CIS655/CSE661 Term Project [weblink]

The term project has two options: survey-oriented option and programming option.

There are some sample topics described in the document, and students are free to choose from the sample topics or propose new topics for their projects; the new topic should reflect the recent advances of computer architecture in recent years.

If the programming option is taken, students can work in groups; In this case, a student is allowed to collaborate with students inside his/her group (but **NO collaborations between groups**). A group can consist of up to 5 people at most; and group members are encouraged to designate a group coordinator, who should be the one to submit deliverable.

If the survey-oriented option is taken, students are required to work individually.

The requirements based on the timeline below must be submitted through blackboard; all submission links can be found following the path through "**class session -> term project**".

TimeLine

There will be four milestones where the progress of the project will be checked.

Week	Survey	Programming
MS0: Week 4 **Due: Sep. 19**	Topic assigned Deliverable format: [link]	Group/topic assigned Deliverable format: [link]
MS1: Week 6 **Due: Oct. 3**	Reference list Deliverable format: [link]	Background study and project design Deliverable format: [link]
MS2: Week 10 **Due: Nov. 14**	Preliminary report Deliverable format: [link]	System setup and deployment Deliverable format: [link]
MS3: Week 12	Final paper/presentation	Final report/demo

Due: Nov. 24/Dec.12	Deliverable format: [link]	Deliverable format: [link]

Programming option

Students taking this option are expected to choose from sample projects, follow the project instructions and set up and deploy the system, implement the designed components, conduct benchmark study and performance analysis, and demonstrate the designed system.

Sample projects

1. Request-level tracing in big-data distributed systems: [link]
2. Intel SGX/Enclave emulator: [link(TBA)]

Final deliverable

1. Demo of a up-and-running system with the designed component
2. Report including measurement results, and detailing the contribution of each team member.

Survey-oriented option

Students taking this option are expected to choose one topic from the provided ones (or make a proposal), find related references (research papers, technical official blogs, white papers and open-source projects), write a >15-page technology review.

Note that this can be more than a pure "text-writing" task --- students are encouraged (there will be bonus points) to explore existing open-source projects and to demonstrate the practical aspects of the topic (e.g. what kind of new APIs are made available to software programmers).

Sample topics

1. Cloud architecture [and the case of Amazon AWS]

2. NVM/SSD
3. Software-defined networking [and the case of OpenFlow]
4. Virtualization [and the case of XEN]
5. GPGPU [and the case of GPUOcelot]
6. Internet of things
7. others: SSD, FPGA, etc

References

References should be in high quality; for good research papers, they are usually published in premier conferences (e.g. ISCA, MICRO, HPCA, OSDI, SOSP, EUROSYS, NSDI, ASPLOS, SIGMOD, VLDB, etc); for technical blog and white paper, they should be the ones posted by reputable companies (e.g. Google Research Blog, Blog@Intel, etc); Open-source projects can be found in Apache website and etc.

Final deliverable

1. Final paper of more than 15 pages in single-column format,
2. Presentation that summarizes the results of the survey,
3. Bonus point: find working open-source project and demonstrate a running system.