
MO801/MC972 - Tópicos em Arquitetura e Hardware - Methodologies and Tools for Computer Architecture Research

Update

03/aug Classroom assignment. Our lectures will take place at CC52.

30/jul The first week of this semester is reserved to SECOMP (<http://www.secomp.com.br>). Regular classes will start on August, 10th.

30/jul Important dates in the school calendar: Graduate (<http://www.dac.unicamp.br/portal/pos/calendarios/calpos2015/index.html>) and Undergraduate (<http://www.dac.unicamp.br/portal/grad/calendarios/calgra2015/index.html>) programs.

Description

This course will cover tools and methodologies for Computer Architecture research including modern simulators, benchmarks for single/multi-cores and clusters. We will study recent papers on the area and how they model pipelines, caches, execution engines, power evaluation, etc.

Bibliography

The recommended bibliography contains:

- Processor Microarchitecture: An Implementation Perspective. Antonio González, Fernando Latorre and Grigorios Magklis. Synthesis Lectures on Computer Architecture. Morgan & Claypool Publishers.
- Recent papers from Top Conferences

Evaluation

Written exam: 40% of final grade.

Projects: 60% of final grade.

Any unethical behavior related to the evaluation process will result in failing the course with the lowest possible grade. Every assignment is an individual assignment unless otherwise mentioned. Students are not expected to talk to each other about solutions to the assignments unless otherwise mentioned.

Office hours

I will provide 1h of office hour before each class. If you need more or alternative time, feel free to schedule by email.

Course Projects

Project 1

Task 1: Count the number of instructions in each SPEC 2006 benchmark programs execution.

Questions:

- Is there any variation?
- How long should it take?
- How long did it take?

Task 2: Do something else with this infrastructure (PIN and SPEC).

Oral presentation at September 2nd.

Create a folder called **project1** in your repository. Put two files in it: count.csv and presentation.pdf. count.csv should have 2 columns: program name, instruction count. presentation.pdf is a 5 minutes presentation of your project.

Schedule

Date	Topic	Extra
03/aug	SECOMP (http://www.secomp.com.br)	
05/aug	SECOMP (http://www.secomp.com.br)	

10/aug	Course Overview	slides (01-Overview.pdf)
12/aug	Some basic general tools and a few examples	slides (02-make-gcc-diff-patch.pdf)
17/aug	Chapter 1 - Introduction to Microarchitecture	slides (03-Introduction.pdf) video (http://cloud.swivl.com/v/02df31300255479f6ee432d92b93a382)
19/aug	PIN and dinero tutorials	PIN slides (04-PinTutorial.pdf) and dinero slides (04-dinero.pdf)
24/aug	Project time	
26/aug	Chapter 2 - Caches	video (http://cloud.swivl.com/v/ffd74423f97ec80b795da2dd8b26eaaf)
31/aug		
02/sep		
07/sep	No class	
09/sep		
14/sep		
16/sep		
21/sep		
23/sep		
28/sep		
30/sep		
05/oct		
07/oct		
12/oct	No class	
14/oct		
19/oct		
21/oct		
26/oct		
28/oct	No class	
02/nov	No class	

04/nov

09/nov

11/nov

16/nov

18/nov

23/nov

25/nov Final exam

30/nov