CSC 590 Lecture Notes Week 6

Overview of Assignments 3-5
Discussing Related Work in a Thesis
I. See writeups for

1. Assignment 3 -- related work chapter

2. Assignment 4 -- validation chapter(s) or section(s)

3. Assignment 5 -- final presentation aka, "defense lite"
Where does related work go in a thesis?

A. As seen in several examples, it goes in one or more chapters.

B. A background chapter can come early.

C. A detailed compare-and-contrast can come early or later.

D. The discussion may go in several chapters, none titled "Background" or "Related Work".
III. A "Background" chapter.

A. Such a chapter is typically necessary if thesis subject matter is not "mainstream" for the intended audience.

B. The "intended audience" consists of any computer scientist with a BS+ degree, i.e., a BS plus some grad work.

C. Such a chapter provides tutorial-style intro for readers who’s field is not that of thesis.
IV. An explicit "Related Work" chapter.

A. This is the heart of the matter.

B. The key aspects are these:

1. Must cover all of the important related work.

2. Must do a detailed compare-and-contrast style treatment of directly related work.
Related work key aspects, cont’d

3. Typical in MS, state limited focus vis a vis related work.

4. Running comparative example may be appropriate.

5. By end, reader should be fully clear where your work fits in state of the art.
V.  Brett Cannon’s type inference experimental project.

A.  Related work covered in three chapters, each including other technical content.

B.  No single chapter entitled "Background" or "Related Work".
Brett, cont’d

C. Chapter on type inference algorithms.

1. This is essentially background.

2. Covers key algorithms.

3. Discusses them thoroughly.

4. Good for readers who’s field is not PLs or compilers.
Brett, cont’d

D. Chapter on type inference in python.

1. Another background chapter, intermixed with discussion of technical problems.

2. Good for readers who are not intimately familiar with Python.
Brett, cont’d

E. Ch on previous attempts at Python type inf.

1. This is a focused "related work" chapter.

2. It compares and contrasts the thesis work to two other attempts at Python type inf.

3. These are the only known works in this particular area.
VI. Brandon Wirick’s Lojban project.

A. This thesis has two archetypal chapters.

B. Chapter 2 is entitled "Background"

C. Chapter 3 is entitled "Literature Review"
Brandon, cont’d

D. Background chapter covers:

1. The semantic web.
2. Ontologies in OWL.
3. Lojban.

-- it could have done more on ontologies.
Brandon, cont’d

E. Literature review chapter covers several approaches to NL translation into ontologies.

1. A weakness of this chapter is that it does not compare and contrast in detail thesis work to others.

2. This is potential problem with any related work chapter that comes early in thesis.
Brandon, cont’d

3. Later chapter 7 on results analysis could have done compare and contrast, but it does not (in this particularly thesis).

4. This is a weakness; cf. Brett’s comparison to "all known attempts".
VII. Julie Hatalsky’s statistical survey.

A. Here again, two archetypal chapters.

B. Chapter 2 entitled "Background".

C. Chapter 3 entitled "Previous Work".
Julie, cont’d

D. Background chapter covers:

1. Survey theory.
2. Phases of SE.
3. Prototyping.

-- organization is fine; thesis weakness is not here, but in definitional focus
Julie, cont’d

E. Previous work chapter covers seven previous studies.

1. Provides good coverage of other work.

2. Compares and contrasts other work to each other.
Julie, cont’d

3. Some but not thorough compare and contrast to work of thesis.

4. As with Brandon’s, not comparison in later results chapter either.
VIII. Randy Skovil’s codec survey.

A. Give pure survey nature of thesis, it’s essentially one big "related work" treatment.

B. There is an initial chapter on digital audio fundamentals.

C. Four tutorial style technical chapters follow.
Randy, cont’d

D. Chapter 7 on "Codec Criteria" is a good model for a compare/contrast methodology.

1. It presents a specific set of criteria by which related work can be compared and contrasted.

2. Such a methodology can be used on any thesis.
IX. Summary observations.

A. Having a common example as basis of comparison.

1. E.g., the common benchmark that Bret uses.

2. Or the common audio transmission problem that Randy presents.
Summary observations., cont’d

B. Developing rigorous evaluation criteria.

1. E.g., the codec criteria that Randy presents.

2. Not always necessary, but can greatly strengthen results.
Summary observations, cont’d

C. The critical importance of clarifying your contributions.

1. Discussion of related work plays key role in explaining why your work is worthwhile.

2. The reader should be left with the distinct impression that your thesis contributed something new in the world, compared to what came before.