CM50175 – Research Project Preparation

Project Proposals

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Outline

- Where You Should Be
- Organizing a Project
- Organizing a Dissertation
- Organizing a Proposal
- Summary of Course

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Where Are We Now?

- You've been assigned a supervisor.
- You've negotiated a project area.
- You're starting to get a clear idea about your project.
- You won't precisely know your dissertation thesis until you've done your project / research.

Where Should We Be Soon?? (1 of 2)

- You've read a great deal.
  - You may have read many papers and / or web pages, manuals, articles. $\Rightarrow$ You are organizing a review of this literature, sorting the good from the bad, the useful from the irrelavant, and explaining your catogories.
  - You may have read a few key papers or books and taught yourself about a field. $\Rightarrow$ You are preparing a summary of what you've learned, so a peer could read your dissertation to get a good grasp of the field your project is in.

Where Should We Be Soon? (2 of 2)

- You've downloaded / found tools, compilers, related projects, and started playing with the code.
  - You have some idea how long parts of your project will take.
  - You may have chosen between tools $\Rightarrow$ you can review and explain your choice.

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Organizing a Project (1 of 2)

- Figure out what you are going to do.
  - Goals and subgoals for the project.
  - Start-up tasks (e.g. learning tools.)
  - Ending tasks (analysis, writing up.)
- Estimate how long each part will take.
- Realize your estimate will be wrong!
  - Order your priorities.
  - Do critical things early.
  - Two lists: needs and wants.

Organizing a Project (2 of 2)

- Timeboxes and Anytime Algorithms.
  - Don’t let the whole project collapse if one thing goes wrong.
  - Choose development strategies that give something early, get better with more time.
- Prototype, prototype, prototype and test!
- Some things may go faster than you expect.
- Not ‘unfinished stuff’; Future Work.

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Organizing a Dissertation (1 of 2)

- Read the notes on the web page!
- Components: Introduction, Conclusion, Motivation, Background, Methods / Approach, Results & Analysis, Implications, Future Work.
- Structure depends on thesis
  - "Prolog is a good tool for building dialog tools."
  - "I've built a dialog tool that helps resolve international conflict."
- Importance of Evidence, Methods, depends on thesis.

Organizing a Dissertation (2 of 2)

- Immense details that someone may want but that break the narrative structure belong in the Appendix.
  - Code
  - Complete raw results of experiments.
  - Immensely detailed description of GUI.
  - Less critical theorems, equations, derivations.
- A dissertation should be something someone would actually read.
- A dissertation should be something someone could actually read, and quickly (help skimmers!)

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What's in a Proposal?

- A description of the project, including:
  - The project's primary and secondary goals.
  - The approach to be used, including an approximate timeline that shows flexibility.
  - How you expect to evaluate it
- Motivation
- Background, including related work.
- "A comprehensive literature review which supports all of the above."

How is it Structured?

- “A 3-5 page Introduction which summarizes the expected main argument of the dissertation.”
- This is all I’m going to read, so all the things marked by the ‘moderator’ had better be in there!
- Other structure determined by how you prioritize your goals.
- Be sure to include a Conclusion or Summary (see notes on Essays!).

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Course Objectives

(verbatim from the Unit Description)

- Students will be able to undertake a literature review,
- critically review previous work in a chosen subject area,
- prepare a project proposal and
- understand the principles of structuring a dissertation.

Other (Bonus) Lessons

- Importance of prototyping, flexible scheduling.
- Importance of networking with peers.
- How to use latex (possibly! See `~cssjjb/README-STUDENTS-LATEX` on BUCS unix)
- What professional computer scientists (and electrical engineers) do.

Some Nearly Final Comments

- Don’t forget about WebofScience!
- Do look at other dissertations (*skim* them for structure, argument.)
- Do look at the web page (to be revised today!) for last year’s best proposal.
- Don’t forget that we have a mandatory seminar on 22 April (in the lecture slot.)
  - That will be on the proposal.
  - No seminar 23 April (unless you really want it!)

For the Seminar Tomorrow

Be prepared to discuss your literature search:

- Good and bad papers you've found so far.
- Other sources of papers that you haven't explored yet,
  - Have you thought of all the related fields?
  - Have you thought of all the resoruces available?
  - Have you found something that might be useful to someone else in your group?

Good Luck! Have Fun!

Work Hard!

Yes, you can still email me (I may even get caught up on mail sometime in April):

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`http://www.cs.bath.ac.uk/~jjb/here/teaching.html`