

Navigating the Knowledge Network: How Inter-Domain Information Pairing and Generative AI Can Enable Rapid Problem-Solving

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Abstract. This study introduces a novel methodological framework that leverages generative AI to retrieve scientific articles pertinent to engineering problems, framed within the context of TRIZ-based contradictions. The process entails searching scientific literature databases by keywords and subsequently prioritizing the resulting articles based on their pertinence to the research subject. Large Language Models are then employed to analyze a refined selection of articles, extracting features and amalgamating individual findings into a summary. Further-more, we present a strategy towards inter-domain information search. The presented strategy has the potential to be generalized and applied to various domains, facilitating knowledge transfer and problem-solving across different fields.

Keywords: Generative AI · TRIZ · Engineering Problem Solving · Inter-domain Information Pairing · Semantic Similarity.