COE 545, Term 002

Digital System Testing

List of Proposed Projects

I. Implementation Projects:

1. Test vector compression using modified FDR codes.

2. Test set relaxation and reordering for reducing scan vector power dissipation.

3. Random test pattern generation utilizing test vector relaxation.

4. Sequential circuit test set compaction based on reverse order vector restoration.

5. Sequential circuit test set compaction based on inert subsequence removal.

6. Test set compaction for combinational circuits.

II. Survey Projects:

1. Embedded core testing.

2. FPGA testing.

3. Test power minimization techniques.

4. Low power Built-In Self-Test (BIST) techniques.

5. Fault diagnosis in a BIST environment.

6. Memory BIST.

7. Fault & design error diagnosis in digital VLSI circuits.

8. Fault diagnosis for semiconductor memories.

9. Iddq testing and built-in current monitoring techniques.

10. Online testing techniques.

11. Testing methodologies used in Microprocessors.

12. High-level automatic test pattern generation and testability analysis techniques.

Implementation projects involve implementation of a particular technique and have research flavor. You will be given the idea or the algorithm to implement and I will be supervising you closely on the project.

However, survey projects involve reading the literature related to the surveyed subject and acquiring a very good level of understanding on the subject. For this type of project, it is required that you cover most recent work and essential work in the survey.

For both types of projects, a detailed report describing your work has to be submitted. The deadline for report submission is **Sunday, May 20**.

The following conferences and journals are excellent resources for testing literature:

- International Test Conference (ITC),
- VLSI Test Symposium (VTS),
- Design Automation Conference (DAC),
- Design Automation & Test in Europe (DATE),
- Asian Test Symposium (ATS),
- International Conference on Computer-Aided Design (ICCAD),
- International Conference on Computer Design (ICCD),
- Fault Tolerant Computing Symposium (FTCS),
- IEEE Transaction on Computer-Aided Design,
- IEEE Transaction on Computers,
- Journal of Electronic Testing and Test Applications (JETTA),
- IEEE Design & Test Magazine,
- IEEE Transaction on VLSI.

III. <u>Important Dates</u>:

Activity	Date
Progress Report#1	*Tuesday, March 20*
Progress Report#2	*Sunday, April 22*
Final Report	*Sunday, May 20*