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THE AGA KHAN UNIVERSITY

A.I Tools for Research and Learning

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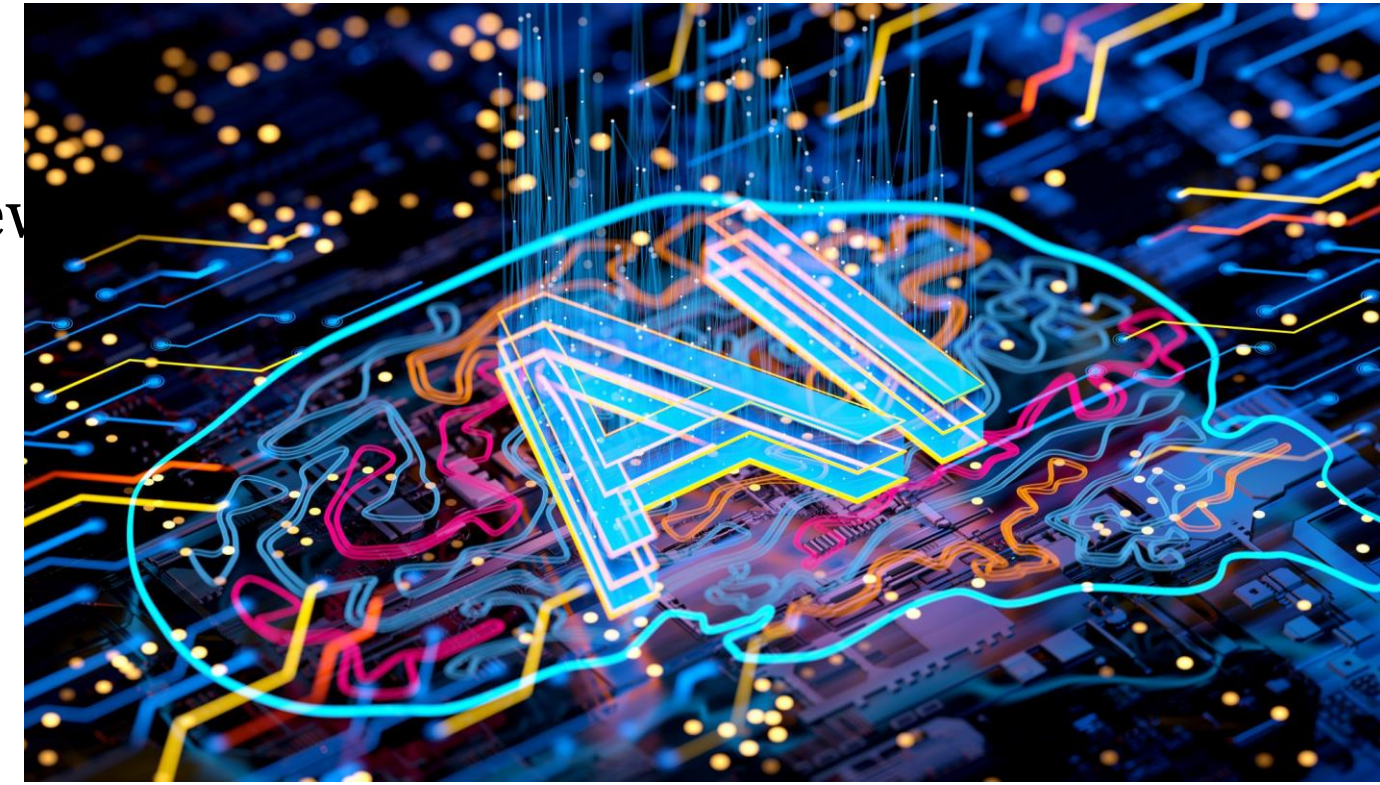
Objectives

- Explore AI tools for literature review in research
- Hands-on practice with AI tools
- Ethical considerations in AI use
- Journal guidelines on AI in manuscript submissions
- Librarian support for AI adoption



What is AI?

- AI mimics human intelligence through data analysis, pattern recognition, and learning algorithms.

<u>Examples of AI in everyday life:</u>

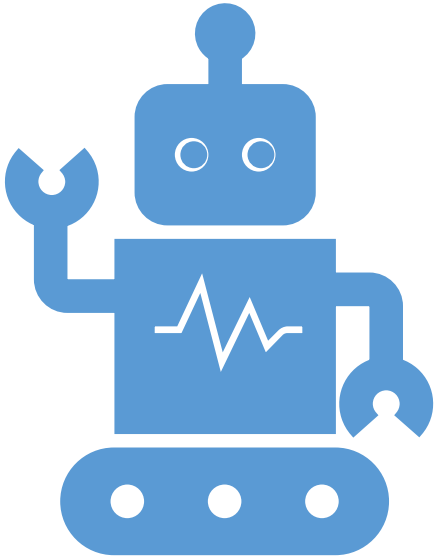
- Google Search's autocomplete
- Netflix's content recommendation system
- Chatbots for customer service

<u>Key AI Concepts</u>

- Machine Learning: Algorithms that improve over time.
- Natural Language Processing (NLP): Understanding and responding to human language.

AI automates repetitive tasks such as:

- Citation gathering
- Literature review summaries
- Identifying research gaps



AI improves accuracy and speeds up data analysis.

Facilitates systematic reviews by streamlining data collection and screening.

Overcoming Challenges in AI Adoption

- Addressing biases in AI algorithms
- Ensuring data privacy and integrity
- Building AI literacy among researchers and students
- Addressing biases in AI tools
- Ensuring data privacy
- Developing AI literacy

Guidelines from Journals on AI Use

- **COPE** (Committee on Publication Ethics) guidelines for AI use
- Ensuring human oversight when using AI-generated text
- Acknowledging AI contributions appropriately
- COPE (Committee on Publication Ethics) guidelines
- Ensuring human oversight in AI-generated content
- Acknowledging AI contributions in manuscripts

Ethical Use of AI in Research

- Ensuring transparency when using AI tools
- Avoiding plagiarism and fabricated results
- Properly citing AI-generated content
- Promoting fair and unbiased research outcomes
- Transparency in AI usage
- Avoiding plagiarism
- Proper citation of AI-assisted content

A.I for research

- **Research assistants:** Elicit AI, Connected Papers AI, Unriddle AI, and Research Buddy are all AI-powered research assistants that can help you to find, understand, and synthesize relevant research literature.
- **Writing assistants:** PaperPal, Grammarly, QuillBot, and ProWritingAid are all AI-powered writing assistants that can help you to improve the grammar, style, and clarity of your writing.

- A student can use an AI-powered search engine to find research papers on a particular topic.
- A researcher can use an AI-powered research assistant to identify the most influential papers in a field.
- A writer can use an AI-powered writing assistant to check their grammar and style, and to suggest ways to improve their writing.

Elicit

What is elicit

- Elicit AI is a free AI research assistant that helps you find, understand, and synthesize relevant research literature.
- Other Similar Tools (Consensus, System Pro)

Key features:

- **Paper search:** Finds relevant research papers in a variety of databases, including Semantic Scholar.
- **Paper summarization:** Summarizes the key findings of research papers in a few sentences.
- **Citation analysis**: Analyzes the citations in research papers to identify influential papers and relationships between papers.
- **Question answering:** Answers questions about research papers, such as "What are the main findings of this paper?" or "What other papers have cited this paper?"

Consensus

What us Consensus

Consensus AI is an AI-powered research search engine that helps you find reliable and trustworthy information.

Other similar tools(Elicit, System Pro)

Key features

- **Evidence-based answers:** Consensus AI uses machine learning to analyze and evaluate web content to extract relevant information and provide evidence-based answers to your questions.
- **Confidence scores:** Consensus AI provides confidence scores for its answers, so you can assess the reliability of the information.
- **Multi-source answers:** Consensus AI provides answers from multiple sources, so you can get a comprehensive view of the topic.
- **Expert curation:** Consensus AI curates its results with the help of experts, ensuring that you are getting the most accurate and up-to-date information.

ResearchRabbit

What is ResearchRabbit

- AI-powered literature discovery and visualization tool that helps researchers explore scholarly literature through citation networks, author connections, and related research pathways.
- Shows emerging research trends through interactive visual maps
- ResearchRabbit answers the question: "What important papers, authors, and research connections am I missing?"

Key features

Literature Mapping

- Visualizes relationships between papers through citation networks.

Author Discovery

- Identifies influential researchers and collaborators in a field.

Related Paper Recommendations

- Suggests relevant articles based on selected seed papers.

Research Trend Exploration

- Reveals emerging topics and evolving research areas.

Citation Tracking

- Explore both earlier foundational studies and newer papers citing a publication.

Collections & Collaboration

- Create literature collections and share them with research teams.

Comparison

Task	Elicit	Consensus	ResearchRabbit
Find papers	✓✓✓	✓✓	✓✓
Summarize evidence	✓✓✓	✓✓✓	✗
Answer research questions	✓✓	✓✓✓	✗
Discover related studies	✓✓	✓	✓✓✓
Citation mapping	✗	✗	✓✓✓
Identify key authors	✓	✓	✓✓✓
Literature review support	✓✓✓	✓✓	✓✓

Exercise 1: Literature Review with Elicit

Objective: Efficiently gather, summarize, and extract insights from multiple research articles using Elicit.

Steps:

1. **Topic Selection:** Faculty members choose a research topic relevant to nursing or healthcare (e.g., *Effective pain management techniques for post-operative patients*).
2. **Elicit Search:** Participants will:
    1. Input their research topic in Elicit's search bar.
    2. Use filters to limit results to recent, peer-reviewed articles within 5 years.
3. **Data Extraction:** Faculty will:
    1. Select 5 key articles.
    2. Extract critical details such as research questions, methodologies, and key findings.
4. **Summary Report:** Faculty members will compile their results into a brief literature review summary, highlighting:
    1. Common themes across studies.
    2. Gaps in research identified through Elicit's insights.

Exercise 2: Citation Mapping and Gap Identification with Research Rabbit

Objective: Visualize research connections, identify influential studies, and discover gaps in nursing literature.

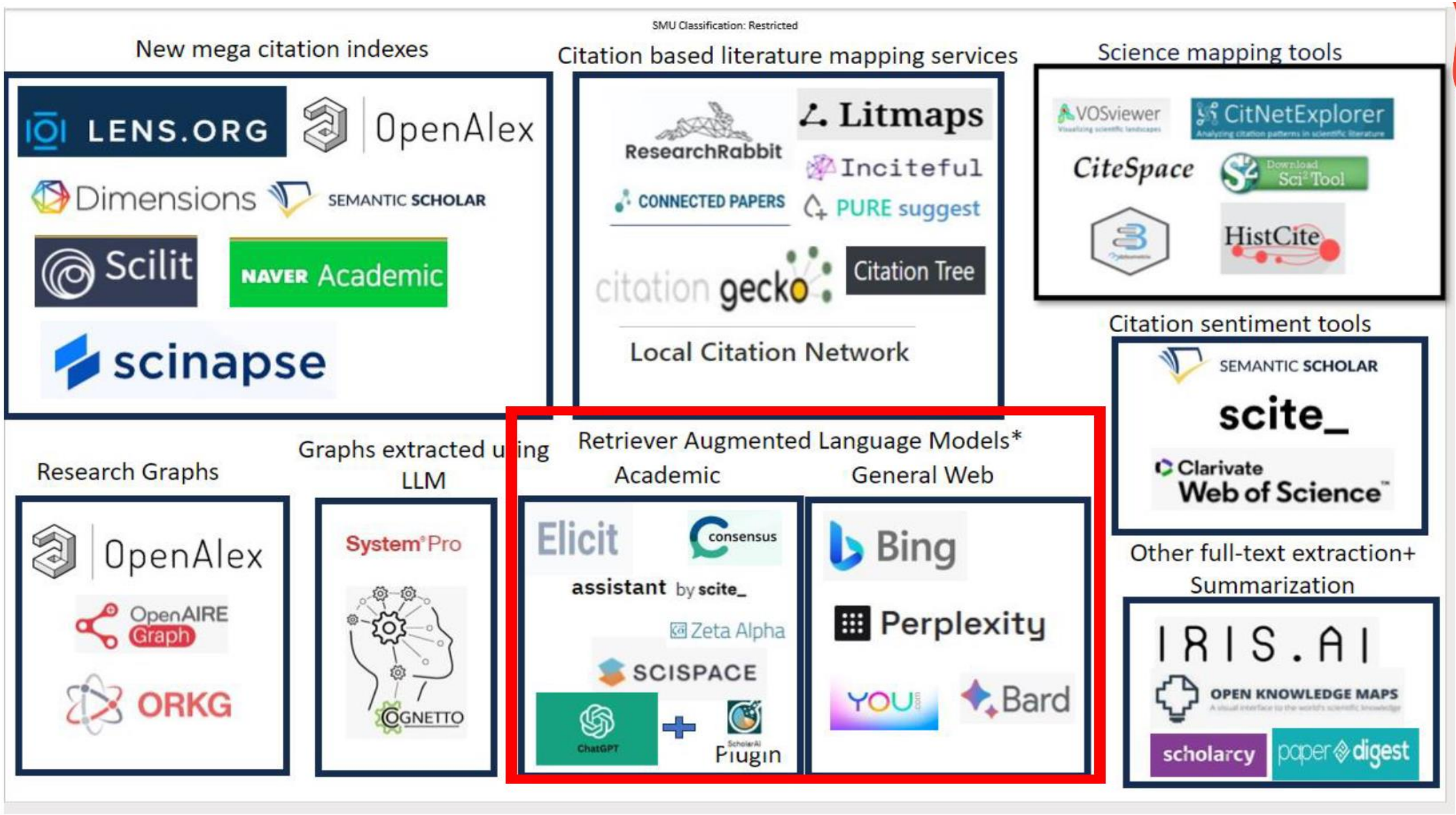
Steps:

1. **Topic Selection:** Faculty members select a broad nursing-related research area (e.g., *Maternal mental health in low-resource settings*).
2. **Research Rabbit Search:** Participants will:
    1. Enter their topic or a key paper title into Research Rabbit.
    2. Visualize the citation network to identify highly cited or influential papers.
3. **Exploring Research Connections:** Faculty will:
    1. Identify key authors contributing to the field.
    2. Locate underexplored areas where further research is needed.
4. **Gap Identification Task:** Faculty members will:
    1. Identify at least **two unexplored research questions** based on observed gaps in citation networks.
5. **Reflection and Discussion:** Faculty will share their insights and explore how this technique can inform their own research topics.

- **Key Learning Outcome:** Faculty will develop skills to map research connections, identify gaps, and discover potential collaborators or leading authors in their field.

Rayyan:
Collaborative screening of literature for inclusion/exclusion.

Covidence:
Streamlining review management for systematic reviews.



Thank you

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