Title
Text and Data Mining for Systematic Reviews: Investigating Trends to Update Collaboration Services

Background (75)
When discussing project planning for systematic reviews and meta-analyses with faculty and graduate students, librarians sometimes hear wistful inquiries about automated approaches. Systematic reviews (SRs) require management, analysis, and synthesis of large amounts of data, perhaps particularly those including numerous studies with qualitative text-based data. To investigate how text and data mining approaches might be used in SRs to increase project efficiency, the author conducted, and will report on the results of a literature review.

Methodology (75)
Literature searches used keywords and subject terms: text mining, data mining, systematic reviews, and meta-analyses. Sources included: Cochrane Library, PubMed, CINAHL, PsycInfo, Web of Science, Engineering Village, Google Scholar; web searches. Results were sorted into: 1. SR studies that used text or data mining techniques, 2. publications discussing the use of text or data mining in SRs. Information extracted includes: theoretical approaches, protocols, tools, techniques, and methodologies; demonstration of potential for wider use.

Results (75)
Full results will be completed prior to the conference. Themes noted so far indicate potential text and data mining uses for SRs such as: use of text mining and text classification by machine learning algorithms to aid study selection; automated literature analysis; use of data mining to extract data from large patient information datasets; and customized tools for meta-analysis of specific data types.

Conclusion (75)
The conclusion will focus on implications for library-provided systematic review services, and collaborations with researchers. The conclusion will be updated prior to the conference, following project completion.

Research Questions:
This talk summarizes an investigation of text and data mining in systematic reviews (and meta-analyses): To what extent are text and data mining used? What theoretical approaches or protocols are described to guide text or data mining? What tools, techniques, and specific methods are used to accomplish text and data mining? What potential do these methods show for increased efficiency?
Search - September 2016

Cochrane Library
44 results + 1 from search of result item to get it in library = 45 results - 9/18/2016
Alert set

In Title, Abstract, Keywords: (mining OR "data mining" OR "information extraction")
OR
In MeSH: ("data mining"[mesh])

AND
In Title, Abstract, Keywords: ("systematic review" OR "systematic reviews" OR meta-analysis
OR meta-analyses OR meta analysis OR meta analyses OR metaanalysis OR metaanalyses
OR "evidence synthesis" OR "knowledge synthesis" OR meta synthesis OR metasynthesis OR
meta-synthesis)
OR
In MeSH: ("Meta-Analysis as Topic"[Mesh]) OR (“Meta-Analysis"[Mesh])

Search Name:  
Date Run: 18/09/16 20:54:36.889
Description:

ID  SearchHits
#1  (mining or "data mining" or "information extraction")  205  
#2  MeSH descriptor: [Data Mining] explode all trees  17  
#3  ("systematic review" or "systematic reviews" or meta-analysis or meta-analyses or meta
analysis or meta analyses or metaanalysis or metaanalyses or "evidence synthesis" or
"knowledge synthesis" or meta synthesis or metasynthesis or meta-synthesis)  61219  
#4  MeSH descriptor: [Meta-Analysis as Topic] explode all trees  587  
#5  MeSH descriptor: [Meta-Analysis] explode all trees  166  
#6  #1 or #2  206  
#7  #3 or #4 or #5  61219  
#8  #6 and #7  44  

PubMed
355 results - 9/12/2016 (didn't have sysrev_methods [sb] in search)
405 results - 9/18/2016 (didn't have smeta synthesis OR metasynthesis OR
meta-synthesis in search)
426 results - 9/18/2016
Alert set
(mining[tiab] OR "data mining"[mesh] OR "information extraction") AND ("systematic review" OR "systematic reviews" OR meta-analysis OR meta-analyses OR meta analysis OR meta analyses OR metaanalysis OR metaanalyses OR "evidence synthesis" OR "knowledge synthesis" OR meta synthesis OR metasynthesis OR meta-synthesis OR sysrev_methods [sb])

CINAHL
48 results - 9/18/2016
Alert set
(mining OR "data mining" OR "information extraction" OR (MM "Data Mining")) AND ("systematic review" OR "systematic reviews" OR meta-analysis OR meta-analyses OR meta analysis OR meta analyses OR metaanalysis OR metaanalyses OR "evidence synthesis" OR "knowledge synthesis" OR meta synthesis OR metasynthesis OR meta-synthesis OR (MM "Meta Synthesis") OR (MM "Meta Analysis") OR (MM "Systematic Review"))

PsycInfo
12 results - 9/18/2016
Alert NOT set
(mining OR "data mining" OR "information extraction") in Any Field
OR
{Data Mining} in Index Terms
AND
("systematic review" OR "systematic reviews" OR meta-analysis OR meta-analyses OR meta analysis OR meta analyses OR metaanalysis OR metaanalyses OR "evidence synthesis" OR "knowledge synthesis" OR meta synthesis OR metasynthesis OR meta-synthesis) in Any Field
OR
{Meta Analysis} in Index Terms

Web of Science
854 results - 9/24/2016
Alert set
Searched in Topic:
(mining OR "data mining" OR "information extraction") AND ("systematic review" OR "systematic reviews" OR meta-analysis OR meta-analyses OR meta analysis OR meta analyses OR metaanalysis OR metaanalyses OR "evidence synthesis" OR "knowledge synthesis" OR meta synthesis OR metasynthesis OR meta-synthesis)
Note: WoS was having issues, apparently still yesterday - thus was getting crazy search results with below searches; looks like finally set? Saved the 854 for final initial result set.

8,262 results – 9/23/2016 too many – but, sorted by relevance and pulled the first 1500
Searched in Title:
(mining OR "data mining" OR "information extraction") AND ("systematic review" OR "systematic reviews" OR meta-analysis OR meta-analyses OR meta analysis OR meta analyses OR metaanalysis OR metaanalyses OR "evidence synthesis" OR "knowledge synthesis" OR meta synthesis OR metasynthesis OR meta-synthesis)

242 results – 9/23/2016
Searched in Topic:
("text mining" OR "content mining" OR "data mining" OR "information mining" OR "information extraction") AND ("systematic review" OR "systematic reviews" OR meta-analysis OR meta-analyses OR meta analysis OR meta analyses OR metaanalysis OR metaanalyses OR "evidence synthesis" OR "knowledge synthesis" OR "meta synthesis" OR "meta synthesis" OR "metasynthesis" OR "meta-synthesis")

Engineering Village
1761 results - 9/22/2016
Alert set
(mining OR "data mining" OR "information extraction" OR (MM "Data Mining")) AND ("systematic review" OR "systematic reviews" OR meta-analysis OR meta-analyses OR meta analysis OR meta analyses OR metaanalysis OR metaanalyses OR "evidence synthesis" OR "knowledge synthesis" OR meta synthesis OR metasynthesis OR meta-synthesis OR (MM "Meta Synthesis") OR (MM "Meta Analysis") OR (MM "Systematic Review"))

Google Scholar
200 results - 9/24/2016
Alert set
Text mining systematic reviews - first 100
Data mining systematic reviews - first 100

web searches
79 results - 9/24/2016
Alert *not* set

Google:
Text and data mining for systematic reviews - first 50
Text data mining research papers - first 20
Followed related links
Search Systematic Review Toolbox search - tools related to text / data mining
CINAHL: 48
Cochrane: 45
Engineering Village: 1761
Google Scholar: 200
PsycInfo: 12
PubMed: 426
Web of Science: 854
Web Search - Google: 79
Total: 3425

After removing 880 duplicate records:
2545

After review by searching keywords in title and abstract of records:
Items about TDM in SRs / MAs: 58+
Items using TDM for SRs / MAs: 24+
Items using TDM for synthesis: 18+

Search notes for future:

Disciplinary databases
- Try searches in social sciences and policy databases

Additional terms for text / data mining:
- knowledge discovery and data mining (KDD)
- Search for tool names as well next time

Issues with terms used in my search:
- ‘mining’ is often used to refer to searching reference lists as well - not necessarily with automated means
- Evidence synthesis also likely led to larger result set