep learning, semantic analysis, and multimodal learning. Leveraging contextual information from academic papers, including figures, ICA-CRMAS generates highly personalized and relevant recommendations. Its comprehensive approach enhances accuracy, diversity, and serendipity, enabling researchers to effectively discover papers aligned with their research interests. ICA-CRMAS also provides explanations for its recommendations, building user confidence and allowing for critical engagement. Evaluation results demonstrate its superiority over existing approaches, with significant improvements in accuracy, MRR, and recall. User feedback further validates its effectiveness, showcasing its potential to enhance academic research productivity.

**Gpt-4o-** The ICA-CRMAS (Intelligent Context-Aware Approach for Citation Recommendation based on Multi-Agent System) represents a significant advancement in the field of citation recommendation systems. Traditional systems often struggle with providing relevant suggestions due to their reliance solely on text-based features and a general lack of contextual understanding. The ICA-CRMAS addresses these shortcomings by incorporating deep learning, semantic analysis, and multimodal learning into its framework, thereby enhancing the system's ability to analyze and interpret the complex information contained within academic papers, including crucial data from figures.

This innovative system stands out by integrating contextual information directly into its recommendation models, which not only improves the relevance of the suggestions but also increases the diversity and serendipity of the citations it recommends. Such a comprehensive approach ensures that researchers receive highly personalized recommendations that align closely with their specific interests and research goals.

A key feature of the ICA-CRMAS is its transparency. Unlike traditional systems that often provide recommendations without explanation, the ICA-CRMAS offers clear, understandable justifications for each citation suggestion. This transparency helps build trust among users, enabling them to critically assess and rely on the recommendations provided.

The effectiveness of the ICA-CRMAS has been validated through rigorous evaluation experiments using real-world academic datasets. The results show that the system significantly outperforms existing models, achieving superior performance metrics in accuracy, Mean Reciprocal Rank (MRR), and recall. Specifically, it surpasses its closest competitor by notable margins in these areas. Additionally, user feedback has been overwhelmingly positive, with the system achieving an Overall System Usability Scale (SUS) score of 76.73, which exceeds the benchmark scores for comparable systems.

Overall, the ICA-CRMAS not only enhances the efficiency and effectiveness of citation discovery for researchers but also sets a new standard in the domain of academic literature recommendation systems.

**Gpt-3**-The ICA-CRMAS (Intelligent Context-Aware Approach for Citation Recommendation based on Multi-Agent System) represents a significant advancement in the field of citation recommendation systems. Traditional systems often struggle with providing relevant suggestions due to their reliance solely on text-based features and a general lack of contextual understanding. The ICA-CRMAS addresses these shortcomings by incorporating deep learning, semantic analysis, and multimodal learning into its framework, thereby enhancing the system's ability to analyze and interpret the complex information contained within academic papers, including crucial data from figures.

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