Searching for Academic Literature

Mobile and Cloud Computing Seminar
MTAT.03.280

Fall 2021
Outline

- Types of literature
- Where to find literature?
  - Overview of databases
- How to find literature?
  - Keyword search
  - Citation graph
- Search strategies
  - Choosing criteria
  - How to measure quality of papers?
- Other tips, tools
  - Bibliography management softw.
- Homework!
Types of articles: publishing format

- **Articles ("Papers")**
  - Journal article, Conference article
    - Full-length articles, these are most often of highest interest
    - Journal Article - a complete work, may sometimes have a previous conference article on same topic
    - Conference article
      - Published as part of the conference proceedings
  - Other Conference-related articles
    - Workshop, Symposium, Poster, Demo
  - Other Journal-related articles
    - Editorial
  - **Peer-Reviewed**

- **Books, Book Chapters**
- **Magazine, Newspaper**
- **Dissertations**
- **Other:**
Types of Articles: Content type

● Presenting new results
  ○ Empirical - Experiments, observations, datasets..
  ○ Theoretical
    ■ Proofs, theorems

● Reviewing existing results
  ○ Systematic: “Systematic Literature Review”
  ○ Non-Systematic: “Survey”, “A Review of …” ← Very handy for getting acquainted with a domain!
    ■ Often contribute a list of (open) challenges, gaps
    ■ E.g. Manifesto
Evaluating publications: C.R.A.A.P¹

- **Currency**
  - When was it published?

- **Relevance**

- **Authority**
  - Who is the author, their credentials, affiliation(s)?
  - Is the information published in a peer-reviewed journal/conference?

- **Accuracy**
  - How reliable is the information? E.g. reproducibility
  - Does it lack citations? Why?
    - Age, specificity
  - How is the quality of writing, formatting (spelling errors, distorted images, ..)

- **Purpose**
  - Is well-balanced and independent or leans towards selling some idea or product?

¹ *Conducting a successful literature search: A researcher’s guide to tools, terms and techniques, ELSEVIER*
Evaluating publications

- **Journal Impact Factor, JIF/IF**
  - Measures the mean frequency at which a publication's articles get cited within a time period.
  - With/without self-citation

- **Conference**
  - Acceptance rate

- **Measuring Authors:**
  - H-index
  - I10 index

E.g. 2-year JIF at 2020:

<table>
<thead>
<tr>
<th>YR</th>
<th>Cites in 2020 to articles published in YR</th>
<th>Number of articles published in YR</th>
</tr>
</thead>
<tbody>
<tr>
<td>2019</td>
<td>332</td>
<td>118</td>
</tr>
<tr>
<td>2018</td>
<td>447</td>
<td>110</td>
</tr>
<tr>
<td>Sum</td>
<td>779</td>
<td>228</td>
</tr>
</tbody>
</table>

JIF = cites to recent articles / no. of recent articles

\[
\text{JIF} = \frac{779}{228} = 3.417
\]
Search Engines, Databases

- **Search engines**
  - Keyword-based search
    - Logical operators, time-based filtering, ...
  - [Google Scholar](#)
    - Includes “alternative” results - seminar reports, presentations, lectures
  - [Web of Science](#)
  - [Elsevier Scopus](#)
  - [EBSCO Discovery](#)

*Example query:* `(aggressi* OR violen*) AND (tv OR television) AND (child* OR adolescen* OR teen*)`
Search Engines, Databases

Example query: (aggressi* OR violen*) AND (tv OR television) AND (child* OR adolescen* OR teen*)

Stress management for children through educational television
NL Mamor - 1991 - search.proquest.com

... A study of inter personal aggressi on, which is representative of the research on TV and violence, was ... higher for boys and individuals l-n-lies seratur e Suggests i predisposed to aggressi on. Overall, the l mild to moder at eration between aggress I ve behavi or and the ...
Search Engines, Databases

- An interesting tool is to analyse citations graphs,
  - E.g. Scholar “Cited by” links:

  ![Visualization of citation analysis]

  "The N1 wave of the human electric and magnetic response to sound: a review and an analysis of the component structure"
  R. Nätänen, T. Picton - Psychophysiology, 1987 - Wiley Online Library
  This paper reviews the literature on the N1 wave of the human auditory evoked potential. It concludes that at least six different cerebral processes can contribute to the negative wave recorded from the scalp, with a peak latency between 50 and 150 ms. a component ...
Limiting Search results

A combination of strategies should be used

- Inclusion and exclusion criteria for certain keywords
- No. of citations:
  - Exclude older papers with little citations
  - For newer papers, we should be careful about discarding them due to lack of citations
- Time period
- C.R.A.A.P. (Slide 5 of this presentation)
- Filter by set of conferences, journals
- ...
Accessing articles

- Articles themselves are hosted publishers web portals
  - IEEE Explore, ACM, Elsevier, …
- Generally not free
  - (Open-Access articles are an exception)
- Universities, Libraries have subscriptions
  - Including University of Tartu - List of UT library-accessible databases
- The subscription is usually automatically recognized if you’re in the University network (Eduroam)
  - VPN Setup guide
- Web-based proxy also exists: https://login.ezproxy.utlib.ut.ee/menu
Tools, Aids

- **Writing**
  - LaTeX, Word, GDocs, ..
  - Overleaf - LaTeX as a Service

- **Managing bibliography**
  - Zotero, Mendeley, JabRef, ..
  - Organize, share your list of literature
  - Integrate your tools:
    - Browser plugin to quickly save
    - Automatic export to Bibtex format used by LaTeX
    - ...

- **Specific plugin example:**
  - Retraction watch (Zotero plugin)
    - https://retractionwatch.com/

Citation Management

Support by automated tools

- LaTeX
- Word
- Google Docs

More manual work
Some examples (Demo)

- Scopus search
- Zotero
Homework task: Conduct literature search

1) Keyword-based search in Scopus
   a) Try to find papers relevant to your topic and RQ-s.
   b) Use the different discussed methods to limit the amount of results
      i) Filter down based on publication time, domain, citation count, quality/length of article, language, …
   c) Write down your exact Scopus Query, and number of total results found
      
      E.g.: 14 document results (08.03.2021)
      
      TITLE-ABS-KEY((android OR ios) AND flutter) AND (AND PUBYEAR > 2015) AND (LIMIT-TO(SUBJAREA, "ENGI") OR LIMIT-TO(SUBJAREA, "COMP"))

      Write down an explanation of how you limited the number of results - what were the criteria and briefly justify the usage of each one

2) Citation graph analysis
   a) Go through the cited/citing articles of your topic original article
      i) Depth of 1 is enough (don’t need to check citers of citers, etc)
      ii) (Optionally also any more articles of interest from Scopus search)
   b) Identify & write down any (relevant) articles you found this way. Were any of them also found through the search?

3) Choose 3-6 most interesting papers from parts 1) and 2).
   Write a 1+ page discussion about how the found papers relate to your topic.
   The written discussion about these related works should form a meaningful whole.
Homework: Deadline & Deliverables

**Deadline: 18.10**

**Deliverables:**

Part 1)
   - Exact Scopus Query used, no. of results and date of search
   - Explanation for search limiting criteria (inclusion, exclusion criteria)

Part 2)
   - List of Articles found, how each one was found
     (e.g. X - *citer of Y* or *A, citee of Y*)

Part 3)
   - Written document
References, Materials

1) *Conducting a successful literature search: A researcher’s guide to tools, terms and techniques*, ELSEVIER

2) *A selection of Fog and Edge Computing Conferences and Journals*
   a) by Advanced Networks Research Lab, University of Texas at Dallas

3) *Selection of publications from Mobile & Cloud Lab*