Term Project
Advance Computer Architecture
Fall 2020

For your term project, you have to do research by choosing a topic related to Computer Architecture, Secure Architectural solutions or Parallel and Distributed systems

Following are some suggestions regarding Research Topics. You can choose your own topic from the viewpoint of the hardware, compiler and operating systems but that topic should be approved first to start working on it.

Submission:

There are 3 phases.

In **first phase** you will submit your proposal. You have to submit two/three pages project proposals including a short description of your topic and a list of references by Monday, 9th of November. Earlier you finalize, more time you get to work on topic and get better grades.

In the **second phase** you have to submit your report in soft form till Monday 30th of November. Feedback will be provided to improve the quality of paper and resubmit the work within two weeks however, keep in mind that each submission will have its weight-age, better you work, higher the grades that will be awarded. You have to submit your work in IEEE research paper format on or before 30th of November.

In **third phase** you have to present your work through a presentation. Presentations will start from Wednesday 2nd of December and schedule for each group will be shared at the end of this month.

Instructions:

i. Up to 2 students can work in a group but each one should clearly mention and defend his/her contribution in the term project. Marks will be assigned individually based on performance.

ii. You cannot choose a topic which was selected in previous semesters. You can consult with me before choosing a topic. In case a work is found repeated from previous terms, 0 marks will be awarded.

Research Topics

1. Emerging Architectures for IOT devices and embedded systems
2. Security-enhanced architectures and services in IoT
3. Software defined Security
4. Cloud computing advances and architectures
5. Wireless architectures for IoT
6. Hybrid wireless and wireline sensor network architectures
7. Service oriented architectures for IoT
8. Model-driven approaches for architecture design
9. Security aspects for a secure hardware
10. Cyber physical systems
11. Architecture for mobile devices
12. Mobile Edge computing
13. Mobile cloud computing
14. Many-core, multi-core architectures
15. High performance computing architectures
16. Context aware architectures
17. Supercomputing architectures
18. Fog Computing

19. Hardware-software co-design systems
20. Network-on-chip: Current Architectures, their issues and challenges
21. Active Networks as a Computer Architecture
22. Self-Organization in Computer Architecture
23. Intelligent Memory Computers – Imbedding Processors Directly in the Memory
24. Message Routing and Process Management in Multiprocessor System
25. Hybrid Analog-Digital Computers
26. Computer Architecture based on Multi-Value Logic
27. Mechanical Computation with a Nano-Machines
28. The Effect of Coupling and Coupling Strategies in Concurrent Computation
29. Software defined networks
30. DNA computing
31. Latest development and issues in GPU architectures
32. The Transputer
33. Tagged-Data Architecture – Direct Typing of Data
34. Grid and Cluster architectures