

# Research Skills

Advanced MSc and PhD Students

<http://www.cs.bham.ac.uk/~jxb/rs.html>

## Lecture 4 Organised and Systematic Literature Search

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# Summary of previous two lectures

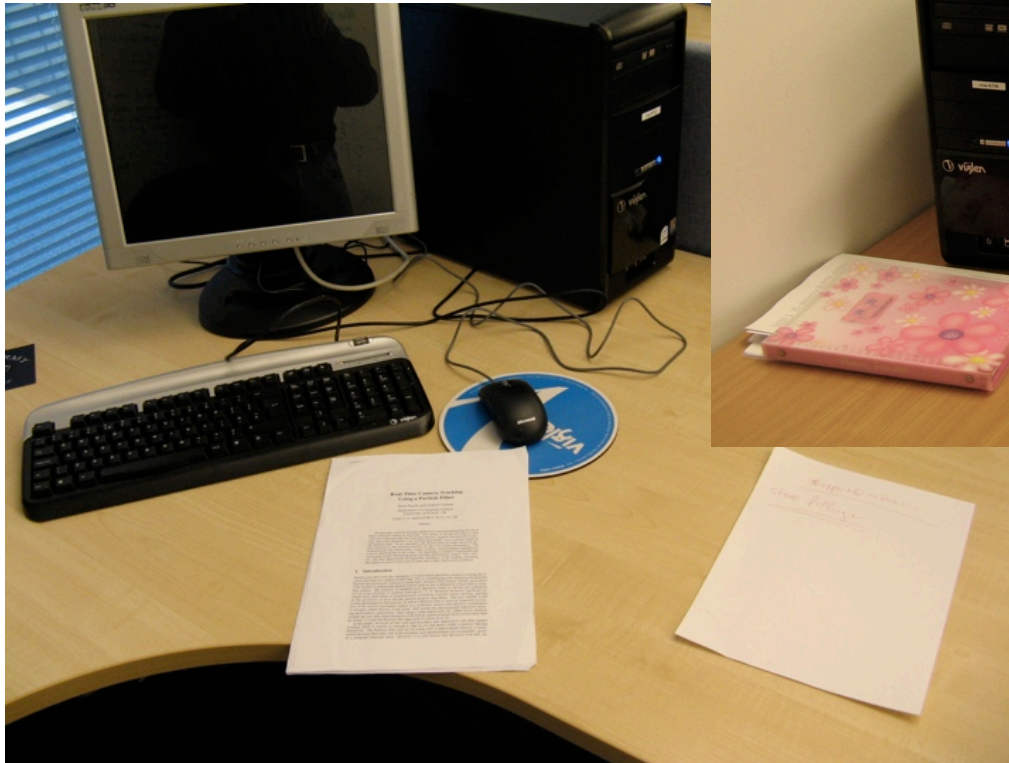
- Importance of literature search and review
- Forms of scientific dissemination
- Search strategies
- Changing scenario for databases and search
- Overview of search engines and search techniques
- Use of keywords
- Access to university resources

# Literature searching & review

A **long process** that can last months or years

- **Not** always **continuous** in time
- The amount of **information** gathered **increases with time**
- It can **change direction** in time or simply **focus** on different aspects (sub-field) of the general topic

# Literature searching & review how it starts



# Literature searching & review how it might end up



# Literature searching & review

➡ **It becomes difficult to**

- **remember** papers, terms and keywords, authors already reviewed
- **know** what was found already and what still need to be searched
- **retrieve** again a paper that has been found and read earlier

If one doesn't remember all the papers and terms, doesn't have a clear picture of what was found and not, has difficulty fetching papers already found

➡ **literature search is unsystematic and sub-optimal**

# Organisation and systematic search

A **systematic literature search** can be more easily performed if the **incoming material** is kept well **organised**

- What keywords have I used so far?
- How many papers did I find on a certain topic?
- When was that I last found a paper with a given keyword?
- What are the catalogues I have used so far?
- Can I quickly gather all the papers I found on a certain topic?
- Can I quickly retrieve a paper with a certain title, author?
- Considering the result so far, what and how should I search more?

# Organisation and systematic search

How can one answer all the previous questions?

**Reference management software could help!**

[http://en.wikipedia.org/wiki/Reference\\_management\\_software](http://en.wikipedia.org/wiki/Reference_management_software)

**A comparison of software**

[http://en.wikipedia.org/wiki/Comparison\\_of\\_reference\\_management\\_software](http://en.wikipedia.org/wiki/Comparison_of_reference_management_software)

Note:

- the use of Bibtex files with Latex will be explained in Lecture 6
- the correct way of citing and referencing will be explained in Lecture 12

# Organisation and systematic search

## Overview of JabRef

- JabRef is reference management software. It's free and available for Windows, Linux and Mac OS X

Note: JabRef is one example, other software can also be good or more suitable to personal requirements

### Demonstration on how one can

- Insert entries with keywords, abstracts, comments, reviews
- Link entries to downloaded PDF files
- Search entries (authors, titles, etc.)
- Visualise entries by keyword (groups)
- Use date of entry insertion to track the progress and arrange reading and new searches
- Use this organised information to formulate new searches

# JabRef interface

The screenshot displays the JabRef software interface. On the left, there is a 'Search' panel with options for 'Search All Fields', 'Clear', and search modes: 'Incremental', 'Float' (selected), and 'Filter'. Below this is a 'Groups' panel listing various topics like 'Norepinephrine', 'Prediction', 'evolving neural networks', 'Fuzzy logic', 'Aplysia' (highlighted), 'GasNet', 'Hippocampla theta rhythm', 'Neuroevolution', 'Neuroscience', 'learning', 'GABA', 'Ethology', and 'ANNs'. The main window shows a table of bibliographic entries under the file 'thebib.bib\*'. The table has columns for #, Local-url, Entry type, Author, Title, Year, Journal, Date-added, and Bibtexkey. Entry 1 is selected. Below the table, the 'Article' view is open, showing fields for Author, Title, Journal, Year, Volume, Pages, and Bibtexkey. The 'Required fields' tab is active. At the bottom, a status bar indicates 'Status: Updated group selection.'

#	Local-url	Entry type	Author	Title	Year	Journal	Date-added	Bibtexkey
1	baxter...	Article	Baxter et al.	Computational {M}odel of the ...	1999	Journal of ...	2007-07-...	baxter...
2	bremb...	Article	Brembs et al.	Operant {R}eward {L}earning...	2002	Science	2007-03-...	bremb...
3	burrell...	Article	Burrell and Sa...	Learning in simple systems	2001	Current Op...	2007-03-...	burrel...
4	carew...	Article	Carew et al.	Classical conditioning in a sim...	1981	The Journal...	2007-07-...	carew...
5	deodh...	Article	Deodhar	{S}tudies on {N}euromodulati...	2000	Adaptive B...	2007-07-...	deodh...
6	kandel...	Article	Kandel and T...	Heterosynaptic facilitation in n...	1965	J. Physiol.	2007-05-...	kandel...
7	marcu...	Article	Marcus and C...	Developmental emergence of d...	1998	PNAS, Neu...	2007-07-...	marcu...
8	roberts...	Article	Roberts and G...	Learning in Aplysia: looking at...	2003	Trends in ...	2007-01-12	Robert...
9	sunSc...	Article	Sun and Scha...	Binding of {S}erotonin to {R}...	1998	The Journal...	2007-07-...	sunSc...

**Article View:**

- Author:** Baxter, Douglas A. and Canavier, Carmen C. and Clark, John W. and Byrne, John H.
- Title:** Computational {M}odel of the {S}erotonergic {M}odulation of {S}ensory {N}eurons in {A}plysia
- Journal:** Journal of Neurophysiology Toggle abbreviation
- Year:** 1999
- Volume:** 82
- Pages:** 1914-2935
- Bibtexkey:** baxterCanvierClarkByrne1999

Status: Updated group selection.

# Organisation and systematic search

## Ref. Management Software

- PDF files can be viewed instantly from the database
- Searches on terms, authors, journals are easy to perform
- Overview on keywords allows to see how well all areas of interested are covered
- Insertion time-stamp allows to track the progress of search, or to postpone reading of papers without forgetting

# Literature search: how to secure your progress - I

JabRef, as other software, stores information in plain text in a file with “bib” extension

The database ideally is updated daily or weekly and in time (years) can grow from few entries up to hundreds (for a PhD)

Suggestion: use **version control system (VCS)** to **secure your progress**

# Literature search: how to secure your progress - II

The School of Computer Science has a **Subversion Service** available to all postgraduates

At <http://supportweb.cs.bham.ac.uk/services/subversion/> are the instruction on how to set up the service

Useful not only for your bibliography file but also for plain text files that are updated frequently:

- The log file of your activity
- Software you are coding
- Thesis