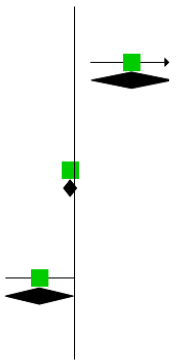




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The futures of systematic searching

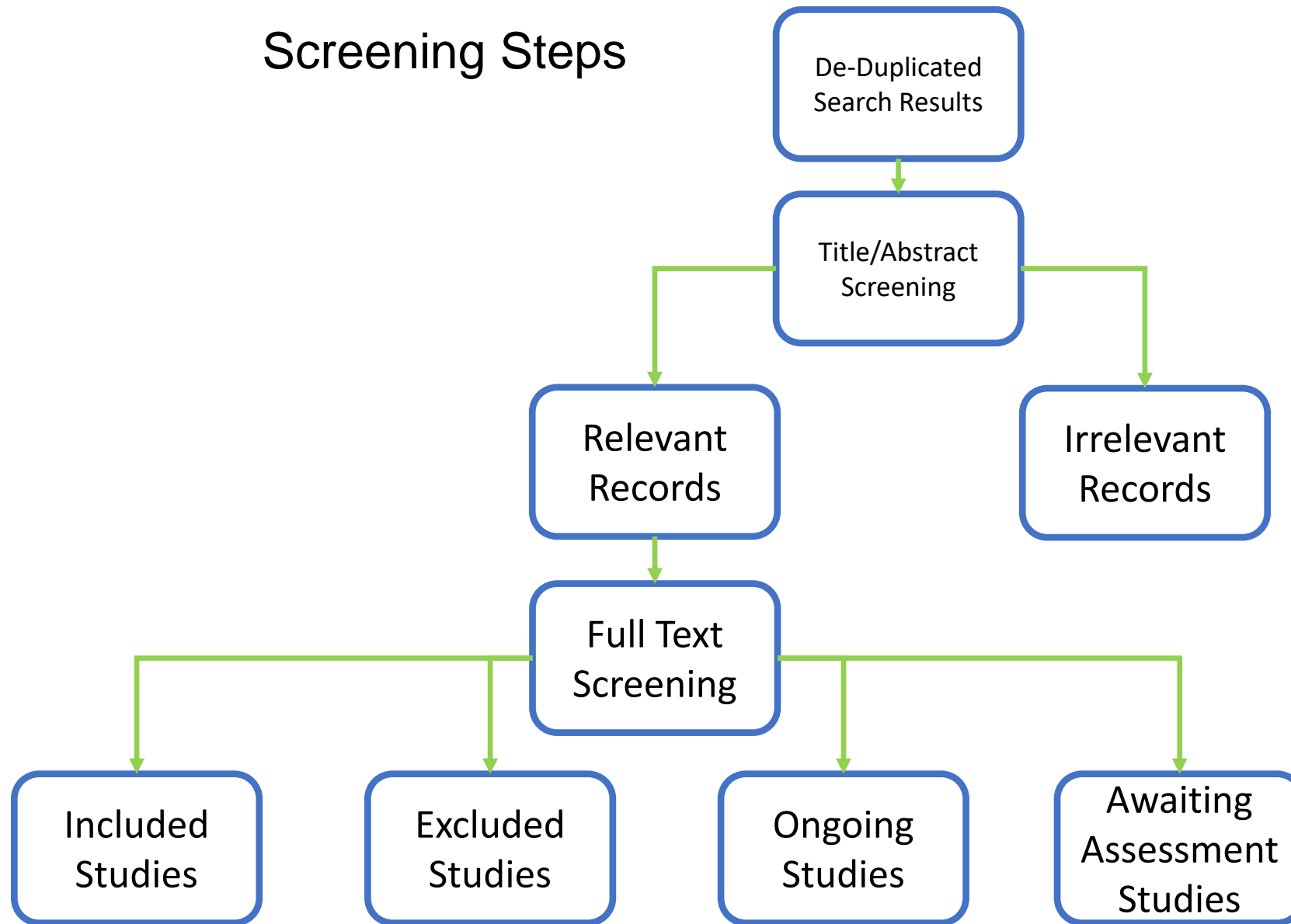
Farhad Shokraneh, PhD



Systematic Reviewing



Screening Steps



Resources needed for evidence review

- 14 review types ([Grant and Booth 2009](#))
- 48 review types ([Sutton et al. 2019](#))
- Cost of doing a systematic review



Clinical decision making

- Pattern recognition (also known as doorway diagnosis or the skill-based process)
- The rule-based process
- **The hypothetico-deductive or knowledge-based process**
- The naturalistic or event-driven process
- [#AMillionDecisions](#) per day in NHS

COVID-19 & fast-forward historical processes

- Need for rapid review of evidence on a disease/virus with no name
- Rise of misinformation and disinformation
- Living evidence synthesis
 - [Reviews in 2 weeks using tools and communication](#)
 - Systematic Review Toolbox (<http://systematicreviewtools.com/>)

Missing futures studies (futurology)

- Multiple possibilities (futures) even in parallel
- Participatory futures
- Complexity and multiple contexts

Futures depend on current problems

- [MacFarlane, Russell-Rose, Shokraneh 2022](#)
 - 17 issues
 - Cost
 - One-stop-shop for search strategies
 - Interface limitations
 - Errors
- Community engagement is horrible; tools/solutions die
- One-stop-shop for information/data
- Copyright and access issues

Futures depends on reverse progress of general search systems

- Hieroglyphs ---> alphabets and math ---> coding ---> icons (Hieroglyphs)
- Simplicity with complexity behind
- Question-to-answer shortcut with a [black box](#) in the middle
 - An unexplainable solution that works
- We have [marketed medications](#) that work [without knowing their mechanism of action](#)

Characteristics of future search tools

- Mobile app-based
- Openness
- Liveness
- Collaboration (among humans and across machines)
- Reproducibility and replicability
- Trust
- Simplicity at the user end and complexity at back end
- Black box-based and not necessarily explainable!
- Single source of truth; a one-stop-shop

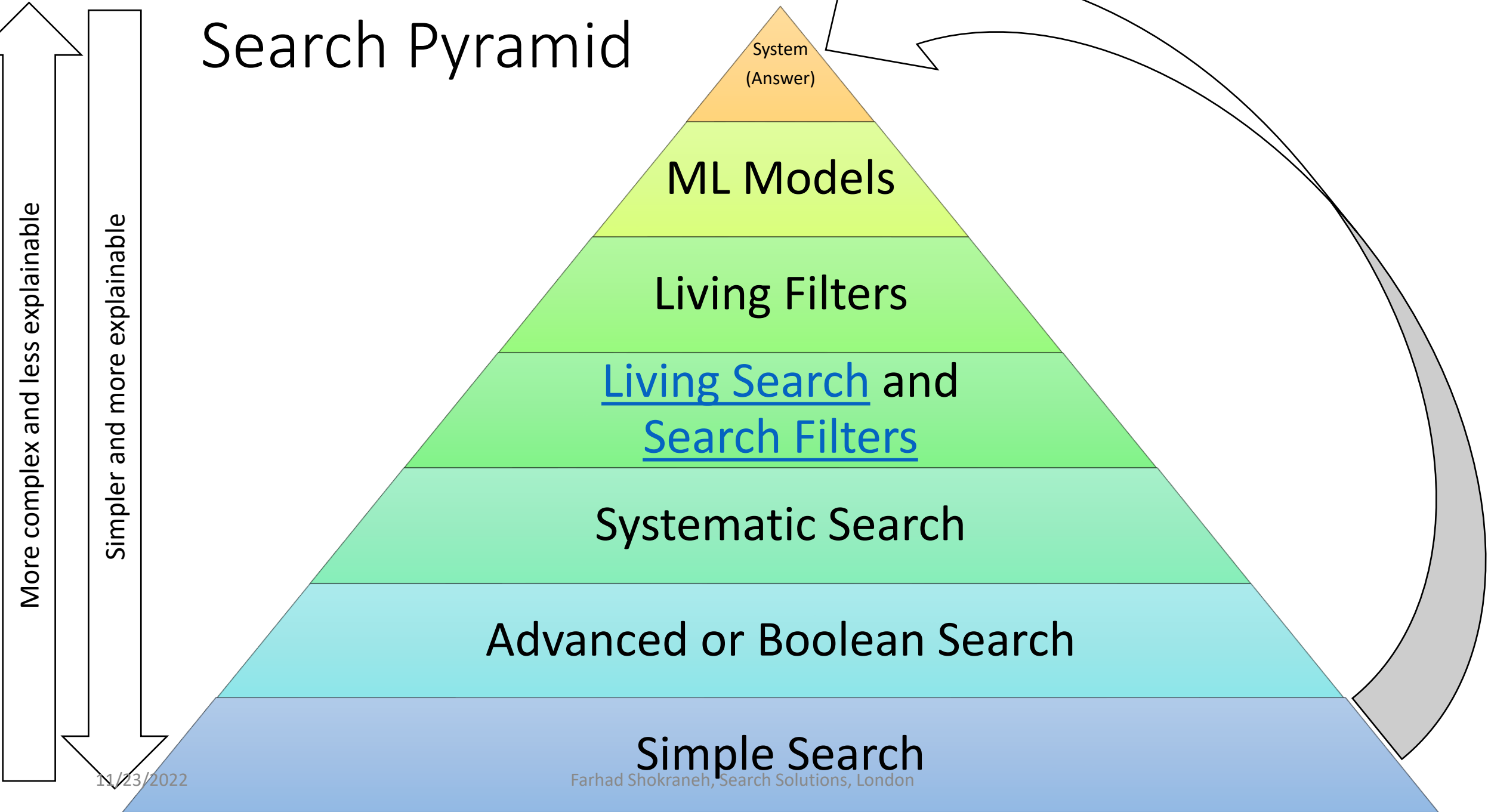
Dependency on other fields (Drivers of change)

- Evidence synthesis
- Open Science
- Commercial Publishing, Indexing, and Abstracting Industries
- Evidence-Based Research Methods
- ML/classifiers (NLP) and AI
- UX/UI
- Humanities (law and ethics)
- Challenges to Evidence-Based Practice
 - Uncertainties
 - Context
 - Personalised/Precision Medicine

Futures

- Future 1: Today's Continuity
- Future 2: Semi-automation on all stages and full automation on others
 - Automation of question-to-concept conversion
 - Automation of term collection
 - Automation of search strategies development (see ChatGPT and Embase PV Wizard)
 - Automation of translation of search strategies (See PolyGlott and 2Dsearch)
 - Automation of screening the search results (See EPPI-Reviewer and Rayyan)
 - Automation of obtaining full reports/data (See Zotero and EndNote)
 - Automation of analysis/synthesis (See RevMan, Stata, R)
- Future 3: Full automation
- Future 4: Goodbye Search, Hello Answer

Search Pyramid



What can I do to help

- Drive the change
- Be proactive with networking and funding applications
- Saying goodbye to Embase if it does not move to openness
- Closed science, copyright and hackers from east (Sci-Hub)
- Publishing industry
- Funding Systematic Reviews is wasting public money
 - Unsustainable to fund me to keep updating the systematic reviews
- Funding Automation of Systematic Reviews is an investment

Thank You! and Contact Info

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