# **Literature Mapping with AI Tools**

## **1. Research Topic Chosen**

**Artificial Intelligence in Healthcare Diagnostics** This topic focuses on how AI algorithms, particularly machine learning and deep learning models, are being applied to interpret medical data for diagnosis, prognosis, and treatment recommendations.

## **2. Exploration Process**

I used ResearchRabbit and Connected Papers to explore the topic starting from a few seed papers I already knew, such as “Deep Learning for Health Informatics” (Miotto et al., 2018). The process involved:  
 - ResearchRabbit: I added the seed paper to a collection, then explored “Similar works” and “Cited by” graphs to identify closely connected papers.  
 - Connected Papers: I entered the seed paper’s DOI, generated a graph of related research, and observed clusters representing sub-themes like image-based diagnosis, natural language processing in healthcare, and AI ethics.

## **3. New Relevant Papers Found**

***1.*** ***Esteva, A., et al. (2017). “Dermatologist-level classification of skin cancer with deep neural networks.” Nature, 542, 115–118.***

Introduces a deep learning approach for classifying skin lesions, achieving dermatologist-level performance. Expands the scope of my literature beyond general AI healthcare applications to domain-specific case studies.

***2.*** ***Topol, E. (2019). “High-performance medicine: the convergence of human and artificial intelligence.” Nature Medicine, 25(1), 44–56.***

Discusses AI’s integration into healthcare from a systems and human-centric perspective. Highlights regulatory, ethical, and trust-related aspects—broadening my perspective to include implementation challenges.

***3.*** ***Liu, X., et al. (2019). “A comparison of deep learning performance against health-care professionals in detecting diseases from medical imaging: a systematic review and meta-analysis.” The Lancet Digital Health, 1(6), e271–e297.***

Provides a meta-analysis comparing AI and human performance, offering evidence-based insights. Helped me understand overall performance benchmarks and limitations.

## **4. Reflection on Expanded Literature Search**

This mapping exercise reshaped my literature search in three ways:  
 1. Identifying Key Subfields – The visualization tools revealed clusters I had overlooked, such as AI for pathology slide analysis and voice-based diagnostics.  
 2. Bridging Technical and Practical Perspectives – Initially, my reading list focused heavily on AI model architecture. These tools helped me discover papers discussing clinical adoption, regulations, and patient trust.  
 3. Finding Seminal Papers Quickly – By following citation and similarity networks, I located highly cited and influential works that would have taken much longer to find using keyword searches alone.

## **5. Next Steps**

- Conduct a focused review on AI adoption challenges in clinical settings (drawing from Topol, 2019).  
 - Explore domain-specific AI diagnostic studies (like Esteva et al., 2017) for comparative analysis.  
 - Track the most recent publications in The Lancet Digital Health and Nature Medicine using ResearchRabbit alerts.