PARALLEL PROCESSING ARCHITECTURES
CS213 SYLLABUS
Winter 2010

INSTRUCTOR: L.N. Bhuyan (http://www.engr.ucr.edu/~bhuyan/)
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LECTURE TIME: TR 2.10 pm-3.30 pm, **PLACE: STAT 2674**
OFFICE HOURS: W 3.00-4.00 or By Appointment

References:
1. John Hennessy and David Patterson, *Computer Architecture: A Quantitative Approach*, Morgan Kauffman Publisher.
2. Research Papers to be available in the class

COURSE OUTLINE:
1. **Introduction to Parallel Processing:** Flynn's classification, SIMD and MIMD operations, Shared Memory vs. message passing multiprocessors, Distributed shared memory, Hybrid multiprocessors
2. Shared Memory Multiprocessors: SMP and CC-NUMA architectures, Cache coherence protocols, Consistency protocols, Data pre-fetching, CC-NUMA memory management, SGI 4700 multiprocessor, Network Processors
3. **Interconnection Networks:** Static and Dynamic networks, switching techniques, Routers, Internet techniques
4. Message Passing Architectures: Message passing paradigms, Grid architecture, Workstation clusters, User level software
5. Scheduling: Multiprocessor Programming Technique, Scheduling and mapping, Internet web servers, P2P, Content aware load balancing

PREREQUISITE: CS 203A or Consent of the Instructor

GRADING BASIS:
Project I – 30 points
Test - 40 points
Project II – 30 points