582519 Scientific Writing for MSc in Computer Science

Lecture 1, 3.9.2014 Tiina Niklander

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Faculty of Science Department of Computer Science

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Learning objectives of this course

 GOAL: To write a 10-page scientific report (article or essay) based on existing scientific journal and conference articles using your own voice

- You will practise and learn:
 - how to find relevant material
 - how to read the articles
 - how to structure your own text
 - the actual writing and editing process
 - how to review an article



Strict schedule

Week 1: Paper layout +

Material search and creation of bibliography

Week 2: Create your table of content + Organising the material + reading and searching

Week 3: Introduction + Chapter 2

Week 4: Chapters 2-4

Week 5: Draft version ready - Peer review by other students (and group leader) - feedback for editing

Week 6: Editing your work

Deadline: Friday 17.10.2014 (end of period 1)

(Ultimate deadline 24.10.2014 – end of exam week)

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Scientific text/report (10 pages in the given layout)

Aims

- Deeper understanding of the subject
- Bring the subject into structure
- Understandable presentation of the subject
- The structure of the thesis (use the departmental layout model)
- Scientific style, good written English
- •Written in LaTeX
- •Only journal, conference and workshop articles

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Course organization

Small group lead by teaching assistant (this time all leaders are post docs).

Randomly selected groups, topics given by TAs.

Your tasks:

- Be and do on time
- Follow the instructions

TA's tasks:

- Monitor your progress
- Give guidance
- NO language teacher -> other courses for this



Week 1 (3.9.): Startup + hints for material hunt
Week 2 (10.9.): Writing process
Week 3 (17.9.): Use of Refences (+time management)
Week 4 (24.9.): Ethics of writing
Week 5 (MONDAY 29.9.): Ethics part 2
Week 5 (1.10.): Reviewing a paper
Week 6 (8.10.): Future: seminars and MSc thesis
Week 7 (15.10.): Extra time or no lectures

Lectures: Mon 14-16 CK111(22.9.) and D122 (29.9. -13.10.)

Week 2 (Mon 8.9.): Personal study plan (FM-HOPS in Finnish)

Week 3 (Mon 15.9.): Latex guidance possible, not scheduled yet

Week 4 (Mon 22.9.): Discussion about progress and study plans

Week 5 (Mon 29.9.): Ethics part 2 (compulsory!)

Week 6 (6.10.): Meeting with staff of specialization areas

Week 7 (15.10.): Extra time or no lectures – suggestions for topics

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- Scientific information retrieval and scientific reading
- Classification of scientific texts
- Bibliographies, digital libraries, search engines, and other sources of articles
- Scientific reading
- Quality of retrieved material
- Question list for reading
- Notes for retrieved articles

Scientific information retrieval and scientific reading

- Every research project is based on former known research
- Finding relevant source material is important, but can be very challenging
- In computer science most articles are nowadays available in digital form
- Articles should be read critically
- You must read every article that your are referring to in your text!



- The most important classification system of computer science literature is ACM Computing Classification Systems (CCS)
 - <u>www.acm.org/about/class</u>
- Different versions, newest from 2012
- Several main classes that have many sub-classes
- For example (1998 version)
 - H. Information Systems
 - H.2 Database Management
 - H.2.4. Systems



- Bibliography is a collection of the most important bibliographical facts of articles
- One of the oldest and best-known computing bibliographies is ACM Guide to Computing Literature (portal.acm.org)
- Another example of computing bibliographies is Michael Ley's *Digital Bibliography & Library Project* (DBLP)



- Collections of digital versions of articles published by a certain publisher
- Most important digital libraries in computer science are
 - The ACM Digital Library (<u>http://portal.acm.org/dl.cfm</u>)
 - IEEE Xplore
 (http://ieeexplore.ieee.org/Xplore/dynhome.jsp)
 - SpringerLink (<u>www.springerlink.com</u>)
 - Elsevier (<u>http://www.sciencedirect.com/</u>)



- University of Helsinki has a license for these digital libraries
- List of available digital libraries and bibliographies can be found via *the Nelli portal* (www.nelliportaali.fi)
- Use of the libraries and bibliographies is possible in the network of the University only
- Use HY-VPN for these restricted services (ask help from the IT Services, <u>helpdesk@helsinki.fi</u>)
- If VPN not possible, Authenticating Proxy available (ask help from the IT Services)



- There are several search engines specialised in scientific information retrieval
- Examples of such engines are
 - Google Scholar (scholar.google.com)
 - SiteSeer.IST Scientific Literature Digital Library (citeseer.ist.psu.edu)
 - Elsevier's Scirus for scientific information only (www.scirus.com)
- Other relevant databases and search engines can be found in Wikipedia's article *Academic databases* and search engines



Citation indexes

• Following reference chains

- Web pages of
 - individual researchers
 - research groups
 - departments
 - universities
- Scientific libraries
 - Books, journals, technical reports, theses, ...



- Easily a lot of articles on a given topic
- Usually it is enough to *know well* only a small number of most relevant articles
- Other articles must be **read**
 - to widen the understanding of the topic, and
 - to understand better the relevance of the most essential articles
- Quick scan of articles:
 - Read abstract, introduction, related work and conclusions
 - Decide whether it is worth to read the whole paper



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Quality of retrieved material

- Publication forum
- Quality of the publication forum
- Web documents/articles may not have been published anywhere else
- Newer articles are often preferred to old ones
- Reader must always be curious and suspicious!



- What is the main result of the article?
- How precise are the claims?
- How can the results be used?
- What are the arguments for the results?
- How are the arguments obtained?
- How are the measurements done?
- How precise are the descriptions of the algorithms and experiments?



- Is the article trustworthy and reliable?
- Are the writers referring to a right kind of a related work?
- Can the results be reproduced and how?
- Recognise the contributions and the shortcomings of the article!



- Only few of the retrieved articles are central, most of them are auxiliary
 - Many references to central sources
 - A few references to auxiliary sources
- When you find an interesting article, write directly down at least the bibliographical data of the article
 - See the departmental layout model for what information is needed from each type of publications

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- It is also good to write down
 - a short summary of the article
 - the ACM classification information
- Start making the notes from the very beginning otherwise
 - it will never be done, or/and
 - it takes even more of your time!

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Small groups

(Based on registration situation on 2.9. at 6PM)

Dorota Klowacka ():

Francesco Concas Yan He Jose Hoya Quecedo Amin Sorkhei Jinmin Lei Vladimir Goryachev

Laura Langohr (): Llorenc Escoter I Torres Angel Gallegos Gutierrez Meiling Li Khalid Alnajjar Yunong Tan

Ashwin Rao ():

Rupsha Bagchi Qiang Guo (johnny) Wen Guo Jacob Lärfors Adrian Bartnik(?) Mahmood Syed

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Ten Commandments of Good Historical Writing

- 1. Thou shalt begin with an outline that buildeth thy entire paper around thy central ideas.
- 2. Thou shalt avoid self-conscious discussion of thy intended purposes, thy strategy, thy sources, and thy research methodology.
- 3. Thou mayest covet other writers' ideas but thou shalt not steal them.
- 4. Thou shalt strive for clarity above cuteness; thou shalt not use jargon when common language will serve, nor a large word when a small one will serve, nor a foreign term when an English one will serve, nor an abstract term where a vivid one is possible.
- 5.Remember thy paragraph to keep it a significant unity; thou shalt not fragment thy discussion into one short paragraph after another, and neither shalt thou write a paragraph that fails to develop a topical idea.

- 6. Thou shalt write as if thy reader is intelligent-but totally uninformed on any particular subject: hence, thou shalt identify all persons, organizations, etc., and shalt in every way try to make thy paper a self-sufficient unit.
- 7. Thou shalt use quotations sparingly and judiciously, only for color and clarity; if thou must quote, quotations should not break the flow of thine own language and logic, and thy text should make clear whom thou art quoting.
- 8. Thou shalt not relegate essential information to thy footnotes.
- 9. Thou shalt write consistently in past tense, and in other ways keep thy reader firmly anchored in time.

10. Thou shalt not use passive voice.

http://courseweb.stthomas.edu/gwschlabach/10commnd.htm

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