Search, Read, Refers

(from Scientific Writing for Computer Science Students-book, and my editing)

Search

- All text must be justified, either based on previous research or your own results.
- It must be clear what the information is based on!
- Often the whole master thesis is based on systematic study of existing literature. The information is just analyzed and organized from a new point of view.
- The sources for scientific writing must also be scientific!

Source types

- Primary sources: articles in conferences and journals
  - original sources
  - the papers should have appeared in a reviewed journal/conference

  (i.e. reviewers have checked their correctness!)
  - also technical reports and other theses

- Secondary sources: textbooks, encyclopedias, glossaries
  - sometimes useful analysis or interpretation, but not original sources
  - you can use these in master thesis, but only as supplementary material
  - often contain useful literature hints (usually under section ”Bibliographical notes” etc.)
- Ex:

- Bibliographies
  - support information retrieval
  - lists of articles + references
  - scientific search engines are on-line bibliographies
- Ex:

Collecting literature

- Starting point: your preliminary topic.
  - Goal, central concepts, theories and themes
- How to proceed?
  - Begin from familiar: notes, textbooks, ask your supervisor
  - Check references in useful papers or books
  - Make key word queries in scientific bibliographies or electronic libraries (good sources for cs are ACM, IEEE, Elsevier, Springer)
  - If you make an internet query, prefer scholar google. Check always that the paper has been published!
  - Write down the references – they can be hard to find afterwards! (especially store the bibtex files)

Read

- You cannot read everything throughout!

  Read only as much as is needed to
  - recognize that the article is useless, get the useful information
- Often an iterative process: important articles are read several times!
  - Title and abstract
  - Scan through introduction and conclusions/summary
  - Check references: new good references?
  - Important or useful sections and subsections (the organization is usually described in the introduction)

- In the beginning, don’t get stuck in details; don’t check individual words or references; believe the arguments
- If the article is important, then try to understand it properly, and check the referred sources

- Ask yourself:
  - What is the main idea?
  - What is the contribution (the new or interesting thing)?
  - What is important for you? Where it is presented?

- If you don’t understand the article
  - Try to invent examples or simulate the solution yourself
  - Ask your fellows, supervisor, experts
  - Ask (yourself and others) specified questions: Where this equation comes from?, What is the relationship between these algorithms? Can you give an example for this definition?
- Often understanding happens as a background process!

Refers

- Referring in the text
  - The reference is usually immediately after the referred theory, algorithm, author, etc.

    ”According to Dijkstra [Dij68] goto statement should be avoided...”

    ”Bloom filters [Ref03] solve this problem...”
  - The reference is in the end, if you refer to the whole sentence or a paragraph. (before full stop, if it refers only to the previous sentence, otherwise after the full stop)

    ”Goto statement should be avoided [Dij68].” Notice the difference: now you agree with Dijkstra!

- Sometimes there is no one ”original” source, but a new concept or theory has developed little by little. In this case, you can give a couple of example references where the reader can find more infromation.

  ”Context-aware computing (see e.g. [DeA99,CaK00]) is a new approach...”

- Other examples

  ”Minsky and Papert [MiP69] showed that...”

  ”Version spaces were introduced by Mitchell [Mit77].”

  ”Nonparametric methods are described by Randles and Wolfe [RaW79].”

  ”The principles of CART were first described in Breiman et al. [BrF84].” or ”The principles of CART were first described in [BrF84].”

  ”Prolog was primarly used for writing compilers [VRo90] and parsing natural language [PeW80].”

  ”The general procedure for skolemization is given by Skolem [Sko28].”

  ”Other methods are summarized in e.g. [Bro92,Woo96].”

  ”The problem is N P -complete [Coo00].

Reference list

- The authors: surname and the first letters of the first names. If you have ≥ 3 authors, give only the first one, and replace the others by ”et al.” E.g. ”Mitchell, T.M. et al.”
- The title
- Publisher, (place) and year.
- Page numbers, if the source is a paper or a chapter in a collection written by several people.
- The title and the editors of the collection, if the paper has appeared in a collection (e.g. conference articles).
- The volume (always!) and the issue number after a comma or in paran- theses, if the source is a journal paper.
- Series, if the book has appeared in some series. (E.g. Lecture Notes in Computer Science + number)

Journal and conference articles

- A journal article:

  <Authors>: <Title>. <Journal>, <volume> (<issue>): <pages>,<year>.

- A conference article:

  <Authors>: <Title>. In <book title>, <pages>, <year>.

- A journal article:

  Cheng, V., Li, C.H., Kwok, J.T. and Li, C.-K.: Dissimilarity learning for nominal data. Pattern Recognition, 37(7):1471–1477, 2004.

- A conference article:

  Salazar-Afanador, A., Gosalbez-Castillo, J., Bosch-Roig, I., Miralles-Ricos, R. and Vergara-Dominguez, L.: A case study of knowledge discovery on academic achievement, student desertion and student retention. In Proceedings of the 2nd International Conference on Information Technology: Research and Education (ITRE 2004), pages 150–154, 2004.

- Note: Actually, there are several variations to write Ref list

Books

- A book:

  <Authors>: < Title>. < Publisher>, < year>.

- An article in a collection:

  <Authors>: < Title>. In <Editors>, editors, <Book title>.< Publisher>, < year>.

- A chapter in a book (by one author):

  <Authors>: < Title>, <Book title>, chapter < chapter number>.< Publisher>, < year>.

Ex:

- Lord, F.M.: Applications of item response theory to practical testing problems. Lawrence Erlbaum Associates, 1980.
- D.W. Scott and S.R Sain: Multi-dimensional density estimation. In C.R. Rao and E.J. Wegman, editors, Handbook of Statistics—Vol 23: Data Mining and Computational Statistics. Elsevier, Amsterdam, 2004.
- Smyth, P.: Data mining at the interface of computer science and statistics, volume 2 of Massive Computing, chapter 3. Kluwer Academic Publishers,Norwell, MA, USA, 2001.

Technical reports and theses

- Use technical reports and master theses only exceptionally. They have not been reviewed (or at least not as well as real publications)! The doctoral theses have uaually gone trhough a careful review.
- A technical report:

  <Authors>: < Title>. <Report series> <report number>, <Institution>,<year>.
- A master thesis:

  <Author>: < Title>. Master's thesis, <Department>, <University or institution>, <year>.

Ex:

- Dey, A.K. and Abowd, G.D.: Towards a better understanding of context and context-awareness. GVU Technical Report GIT-GVU-99-22, College of Computing, Georgia Institute of Technology, 1999.
- Norris, A.: Multivariate analysis and reverse engineering of signal transduction pathways. Master's thesis, Department of Mathematics, Institute of Applied Mathematics, University of British Columbia, 2002.

Referring to internet articles

- If you refer to an article, which is available in the internet but has been published in a paper form, give the normal reference to the paper version. The url address is not necessary, but it can be given to help the reader to find the article.
- If an article has been published only in an internet journal, give the reference like to any common journal article, but replace the page numbers by the url address.

- If the article exists only in the internet but is not published, givethe retrieval date and the url address in the end of reference. E.g. ”Retrieved March 3, 2006, from http:www.kissastan.edu/bnetworks/bnarticle.html.
- If you refer to an internet textbook, give the normal book information if possible (Author, book title, publisher, year). Sometimes the internet book have also a publisher like a company, institution, etc.). If it doesn’t have any publication year, then give the date when the book was accessed by you. Always give the url address.

- An unpublished internet source:

  Fox, E.: Details of clustering algorithms (lecture notes).

  http://maya.cs.depaul.edu/ classes/ds575/clustering/CL-alg-details.html, 1995-1996.
- An internet textbook (a special case, no author is mentioned, only the company – Xycoon – which has produced the book.)
- Xycoon: Linear Regression Techniques (Online Econometrics Textbook),chapter II. Office for Research Development and Education, 2000-2006.

Referring to software

- Standard software tools and programming languages like LaTEX, Matlab, and Java do not need any references.
- If you use special tools or programs with limited distribution it is recommendable to give the reference. E.g.
- BCAT [A Bayesian network tool]. Retrieved March 3, 2006, from http:www.kissastan.edu/bcat-tool/bcat3.0.html. If you know the organization which has produced the work, give it in the publisher position (before retrieval information). If somebody has rights to the software, mention her/him as the author.

- Bourne, S. The UNIX System. International Computer Science Series, Addison Wesley, 1982. (a book)
- Gannon, D. et al. Programming environments for parallel algorithms. In Parallel & Distributed Algorithms, ed. M. Cosnard et al. North-Holland, 1989. 101-108. (an article in a collection)
- Grahne, G., Nyk¨nen, M., Ukkonen, E. Reasoning about strings in databases.