

## COMP 516 Research Methods in Computer Science

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### Academic English Classes

- for all international students and staff members
- Monday 1st October - Friday 14th December 2012
- no need to register for these classes (but take your student card)
- e.g. every Monday 13.00- 14.00 [Grammar & Vocabulary](#) in MATH-105 and repeated Tuesday 12.00-13.00 in GHOLT-H223
- many more classes: [Academic Writing](#), [Academic Reading](#), [Academic Speaking & Pronunciation](#), [Academic Listening](#), [Britain Today](#)

[http://www.liv.ac.uk/english-language-centre/academic\\_english\\_classes\\_for\\_all\\_international\\_students\\_and\\_staff/](http://www.liv.ac.uk/english-language-centre/academic_english_classes_for_all_international_students_and_staff/)

or click “Useful resources for COMP516” at

<https://cgi.csc.liv.ac.uk/~dominik/teaching/comp516>

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## COMP 516 Research Methods in Computer Science

### Lecture 5: Literature searches

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### Academic English classes for International MSc Students

- discipline-specific language classes
- all overseas students are expected to enroll on this module
- Monday 8th October - Friday 14th December 2012
- Classes for CS: [Monday 15:00-16:00](#) in [ELEC-204 \(E4\)](#), first class: [Monday 8 October 2012](#)
- Scientific English: [Wed 15:00-17:00](#) in [MATH-103](#), first class: [Wed 10 October 2012](#)

[http://www.liv.ac.uk/english-language-centre/academic\\_english\\_classes\\_for\\_international\\_tps/](http://www.liv.ac.uk/english-language-centre/academic_english_classes_for_international_tps/)

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## Clarification about the Essay (1)

- the presentation/essay for COMP516 is not related to your final MSc project (COMP702)
- MSc project is almost always picked from a list (available at the end of semester 2)
- it is sometimes possible to propose a new MSc project, but that requires finding a suitable supervisor

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## Clarification about the Essay (2)

- the topic for your COMP516 essay can be anything that interests you and is related to CS
- alternatively, pick some topic listed at the COMP516 webpage
- you will submit the topic of your essay online via a form
- in a unlikely event that this topic is not suitable I will ask you to pick a new one
- another possibility is to pick as your essay topic an MSc project was not picked last year
- <https://cgi.csc.liv.ac.uk/~comp702/> and use your CS login/password (not MWS) ....
- however, once picked one should confirm that the project will still be available this year

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## Barclays Lectures: Insights into IT

- a series of 8 lectures by Barclays representatives
- the poster is just outside
- every Wednesday at 1pm in Ashton Lecture Theatre, starting this week (3 October 2012)
- IT related topics: security, cloud computing etc.
- directly related to the material in COMP516, e.g. project management, risk assessment
- would help you to make the connection between theory and practice

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## Searching for Literature

- What are you trying to find out?
  - ↪ Try to specify exactly what you need to know
- What type of information do you want to find?
  - ↪ An answer to a specific question?
  - ↪ An overview of a subject area?
  - ↪ A specific document?
- Why do you need this information?
  - ↪ Literature survey: Information needs to be comprehensive
  - ↪ Short essay: Limited number of sources is sufficient
- How quickly do you need the information?
  - ↪ Immediately: Internet
  - ↪ In a day: Library
  - ↪ In a week: Inter Library Loans

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## Searching for Literature

Consider the following tasks:

- 1 Obtain a paper copy of the following article:

*P. McBurney, S. Parsons and M. Wooldridge (2002): Desiderata for agent argumentation protocols. In: C. Castelfranchi and W. L. Johnson (Editors): Proceedings of the First International Joint Conference on Autonomous Agents and Multi-Agent Systems (AAMAS 2002), pp. 402–409, Bologna, Italy. July 2002. New York, USA: ACM Press.*

- 2 Find out which other publications refer to the article above.

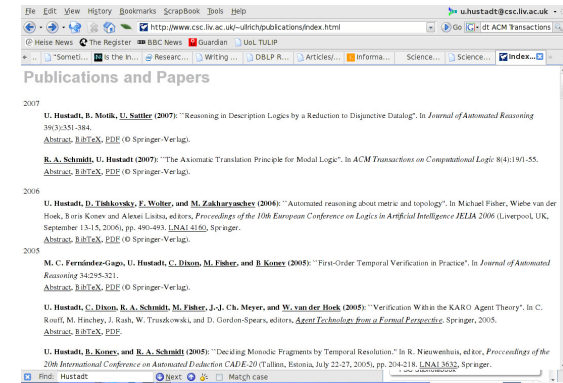
How would you accomplish these tasks?

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## Where to Search: Sources

Sources for literature on the internet:

- Freely available collections (personal/institutional)



- Publishers' websites/databases

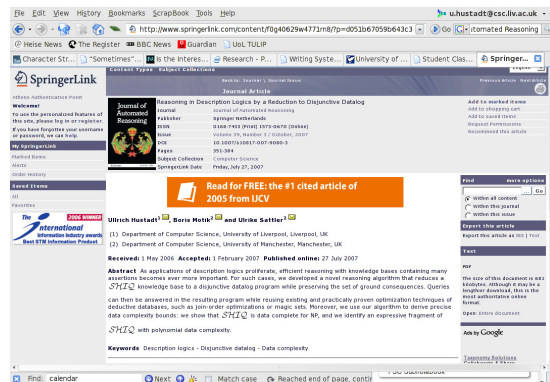
- Literature databases

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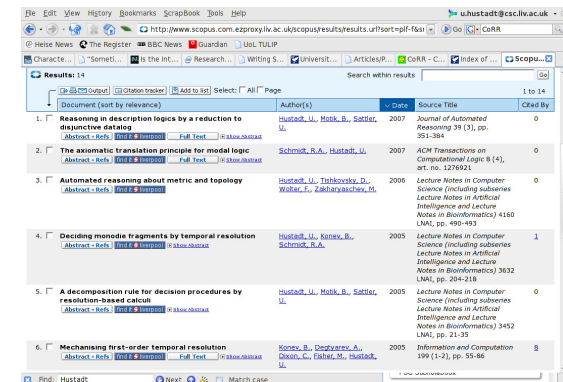
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## Where to Search: Sources

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- Literature databases



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## Where to Search: Interrelationship of Sources

- 1 Authors submit paper to conference/journal for **peer review**
- 2 If accepted, the paper is **revised** by the authors and submitted to conference/journal editor
- 3 The paper is **processed** to bring it into the publisher's format (typesetting/layout)
- 4 The paper is then
  - included in the **publisher's database**,
  - made available on-line via the **publisher's website**, and
  - possibly published in printed form (not necessarily in that order)
- 5 **Literature databases**
  - collect the bibliographic information from several publishers
  - add additional information (references with links, citation index)
  - link back to publisher for full-text of papers

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## Databases and Search Engines: Publishers

Our library has subscriptions to many publishers' databases:

ACM Digital Library	Full-text of all <b>ACM</b> journals and conference proceedings <a href="http://portal.acm.org.ezproxy.liv.ac.uk/dl.cfm">http://portal.acm.org.ezproxy.liv.ac.uk/dl.cfm</a>
IEEE Xplore	Full-text of <b>IEEE</b> journals, conference proceedings, and books <a href="http://ieeexplore.ieee.org.ezproxy.liv.ac.uk/">http://ieeexplore.ieee.org.ezproxy.liv.ac.uk/</a>
ScienceDirect	Full-text of <b>Elsevier</b> journals <a href="http://www.sciencedirect.com.ezproxy.liv.ac.uk">http://www.sciencedirect.com.ezproxy.liv.ac.uk</a>
SpringerLink	Full-text of <b>Springer</b> journals, conference proceedings, and books <a href="http://www.springerlink.com.ezproxy.liv.ac.uk/">http://www.springerlink.com.ezproxy.liv.ac.uk/</a>
Wiley InterScience	Full-text of <b>Wiley</b> journals and books <a href="http://www.interscience.wiley.com.ezproxy.liv.ac.uk/">http://www.interscience.wiley.com.ezproxy.liv.ac.uk/</a>

Access to full-text requires authentication by MWS login and password

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## Databases and Search Engines: Literature Databases

The University Library has subscriptions to many literature databases:

Scopus	Covers 14,000 journals and proceedings series; incl. ACM, Elsevier, IEEE, Springer <a href="http://www.scopus.com/">http://www.scopus.com/</a>
Web of Knowledge	Covers 22,000 journals and 192,000 proceedings; incl. ACM, Elsevier, IEEE, Springer <a href="http://isiknowledge.com/">http://isiknowledge.com/</a>
DISCOVER (UoL)	Meta search engine for ACM Digital Library, IEEE Explore, etc but also Scopus, Web of Science and Google Scholar <a href="http://www.liv.ac.uk/library/e-library/eds.html">www.liv.ac.uk/library/e-library/eds.html</a>

Adding `.ezproxy.liv.ac.uk` to the server name again allows access from outside the campus using your MWS login and password for authentication

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## Databases and Search Engines: Web Search Engines

Freely available (scholarly) web search engines include:

Citeseer	Digital library of 750k freely available papers in computer and information science <a href="http://citeseer.ist.psu.edu/">http://citeseer.ist.psu.edu/</a>
Google	General internet search engine <a href="http://www.google.co.uk">http://www.google.co.uk</a>
Google Scholar	Searches scholarly literature on the web. <a href="http://scholar.google.com">http://scholar.google.com</a>
Scirus	Searches journals (ScienceDirect) and web resources <a href="http://www.scirus.com/">http://www.scirus.com/</a>
Windows Live Search Academic	Academic search engine - search academic journals and content for article titles, author names, article abstracts, and conference proceedings. <a href="http://academic.live.com/">http://academic.live.com/</a>

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## Databases and Search Engines: Comparison

- All these databases and search engines, and many more, are accessible from one central point:

<http://atoz.ebsco.com.ezproxy.liv.ac.uk/Customization/Tab/11404?tabId=8591>

- The library's own catalogue is available at

<http://library.liv.ac.uk/>

- There is an important difference to remember:

**Library catalogue:** Allows to search **for** a journal, but not **for** journal articles

**Publishers' and literature databases:** Allow to search **for** journal articles, but not **in** the full-text journal articles

**Web search engines:** Allow to search **in** the full-text of journal articles, but have difficulties with their structure

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## Databases and Search Engines: Comparison

- **Literature databases** cover a vast number of journals and conferences, but they
  - do not cover all journals and conference
  - do not cover textbook, handbooks, collections of articles in book form
  - do not cover workshops and similar scientific meetings
  - do not cover technical reports and pre-prints
- **Web search engines** provide much better coverage of these types of publications, but
  - typically also return a lot of irrelevant material to a query
  - leave it to the user to distinguish high quality from low quality material

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## Queries (1)

- **Search terms** might be simple **keywords**, **phrases**, or consist of **field identifiers**, **modifiers**, **operators**, and **keywords**

**Examples:** induction

“mathematical induction”

induct\*

author = Ambuhl

author like Ambuhl

author soundex(Maier)

- Queries are typically constructed from **search terms** using **boolean operators**

**Examples:** induction AND mathematical

induction OR deduction

induction AND NOT recruitment

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## Queries (2)

- Queries are typically constructed from **search terms** using **boolean operators**
  - **AND** retrieves records where ALL of the search terms are present, **induction AND mathematical**
  - **OR** retrieves records containing either one term OR another **induction OR deduction**
  - **NOT** retrieves records NOT containing a particular term **NOT recruitment**
- The set of all correct queries for a particular search engine is its **query language**
- Typically, **different search engines** use **different query languages**

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## Keywords

- Only the right **keywords** will correctly identify useful information
- **Mode** of search is very important:
  - **narrow**: you are looking for exactly one record
    - ↪ use a **search term** which is as specific as possible  
"cell microprocessor" instead of **cell**
    - ↪ use additional criteria
      - publication date **year** = 2006
      - type **type** = journal
      - language **language** = english
      - publisher **publisher** = Springer
  - **wide**: you are looking for all records relating to a subject
    - ↪ try alternative words/phrases  
**microprocessor** / **computer processor** / **computer chip**
    - ↪ try alternative spellings  
**judgement** / **judgment**
    - ↪ try **wildcards**  
**gene\*** for **genes**, **genetics**, **genetically**

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## Conducting a Search

- 1 Construct a query
- 2 Search the databases, starting with the literature databases then moving to web search engines
- 3 Record all useful references
  - ↪ some databases allow export in a format that can be Record imported in **RefWorks** or **EndNote**  
enough information for someone to be able to find it again
- 4 After having searched two or three sources, review the progress of the search  
too little relevant sources found so far ↪ modify query

<http://www.liv.ac.uk/library/research/refworks.html>

<http://www.liv.ac.uk/csd/software/bibliographic/endnote>

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## Mendeley

<http://www.mendeley.com/>

- 1 an offline/online reference manager
- 2 synchronisation between computers
- 3 drag-and-drop publications
- 4 social network, groups organised around different research areas
- 5 recommendations of publications, reviews etc.
- 6 shows the most read papers not just the most cited

Other (only online) systems with similar functionality are

<http://www.citeulike.org/> and

<http://www.zotero.org/>

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