

**Summary of Literature Review**

**Project Title:** Research Mind- An Intelligent Research Assistant For Academic Researchers.

**Batch Code:** 22CSEA18 **Supervisor:**  Dr. M V S S Nagendranath



# 1 . Introduction

**ResearchMind** is an intelligent assistant designed to support academic researchers in managing the growing volume of scholarly literature. It uses advanced AI technologies like Natural Language Processing (NLP), Semantic Search, Retrieval-Augmented Generation (RAG), and Large Language Models (LLMs) to simplify literature review, summarization, and citation. The system helps researchers quickly discover relevant papers, generate summaries, and ensure originality. By automating time-consuming tasks, ResearchMind enhances productivity and supports informed decision-making throughout the research process. The tool is built to be practical, ethical, and scalable for real-world academic use.

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| **SI.No** | **Item** | **Description** |
| 1 | Article Sources | IEE Xplore, Google Scholar, ACM Digital Library, Research gate, arXiv |
| 2 | Keywords used for article Selection from the above resources | “Plagiarism Detection using Semantic Similarity”,  “Paraphrase Identification with Transformer Models”,  “Sentence Embeddings for Text Similarity”, “Abstractive and Extractive Text Summarization”,  “Prompt Engineering for Structured Output “,  “Chain-of-Thought and Tree of Thoughts”, “Prompting for complex reasoning” |
| 3 | Total Articles Collected | 510 |
| 4 | Removed Review Articles | 7/510 Removed review articles , N=503 |
| 5 | Duplicates Removed | 22/503 marked as duplicates , N=481 |
| 6 | Review Papers Filtered | N=68 |
| 7 | Satisfied Inclusion Criteria | N=42 Articles are Selected based on the inclusion criteria checklist such as Academic Research AI, Methodology, English, Title/Author/year(2015-2025) |
| 8 | Cleared Quality Analysis | N=20, papers were finalized as per cleared quality checklist with detailed explanation. |
| 9 | Final Selected Articles | 20 Articles after screening and final curation |

**b. Review Articles** **Removed:**

Out of the initial 510 articles, 7 review papers were removed, reducing the dataset to 503

# articles. c.Duplicates Removed:

A significant number of duplicate entries (conference + journal versions, preprints, mirrors) were removed, resulting in approximately **22** **duplicates removed.  
d. Review Papers:**

From the remaining articles, 68 review papers were identified and used to help frame the

background and gap analysis. These were not considered for the final technical evaluation.

**e. Satisfied Inclusion Criteria:**

Based on the inclusion criteria — relevance to AI/NLP-based research assistance, published

in English, peer-reviewed, within scope of academic research tools — 42 articles were

selected.

**f. Cleared Quality Analysis:**

Each of the 42 shortlisted articles underwent a quality screening based on:  
- Novelty of proposed system

- Dataset quality and availability

- Evaluation metrics (e.g., accuracy, precision, recall, F1 score)

- Relevance to AI-based academic assistance

20 papers successfully passed the quality screening and were selected for in-depth review.  
**g. Final Selected Papers:**

The final 20 papers selected cover:

- AI-driven research assistant frameworks

- NLP-based summarization and recommendation systems

- Literature analysis tools using transformer models

- Intelligent academic search and filtering engines