Literature Review/Scientific Paper

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40/60 credit Students

- 40 credit project students (3 year BSc/BEng students):
  - Literature Review
  - Deadline: 17th November, noon.
- 60 credit project students (4 year MSci/MEng students):
  - Scientific Report
  - Deadline: 24th November, noon.

General Resources

- Scientific Writing:
  `https://birmingham.instructure.com/courses/11843`
- Report Writing:
  `https://birmingham.instructure.com/courses/11845`

Literature Review

- 40 credit project: Forms a section in your Final Report, assessed as part of your Final Report
- 60 credit project: Forms a section in your Scientific Paper
- Detailed guide:
  `https://birmingham.instructure.com/courses/27524/pages/writing-a-literature-review-a-practical-guide`
- Continue to refine and extend after submission for inclusion in Final Report
- NOT just a list of references

Literature Review

Contains a broad list of references that should be read to fully understand:

- The project
- The project's context
- Previous work that the project builds on
- Previous work that the project differentiates itself from
- Issues raised in previous work that this project addresses
- Can include references to systems (e.g. related applications)
  - But should contain primarily references to published peer-reviewed papers and books

Literature Review

However, the literature review **ORGANISES** this information:

- Structure the references and the work described there
- Provide a framework to help the reader see where each reference fits in
- Provide general summaries of the work that has been done and identify which papers contributed to each concept, development in the area, system or piece of work
- Organise the review around the work, rather than simply going through each paper one by one
- Look at the background sections/literature reviews in research papers to get a good idea for what is required (these are usually 1 to 3 pages long)
- Look at the ACM Computing Surveys for extensive literature review examples (these can be hundreds of pages long!)
- In general, the literature review is a combined map and guidebook to the literature relevant to the project

60 credit Scientific Paper

- Worth 10%, assessed separately from your Final Report
- Usual penalties for late hand in
- Pre-requisites are reading handbook, project proposal, ethics form
    - Without these, you will not be able to submit the paper

Content

- Depends on the nature of your project: discuss with supervisor
- Any of the following are potentials:
  - Work-in-progress
  - Literature survey
  - Conceptual/thought experiment
- You should be spending a large part of your time reading papers, so should become familiar with what is needed

Format

Use an official recognised format/style file/template for your area. The following is appropriate but variations are possible (discuss with supervisor

- Latex Article style
- Abstract
- Introduction
- Related Work/Literature Review
- Work done/proposed
- Experiments carried out/planned
- Discussion
  - of results and evaluation if any yet
  - of justification for work and experiments planned and of expected evaluation approach otherwise,
- Conclusions/Summary
- References

Format

- Scientific language needed
- Clarity of exposition, argument, discussion
- Recognised structure
- Effective referencing
- No plagiarism
- Length 12 ± 4 pages

Project Types

Projects types influences literature review and scientific report:

Research project

- standard literature review and scientific report

Exploratory development

- What are you exploring?
- Literature review should make clear what is known about the area, what has been explored before and provide evidence necessary to justify your exploration
- Scientific report will justify your approach, present the experiments you intend to carry out and explain how you will evaluate the results

Project Types

Application development

- What is specially challenging about this application?
  - Algorithms?
  - Computer Science technologies?
  - Complex problem area?
  - Hardware integration?
  - Security issues?
  - HCI issues?
  - Software engineering approach?
  - Complex domain requiring sophisticated requirements capture and analysis?
- These challenging aspects form the target of your literature review or scientific report
- If there is nothing special about the application you are developing, then you should discuss with your supervisor and with the projects coordinator

Assessment Guidelines

- On Canvas
  - `https://birmingham.instructure.com/courses/22665/pages/scientific-paper-assessment`
  - `https://birmingham.instructure.com/courses/21859/pages/marking-descriptors`
- Read them carefully so you understand the depth and detail we require, and what we are looking for when we assess the work
  - A penalty of 5% reduction to the mark actually achieved will be imposed for each day that the assignment is late until 0 is reached.

Plagiarism

There are a number of ways that you can get in trouble with plagiarism in your report:

- Getting someone else to compose your report
  - it doesn't matter if you physically write it yourself or not — it is plagiarism if someone other than you came up with the contents and you don't make that clear
- Copying material (e.g. text, images, code, diagrams, etc.) from sources (web pages, Wikipedia, published papers, magazine articles, other student's work, etc.) and not making clear exactly what was copied, where it was copied from and who the original author was
- Incorrectly identifying one source as a different one
- Using someone else's ideas, words or results without giving appropriate credit
- Reporting as your own results evidence, experiments or work that were invented, fabricated or taken from other peoples' work and that you did not, in fact, find or carry out yourself.

Plagiarism and Cheating in Detail

More ways to get into trouble with plagiarism or cheating:

- Buying or commissioning work or reports
- Self-plagiarism: copying from previous work you have done that you have already received credit for without proper referencing is plagiarism
- Collusion between students to produce work that is then claimed as the individual work of a student (excluding the case of allowed group work)
- Unacceptable proof reading: rewriting text by a proof-reader purely to improve the written English is acceptable. Rewriting text by a proof-reader to improve the arguments is not
- In summary: any attempt to deceive the markers of your work is considered to be plagiarism or cheating

Avoiding Plagiarism

- When using another author's exact words:
  - Quote the text: at least use quotation marks. If it is more than a line, put it into an indented block
  - Cite the author: can be as footnote or as link to references at end of report, but the link **MUST** be clearly attached to the quote
- When paraphrasing the author or describing the author's idea or results
  - **ALWAYS** write in such a way as to clearly distinguish the author's words thoughts and ideas from your own
  - Cite the author
- Note that where you have **ANY** material (text, images, etc.) that you do not have a citation attached to, you are claiming that to be your own idea or understanding expressed in your own words

Citations

There are three parts to a citation:

- The identification of what the citation applies to
- The reference that is being applied
- The connection between the two, which `MUST` be unambiguous

Identifying what the citation applies to

- Martin Luther King, in his famous "I have a Dream" speech in 1963, expressed his hopes for...
- In [Knuth 1965], an algorithm was presented that...
- There are a number of approaches to parsing programming languages in the literature [3,5-10,14,28].
- *"The question is, however, what type of automaton is capable of accepting precisely those languages for which a bounded context grammar can be given."* [Knuth 1965]

The reference

- A reference at the end of the report or in a footnote must be sufficient to unambiguously find the source material
- If the reference is to a web page, include: web link, date of last access and author (if the author is identifiable)
- If the reference is to a book, include: Authors, title, publisher, date of publication. Include chapter/section/page number if referring to a particular part of the book rather than the whole book in general
- If the reference is to a journal article, include: Authors, title, journal name, date of publication, volume, issue and page numbers
- If the reference is to a conference article, include: Authors, title, conference title, publisher, date of publication, page numbers
- etc.

When you don't need to cite

In general, you do not need to cite information that can reasonably be considered to be common knowledge for a final year computer science project student:

- You do not need to cite a claim that Java is a programming language
- You do not need to cite each individual use of Java code from a book/web site to create a window or to write to a file
- You do not need to cite the standard Java library Javadocs, unless you are doing something unusual and need to justify it with a quote from there