Searching for Academic Literature

Mobile and Cloud Computing Seminar
MTAT.03.280

Jakob Mass
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
Types of articles, materials

- Articles (Papers)
  - Journal article, Conference article
    - Full-length articles, these are most often of highest interest
  - Other Conference-related articles
    - Workshop, Symposium, Poster
  - Other Journal-related articles
    - Editorial
  - Peer-Reviewed

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

● Presenting new results
  ○ Empirical - Experiments, case studies, observations, datasets..
  ○ Theoretical
    ■ Proofs, theorems, conceptual framework/architecture, …

● Reviewing existing results
  ○ Systematic: “Systematic Literature Review”
  ○ Non-Systematic: “Survey”, “A Review of …” ← Very handy for getting acquainted with a domain!
    ■ 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?
  - Does it lack citations?
  - 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

- What is the **impact factor** (IF) of a journal?
  - Measures the mean frequency at which a publication's articles get cited within a time period.
  - E.g. JIF at 2020:

<table>
<thead>
<tr>
<th>Year</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>

\[
\text{JIF} = \frac{\text{cites to recent articles}}{\text{no. of recent articles}} = \frac{779}{228} = 3.417
\]

- Measuring Authors:
  - H-index
  - I10 index
Search Engines, Databases

- **Search engines**
  - Keyword-based search
    - Logical operators, time-based filtering, ...
  - **Google Scholar**
    - Also retrieves “alternative” results - seminar reports, presentations, lectures
  - **Web of Science**
  - **Elsevier Scopus**
  - **EBSCO Discovery**
  - A powerful tool is to analyse citations graphs,
    - E.g. Scholar “Cited by” links:

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

---

The N1 wave of the human electric and magnetic response to sound: a review and an analysis of the component structure

R Näätänen, 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 ...

[Visualization of citation analysis](image-url)

[Cited by 338] related articles All 8 versions
Limiting Search results

A combination of strategies should be used

- Excluding 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](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
    - ...

---

**support by automated tools**

- **LaTeX**
- **Word**
- **Google Docs**

---

**Potential more manual work**
Some examples (Demo)

- Scopus search
- Zotero
Finding cloud, fog, edge, mobile-related literature

1) A selection of Fog and Edge Computing Conferences and Journals
   a) by Advanced Networks Research Lab, University of Texas at Dallas
2) Selection of publications from Mobile & Cloud Lab
3) Last but not least: Asking colleagues, supervisors, making own searches :)
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 synthesis of them with 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: 21.03**

**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*