CM50175 – Research Project Preparation

Writing Dissertations

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Outline

- More briefings: Finding resources / literature, doing research.

- What does a dissertation look like?

- How do you use latex and bibtex?

How Do You Find Papers?

- How do you read papers? `http://www.cs.bath.ac.uk/`
  `~jjb/here/msc-lectures03.html`

- Start from a trusted source (supervisor, library searches, google.)

- Look at a good (or famous) paper's past.

  – What does it reference?

  – What does it talk about? (Good *and* bad!)

- Look at it's present (authors, labs).

- Show your review to an expert.

Research Requires Records

- Keep lots of records:

  – notes on what you think,

  – notes on what you read,

  – versions of working programs,

  – data (results, output).

- Organize things by date.

- Keep track of connections (e.g. data, program, theory.)

From the First Lecture...

- **What's in an essay?** A thesis argument, evidence to support it, and analysis of that evidence.

- **How is a dissertation different?** It's longer and contains reports. But mostly, it's not different.

Does a Dissertation Need a Thesis?

- Yes.

- Any dissertation has at least one thesis.

- One of your jobs in writing your dissertation is to *prioritize* your theses.

- Another is to make them clear.

Example Theses from Application Dissertations (1 of 2)

- "Control-flow analysis is feasible and useful for higher-order languages." — Olin Shivers
  - Explained how to do CFA for higher-order languages (feasible).
  - Demonstrated the kinds of optimisations it enables (useful).
- (Examples from Shiver's Dissertation Advice, linked from my lecture notes page.)

Example Theses from Application Dissertations (2 of 2)

- "Ordinary scientific programs can be compiled for a new parallel architecture called VLIW (Very Long Instruction Word), yielding order of magnitude speedups over scalar architectures." — John Ellis

- "This dissertation shows that operating systems can provide fundamental services an order of magnitude more efficiently than traditional implementations. " — Henry Massalin

Examples from Dissertations

- Where is the Thesis?

- Where is the Evidence?

  - From the literature?

  - In terms of results?

  - In terms of arguments?

- Where is the information for replication?

Quick Introduction to Latex and Bibtex

- Pros: Does all the tricky / boring things for you:

  - Numbering chapters, sections, figures.

  - Making index, bibliography.

  - Formatting very prettily.

- Cons: Isn't WYSIWYG:

  - Have to look up commands frequently, e.g. for equations.

  - Not certain where figures will print!

  - Have to compile to see output.

Suggestions for Learning Latex

- Start small! E.g. letters, assignments.

- Start from a template (I'll give you one soon.)

- Bookmark the most useful web pages.

- Work with friends.

- Read web pages next week!

Outline

- Some more discussion about finding resources / literature.

- What does a dissertation look like?

- How do you use latex and bibtex?