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AI-assisted Search: a library vision

Scientific literature search before “AI-boom”

Tools: Library catalogues, scientific databases, repositories, scientific search engines

Benefits: free access to library catalogues, actually existing literature, reproducibility of searches, transparent data basis

Skills: discipline knowledge, formulating search terms, be familiar with standardized vocabulary, use search techniques such as Boolean operators or truncation, filter results

Challenges: number of results, limited data basis, interfaces not self-explanatory, quality of search results dependent on structured metadata, high license fees for expert databases

AI-assisted scientific literature search

Tools: different types of AI tools can help with certain literature search aspects, a. o. there are the following tools:[1,2]

- Assistants: Chat Bots that can help to formulate a research question or search queries;
- Finders: tools that provide literature based on a research question similar to a classical catalogue;
- Connectors: “inspired” by the classical snowball search technique, these tools suggest literature based on a relevant paper;
- Database Assistants: AI-search addition to classical databases, mostly helping with formulating search queries.

Benefits: Natural language interaction; quick, convenient and intuitive search; less preliminary knowledge needed (search techniques); freemium tools with open indices

Skills: Prompting, awareness of mechanisms and data basis, evaluating accuracy of results, verification of AI-generated answers

Challenges: Biases, hallucinations, people pleasing, direct answer dilemma, limited training material, no reproducibility of searches, no attribution of answers to sources, plus the classical search tools challenges

ULB.AI-Search project

Idea: Extend the ULB catalogue with an elaborate AI search (agentic, MCP-based).[3]

➢ With this, you will be able to ask the catalogue complex research questions in natural language and will get results that go beyond simple keyword matching.

Goal: Provide researchers with structured, transparent, and reproducible results from ULB's full information landscape.

➢ With this, we combine the reliability of library systems with the intuitive experience of modern AI tools.

Status: A first ULB.AI-Search prototype has been tested locally.

➢ Funding application for the systematic development of technical architecture, legal framework, data sources, and sustainable operations is currently in progress.

UNIVERSITÄTS- UND LANDESBIBLIOTHEK DÜSSELDORF

[1] Vgl. Universitätsbibliothek der Universität Siegen. KI-Tools für die Literaturrecherche. URL: https://www.ub.uni-siegen.de/en/auskunft-und-kurse/ki-in-der-bibliothek/ki-tools-fuer-die-literaturrecherche/, last accessed 10.04.26.

[2] Universitätsbibliothek Tübingen. Künstliche Intelligenz für das wissenschaftliche Arbeiten. URL: https://uni-tuebingen.de/einrichtungen/universitaetsbibliothek/lernen-arbeiten/schulungen-beratungen-fuehrungen/literaturrecherche-mit-ki/#c2070906, last accessed 26.05.26.

[3] Vgl. Cohen, Dan. 2025. The Library’s New Entryway. URL: https://newsletter.dancohen.org/archive/the-librarys-new-entryway/, last accessed 27.04.26.

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