HOMEWORK TWO

Marek Perkowski

- This class is supposed to prepare you to develop new CAD algorithms

- To achieve this goal, you should have some knowledge and some skills.

- You should be able to understand algorithms and be able to develop software - this was tested in homework 1.

- You should be able to read the recent research literature from international journals and conferences - this will be tested in homework 2.

- You should be able to actively participate in international research community by presenting conference papers - this will be tested also in homework 2.

What you have to do

Your tasks are to understand recent research papers and concepts and present them in a simplified way to other students in the class.

Some of you will base their presentations on papers from my US Webpage.

Some other will base their presentations on my Friday meeting with you. Both groups will exchange their parts of knowledge and ultimately every student should understand all the material presented by you.

I will evaluate: (1) quality of your slides, (2) quality of your oral presentation, (3) depth of your understanding (4) innovative ideas (if any - not required, but very welcome)

What you have to learn and review

Test and diagnosis, stack-at and delay model, multi-valued logic - basic gates, concepts and maps. Multi-valued diagrams. Kronecker and Functional Decision diagrams.

Shannon, positive Davio, negative Davio and mulit-valued expansions.

SOP, ESOP and PPRM circuits. Role of muxes in design.

Basic quantum gates, reversibility, ways of constructing gates in reversible and quantum logic, control versus data signals, quantum simulation, quantum synthesis, matrix multiplication and Kronecker multiplication, elementary operations in Hilbert space. Decision Diagrams for quantum logic.

For those who will read papers

- Go to USA page of Perkowski, starting from top of class Webpage
- Go to ECE 572/ECE 672, password and user id I gave in class
- Go to 1. INFORMATION FOR THE CLASS FALL 2002
  - 4. Reading Assignment
- Go to Part A.6
  - 1
- Go to Part A.7
  - 1, 2, 4, 5, 6
- Go to Part A.8
  - 1

Students will assign tasks and organize order of presentation by themselves. You do not have to read all these papers, but all papers should be ultimately presented in class

For those who will base presentation on Friday meeting

- Write slides based on what we discussed during the meeting
- My slides below will help, but they cover too much. You have to present in class only the topics that we discussed in Friday's meeting.

Students will assign tasks and organize order of presentation by themselves. All group members must understand the entire presented material and be able to help other students if asked questions.