

Gen AI Report

Immersive AI-Driven Nursing Education: A Multimodal Integration of VR Simulations and Conversational Language Models for Advanced Wound Care Training

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1. Introduction

Generative AI has significantly transformed academic research by providing powerful tools for literature review and proposal writing. These AI-driven tools assist in summarizing papers, extracting key insights, and even generating structured content. Searching for research papers on the web based on keywords extracted from the anchor paper chosen. This report evaluates six AI tools ChatGPT, ScholarGPT, Consensus, Notebook LM, Litmaps, and DeepSeek AI Chatbot focusing on their effectiveness, biases, and fairness in academic research

2. Overview of AI Tools Used

2.1 ChatGPT

ChatGPT is a conversational AI model developed by OpenAI, capable of generating coherent and contextually relevant responses. It assists in brainstorming, summarizing research papers, and structuring content.

2.2 ScholarGPT

ScholarGPT is specifically designed for academic research, offering more refined outputs based on scholarly literature. It is particularly useful for extracting citations and summarizing complex research papers.

2.3 Consensus

Consensus is a research-focused AI tool that provides evidence-based answers by analyzing scientific literature. It helps filter high-quality academic sources and supports literature review processes

2.4 Notebook LM

Notebook LM by Google is an AI-powered note-taking tool that organizes research materials effectively. It provides contextual analysis and assists in synthesizing information across multiple sources.

2.5 Litmaps

Litmaps is a visualization tool for mapping academic literature. It helps researchers track citations, identify key papers, and understand the evolution of research topics over time.

2.6 DeepSeek AI Chatbot

DeepSeek AI Chatbot focuses on in-depth research assistance, offering detailed responses with contextual accuracy. It is beneficial for answering complex academic queries and generating structured insights.

3. Effectiveness of AI Tools

Each AI tool exhibits unique strengths in the research literature writing and project proposal writing.

3.1. ChatGPT

Effective in generating structured content and brainstorming ideas. It helps refine writing style and organization but sometimes lacks deep citation accuracy. Additionally, it assists in grammar corrections and content structuring, making it useful for drafting research papers.

3.2 ScholarGPT

Excels in summarizing academic papers with proper citation formatting. It can search for valid academic research papers, review articles, and studies, automatically understanding the user's context and delivering the most relevant research papers, even for complex topics with longer names.

3.3 Consensus

Highly useful for evidence-based research, as it filters high-quality academic sources. It efficiently searches for research papers on any given topic by analyzing over 200 million research papers across all scientific and academic domains. This capability ensures users receive credible and well-supported academic references.

3.4 Notebook LM

Particularly useful for organizing research materials, though it requires manual curation for optimal results. It generates highly structured summaries for longer papers, highlighting essential points while sometimes omitting less relevant content. Users can

ask specific questions and filter responses based on content, with citations provided in a numbered format for clarity.

3.5 Litmaps

Excellent for visualizing research landscapes and tracking citations. It allows users to annotate and organize articles efficiently, making it a valuable tool for understanding how research in a specific domain evolves over time.

3.6 DeepSeek AI Chatbot

Provides in-depth responses with improved contextual understanding. In some cases, it offers faster and more accurate responses than ChatGPT. Its ability to retrieve relevant information quickly makes it a reliable tool for researchers seeking high-quality insights within a short timeframe.

4. Bias and Fairness in AI Tools

Bias and fairness remain critical concerns in AI-driven research tools. The important points that arose in the study are explained below.

4.1 Bias in Data Sources

AI tools trained on publicly available research might prioritize popular or Western-centric perspectives, potentially overlooking studies from less-represented regions. Additionally, research papers that have not been well-optimized for search engines may remain hidden, even if they contain valuable insights. Some research papers artificially inflate their citation counts using unethical methods, making them appear more credible than they actually are. Moreover, the presence of fake conferences that publish low-quality or even fraudulent research papers further complicates the landscape, as AI tools might include such sources without proper validation.

4.2 Fairness in Citation Recommendations

Some tools, such as Consensus and ScholarGPT, aim to promote balanced citations, but biases in their training datasets may still exist. This can lead to an over-representation of well-known authors or institutions while neglecting emerging or underrepresented researchers whose work might be equally valuable.

4.3 AI Hallucinations

Some AI models, particularly ChatGPT and DeepSeek, may generate plausible but incorrect information, necessitating manual verification. They also tend to produce technical jargon that may mislead researchers unfamiliar with the terminology. Additionally, tools like Notebook LM sometimes introduce their own interpretative viewpoints when summarizing research papers, making it difficult to distinguish between the original content and AI-generated opinions.

4.4 Diversity of Perspectives

While Litmaps provides a broader visualization of research trends, it may still favor well-cited papers, thereby reinforcing citation bias. This can result in the perpetuation of dominant theories and limit exposure to alternative perspectives or lesser-known but groundbreaking studies.

5. Mitigating Bias Introduced by Generative AI Tools

The following methods were employed to mitigate the biases introduced by using Generative AI tools.

5.1 Bias in Data Sources

To ensure credibility, data sources were selected from well-rated and reputable websites. The credibility of authors was carefully examined to validate their expertise. Additionally, multiple search engines were used to avoid missing relevant articles, ensuring a comprehensive and unbiased collection of information for specific points that needed clarification or justification.

5.2 AI Hallucinations

To minimize AI-generated hallucinations, AI-generated content was consistently double-checked for jargon and unnecessary reasoning. This helped to compact ideas while maintaining accuracy. Tools like Notebook LM were particularly useful, as they provided precise references to document sources, allowing for fact verification. In cases where AI-generated summaries required further validation, information was iteratively cross-checked against reference papers.

5.3 Fairness in Citation Recommendations

To mitigate biases in citation recommendations, multiple AI tools were experimented with. This approach helped balance potential biases within individual training datasets, ensuring a more neutral and diverse selection of references.

5.4 Diversity of Perspectives

To maintain a diverse range of perspectives, cited papers were re-evaluated by assessing the authors' reputations, the credibility of the publishing conferences, and the affiliations of the institutions involved. Only peer-reviewed papers were selected, and for any referenced technologies, the authenticity and recency of their official documentation were verified. This multi-step validation process ensured that the selected references were both reliable and up-to-date.