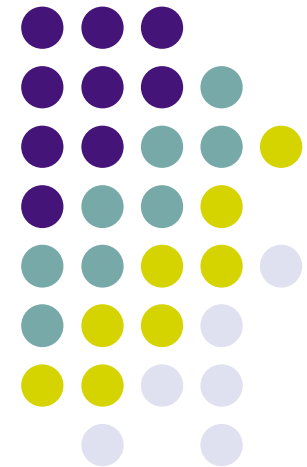


Research Methods and Techniques

Lecture 3 Literature Survey 1



Module Logistics

- Web site: www.dcs.gla.ac.uk/~drg/courses/RMT
- Course director: Prof David Gilbert, drg@dcg.gla.ac.uk
- Meetings: Thursdays, 16:00-17:00, Lecture Theatre A, Boyd Orr
- Textbooks:
 - Recommended: 'Writing for Computer Science', Justin Zobel, Springer-Verlag 2004
 - Readings and lecture slides available from the web site
- Assessment: 30% assessed coursework, 70% exam

Course Schedule

Lecture, Date	Topic [Assignment Given]	Assignment Due
(1) 28/9 .	Paper Review 1 – In-depth .	
(2) 5/10 .	Paper Review 1 – In-depth [1]	
(3) 12/10 .	Literature Survey 1 .	
(4) 19/10 .	Literature Survey 2 [2]	
(5) 26/10 .	Design of Experiments .	[1] Paper In-depth
(6) 2/11 .	Tools for Experimental Use .	
(7) 9/11 reschedule	Research Career Skills .	
(8) 16/11 .	Writing a research proposal [3]	[2] Annotated bibliography
(9) 23/11 .	Ethics .	
(10) 30/11 .	Presentation Skills .	
(11) 7/12 .	Technical Writing 1 .	[3] Research proposal
(12) 14/12 .	Technical Writing 2 .	

References

- When enumerating the references which you cite in your work, it is important to provide all of the information needed by someone reading your work to access the cited information in the archival literature.
- What is archival?
 - Books
 - Journals
 - Conference Proceedings
 - Magazines
 - Technical reports at universities or companies
 - Dissertations at universities
 - Patents
- What is ephemeral?
 - URL's

Reference Formats

- Several reference formats/standards have been defined:
 - Modern Language Association (MLA)
 - Chicago Manual of Style
 - Publication Manual of the American Psychological Association (APA)
 - Manual for Writers of Term Papers, Theses, and Dissertations (Turabian)
 - Columbia Guide to Online Style

What to use for Scientific text?

- There are two competing styles
 - IEEE (Institute of Electronic and Electrical Engineers)
 - ACM (Association for Computing Machinery)
- The IEEE style is typically used for systems papers, experimental papers
- The ACM style is more typically used for theory papers.
- Of course, if you wish to submit your work to an ACM journal, even if you are a systems type, you will need to reformat your citations to the ACM style.

IEEE Style

(taken from www.computer.org/author/style/transref.htm)

- Article in a collection
 - A.J. Albrecht, “Measuring Application-Development Productivity”, *Programmer Productivity Issues for the Eighties*, C. Jones, ed., pp. 34-43. Los Alamitos, CA: IEEE Computer Society Press, 1981.
- Article in a conference proceedings
 - M. Weister, “Program Slicing”, *Proc. Int’l Conf. Software Eng.*, pp. 439-449, 1981.
- Article in a journal or magazine
 - I.E. Sutherland, R.F. Sproull, and R.A. Schumaker, “A Characterization of 10 Hidden Surface Algorithms”, *ACM Computing Surveys*, vol. 6, no. 1, pp. 1-55, Mar. 1974.
- Book
 - W.M. Newman and R.F. Sproull, *Principles of Interactive Computer Graphics*, p. 402. Highstown, N.J.: McGraw-Hill, 1979.
- Dissertation or thesis
 - B. Fagin, “A Parallel Execution Model for Prolog”, doctoral dissertation, Dept. of Computer Sciences, Univ. California, Berkeley, CA, 1987.
 - M. Nichols, “The Graphical Kernel System in Prolog”, master’s thesis, Dept. of Computer Science and Eng., Rensselaer Polytechnic Inst., Troy, NY, 1985.

IEEE Style (cont)

(taken from www.computer.org/author/style/transref.htm)

- Electronic publication
 - L.P. Burka, “A Hypertext History of Multiuser Dimensions”, *MUD History*, <http://www.cs.neu.edu/home/home/lpb/mud-history.html>, 14 October 2004.
- Patent
 - M. Hoff, S. Mazor, and F. Faggin, *Memory System for Multi-Chip Digital Computer*, US patent 3,821,715 to Intel Corp., Washington, D.C.: Patent and Trademark Office, 1974.
- Pending publication
 - R. Lee, “New-Media Processing”, to be published in *IEEE Micro*, vol. 16, no. 4, Aug. 1996.
- Standard
 - *Recommendation ITU-R BT.601, Encoding Parameters of Digital Television for Studios*, Geneva: Int’l Telecommunications Union, 1992.
- Technical report
 - C. Hoffman and J. Hopcroft, “Quadratic Blending Surfaces”, Technical Report TR-85-674, Computer Science Dept., Cornell Univ., Ithaca, NY, 1985.

ACM Style

(taken from http://www.acm.org/pubs/submissions/msword_style/index.htm)

- **For Journal**

- ABDELBAR, A.M., AND HEDETNIEMI, S.M. 1998. Approximating MAPs for belief networks in NP-hard and other theorems. *Artificial Intelligence* 102, 21-38.

- **For Book**

- GINSBERG, M. 1987. *Readings in Nonmonotonic Reasoning*. Morgan Kaufmann, Los Altos, CA.

- **For article in a book of collection**

- GREINER, R. 1999. Explanation-based learning. In *The Encyclopedia of Cognitive Science*, R. WILSON AND F. KEIL, Eds. MIT Press, Cambridge, MA, 301-303.

- **For Conference Proceedings**

- MAREK, W., AND TRUSZCZYNSKI, M. 1989. Relating autoepistemic and default logics. In *Proceedings of the 1st International Conference on Principles of Knowledge Representation and Reasoning*, Toronto, Canada, May 1989, H. BRACHMAN AND R. REITER, Eds. Morgan Kaufmann, San Mateo, CA, 276-288.

Citations (Numeric/IEEE Style)

- Number citations in square brackets [1].
- The sentence punctuation follows the brackets.
- Multiple references [2], [3] are each numbered with separate brackets [1]–[3].
- When citing a section in a book, please give the relevant page numbers in the reference. If you refer to two separate sections of a book, then these will appear as **two** separate references, differing only by the page numbers of the section.
- In sentences, refer simply to the reference number, as in [3].
- Do not use “Ref. [3]” or “reference [3]” except at the beginning of a sentence: “Reference [3] shows”

Citations (Author style)

- The citation identifier consists of the surname of the first author followed by the year of publication [Sventek 2003]. If you cite two or more publications by Sventek in 2003, these should be identified as [Sventek 2003a], [Sventek 2003b], ...
- For papers submitted to journals and conferences, it is common to truncate the author name to the first 3 or 4 letters – e.g. [Sven2003] or [Sve2003]. In this situation, no space should be left between the name and the year. If the surname is shorter than 3 or 4 letters, simply concatenate the name and year – e.g. [Day1961].
- The sentence punctuation follows the brackets.
- Multiple references are enumerated in a single set of brackets, separated by commas, as in [Sventek 2001, Vanderbauwhede 2004, Calder 1997].
- When citing a section in a book, please give the relevant page numbers in the reference. If you refer to two separate sections of a book, then these will appear as two separate references, differing only by the page numbers of the section.
- In sentences, refer simply to the reference number, as in [Dahl 1995].
- At the beginning of a sentence, you should use: “Sventek et al [Sventek 2001] demonstrate ...”; if there is a single author, then you should use: “Sventek [Sventek 2000] demonstrates ...”

Order of reference listing

- IEEE style
 - References should be listed in numeric order as the citations are encountered in the paper – i.e. the first reference cited in the paper should be [1], the second should be [2], etc.
- Numeric style
 - The references should be sorted alphabetically by the surname of the first author. The reference that is lexicographically first will be numbered [1], etc.
- Author style
 - The references should be sorted alphabetically by the surname of the first author.

Literature Surveys - Finding relevant papers

- Google – <http://www.google.com>
 - A useful tool for finding anything
 - Must use reasonably focused search keys to avoid lots of hits that are not research papers
 - Google Scholar - <http://scholar.google.com/> Avoids [some] of the problems with Google
 - As you become better acquainted with the field that you are investigating, you can refine your queries with some of the new keywords that you have learned
 - When doing a Google search for papers, it is essential that you document your search string in your Research journal along with the useful papers that you found using that search string.
 - Due to the dynamic nature of the database that is the web, it may be useful to repeat the same search strings at regular intervals.
- Example search for papers to answer the question “How can Bluetooth and WiFi coexist in the 2.4 GHz ISM band?”

Results of 30-minute Google search session

String	Useful hits
Bluetooth tutorial	<p>www.palowireless.com/infotooth/tutorial.asp Online tutorial – very informative</p> <p>grouper.ieee.org/groups/802/11/Tutorial/90538S-WPAN-Bluetooth-Tutorial.pdf IEEE standards group – slideset from a presentation to Bluetooth SIG</p> <p>http://www.oreillynet.com/pub/d/859 useless presentation of Bluetooth and Jini – pointer to bluetooth.com</p> <p>http://www.winlab.rutgers.edu/~pravin/publications/papers/Mobicom-handout.pdf Slideset from Mobicom tutorial</p>
Bluetooth IEEE	<p>http://www.javvin.com/protocolBluetooth.html Quick overview of relationship between Bluetooth and IEEE 802.15</p>
Bluetooth protocol stack	<p>http://www.bluez.org/ Official Linux Bluetooth protocol stack known as BlueZ</p> <p>http://www.embedded.com/story/OEG20020613S0017 Bluetooth protocol stack for embedded systems</p>

Results of 30-minute Google search session (cont)

String	Useful hits
WiFi Tutorial	http://www.homenethelp.com/802.11b/index.asp a high-level tutorial on WiFi – provides pointer to www.wirelessethernet.org http://www.palowireless.com/i802_11/ 802.11 resource center – pointer to site with links to numerous tutorials - www.palowireless.com/i802_11/tutorials.asp
WiFi IEEE	http://whitepapers.zdnet.co.uk/0,39025945,60029633p,00.htm "802.11 White Paper: Coexistence Issues – Wi-Fi and Bluetooth" – has button to download the white paper
WiFi protocol stack	Nothing of any particular use

ACM Digital Library

- <http://portal.acm.org/portal.cfm> → “Go to The ACM Digital Library” → “Advanced Search”
- portal.acm.org/advsearch.cfm?coll=portal&dl=ACM&CFID=29117445&CFTOKEN=23877273
- Search keys:
 - Bluetooth
 - WiFi
 - +Bluetooth +WiFi
 - +Bluetooth +WiFi +coexistence – no results
- If you are an ACM member and subscribe to the Digital Library, you may save the results of your search in a “binder” on the web site

IEEE Xplore

- <http://ieeexplore.ieee.org/search/basicsearch.jsp> – enables searches of IEEE's online paper archive
- Search keys:
 - Bluetooth
 - WiFi
 - Bluetooth & WiFi
 - Bluetooth & 802.11
 - Bluetooth & WiFi & coexistence – no results

CiteSeer

- <http://citeseer.ist.psu.edu/>
 - An on-line citation index and paper database sponsored by the US NSF and Microsoft Research
 - can search by keyword or title or author
 - can follow citation links forward and backward from important papers
 - lists semantically similar papers
 - indicates importance based upon the number of citations to a particular paper
 - many papers have an associated BiBTeX entry
- Also via Google, with search terms e.g.
 - `site:citeseer.ist.psu.edu bioinformatics "systems biology"`

Other considerations

- Identify a few important and relevant papers (recent or classic/seminal) and work forwards/backwards through citation links in CiteSeer
- It's important to know the key publications (top journals and conferences) in an area
- It's important to know the key researchers in an area
- It's helpful to know which institutions are doing important work in an area
- All of this information can help you focus your query, whether using Google, ACM DL, IEEE Xplore, or CiteSeer, to achieve better results
- In the end, you still have to review each paper to determine if it is of use to you.