Lecture 2:
Writing a Literature Review and Preparing it for Presentation

Why
There are a number of learning strategies that this assignment addresses.

- You learn how to find out about a new development. Many ideas take years to filter from academia to industry. Imagine yourself in five years time. You are managing a team of programmers. You read a magazine article about some new development in '*foo*'. You think to yourself, 'this could be really useful for us, I need to find out more'. There isn't one way to find things in the literature – there are a few hints below.

- You practice selecting, reading, filtering, abstracting and summarizing information from a variety of sources to create a coherent picture of the current state of *foo*

- You practice writing a structured, referenced academic report. You could think of this as a practice run for your literature section of your SE 4th year project or BSc Hons dissertation

- You practice presenting these new ideas to your colleagues. It doesn't matter what you are doing in 5 years time, you will need to present your ideas to other people.

- You learn something about some HCI thing that is new and interesting

Finding articles in the literature.

Start with google and google scholar.
Other important resources are the
- ACM Digital Library (through our library at http://portal.acm.org.ezproxy.auckland.ac.nz/dl.cfm?)
- IEEE Explore (through our library http://ieeexplore.ieee.org.ezproxy.auckland.ac.nz/Xplore/dynhome.jsp)
- A new Microsoft research tool http://libra.msra.cn/
- The DBLP Computer Science Bibliography http://www.informatik.uni-trier.de/~ley/db/index.html
- http://citeseer.ist.psu.edu/

Widen or narrow your search depending on the results you are getting.
If you are not getting any results try thinking of different key words
Once you find a really relevant article you can look forward and back from that article.

Looking back
Read the literature review in the article – all academic articles have one. See what/who is referenced and look at some of their articles.

Looking forward
There are citation indexes that record who has cited an article the main ones of interest to us:
- Google scholar
- ACM DL
- Citeseer
- DBLP has a coauthor index

However, academics are 'people', and sometimes there may be two or three different groups working in related areas that 'refuse' to acknowledge others work – you get silo effects.

Many of the articles you can get to directly from the search page. If you can't, University of Auckland Library has access to nearly all academic publications. Sometimes you have to search for the publication; sometimes the article name will work. There are two search catalogues
Voyager (old) http://voyager.auckland.ac.nz/
Primo   (new)
http://upsilon.auckland.ac.nz/primo_library/libweb/action/search.do?vid=UOA2_A&fromLogin=true

If all else fails – ask a librarian. They are very helpful. The Computer science librarian is Liz Hardley, the Software Engineering Librarian is Susan Brooks
http://www.library.auckland.ac.nz/contacts/

Making sense of it all
Once your literature search is complete – we expect you to find 6-8 recent, relevant but different articles. You need to read them very carefully and make sense of them.

We suggest
- liberal use of highlighters and other annotation
- Mind maps, etc to order and sort the ideas
- Explaining it to a friend and asking them to reflect back to you what they are hearing (they will usually summarize your words/ideas)

This is an iterative process – you are likely to go back and forward between searching, reading and ordering.

Also read the Webster and Watson article. It has some very good ideas. (available from the resources page http://www.cs.auckland.ac.nz/courses/compsci705s1c/resources/

Writing it up
 Academic writing should never be a mystery novel. Think more 'car service manual'.
Your write up should be
- Well structured
- Use plain English (but do not avoid the appropriate scientific terms)
- Understandable to your colleagues (in this case your class mates) – but not necessarily your grandparents – although they should be able to get the general motivation.
- Check how to reference and make sure you do your referencing correctly (www.cite.auckland.ac.nz). We expect you to use APA referencing style.

More information on the deliverables on the course web page
http://www.cs.auckland.ac.nz/courses/compsci705s1c/assignments/Seminar.html

WRITING A LITERATURE REVIEW

A literature review helps the researcher by:

- Placing your tentative research problem in the context of your field and related fields
- Gathering information about what is already known about the topic
- Identifying 'gaps' in the knowledge
- Helping to limit or refine your research
- Suggesting methods and design for research
- Suggesting ways of avoiding difficulties or deficiencies
- Helping to interpret results

A successful literature review:

- Presents an overview of relevant research
- Says why and how the study will contribute to existing knowledge
- Provides a commentary on the literature in your field
- States what you plan to do to expand existing knowledge
- Highlights the similarities and differences between your work and the work of others
- Locates the research problem within a theoretical framework and reviews the underlying theory

The reading process

- Begin with the up-to-date, the well-known and general introductions to your topic (if they exist)
- Read with a purpose - know why you are reading and how it could contribute to your thesis (it's easy to get off track)
- Be disciplined about reading only what is relevant

- Prioritise your reading

- Devise a personal note taking system
- Develop the discipline of reading and taking notes rather than photocopying to read later

**Managing the large amount of information**

- Devise a system of filing articles and references
- Keep careful records of source ideas, papers, quotes etc
  Using bibliographical software can help e.g.Endnote

The writing process

- Read literature reviews - ask your supervisor to recommend good ones
- Outline your ideas before you start - themes, questions, propositions, logical steps in an argument
- Draw a diagram or mind map of relationship between ideas
- Write summaries of individual sections (you can delete these from the final version)
- Write regularly
- Talk about ideas before, during and after writing them down -organise a group of fellow students and have regular sessions when you can share and clarify your ideas
- Get regular feedback on what you write - from a naïve reader, from a peer in the same subject, and from your supervisor - ask them to give you feedback on something specific e.g. for clear writing style, or clarity of ideas and concepts

Writing the literature review:

- Work from the general to the specific - from tertiary sources (textbooks) to secondary sources (reviews of research) to primary research (journal articles documenting original research)
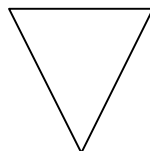
- Organise the literature around findings, ideas or themes rather than studies or authors
- Focus on writing the literature review as a logical argument which leads the reader to your research question or problem

- Do all of the following: * describe
  * summarise
  * clarify
  * evaluate and critique
  * synthesise and integrate

  but keep the emphasis on evaluating/critiquing and synthesising and integrating
- Aim to keep your 'voice' central by using evidence to support <u>your</u> points

Reference list

Cotterall, S. (2001). Writing a literature review. *Postgraduate seminar 2001*. Student Learning Support Services and PGSA: Victoria University.

Hamilton, A. (1990). *Writing dissertations*. London: RIBA Publications Ltd.

Madsen, D. 1992. *Successful dissertations and theses San Francisco: Jossey-Bass*

Rountree, Kathryn, Laing, Tricia.(1996). *Writing by degrees: A guide to writing theses and research papers*. NZ: Addison Wesley Longman