General Info

Meeting hours: TTH 4:30-5:45PM
Meeting place: 137 Cudahy Hall
Instructor: Rong Ge
Office hours: TTH 9:00 - 10:30AM at 320 Cudahy Hall or by appointment through email rong.ge at marquette.edu or phone call (414)288-6344

Textbooks

1. **Required:** Designing and Building Parallel Programs (Online) by Ian Foster.
2. **Required:** An Introduction to Parallel Computing (Ed. 2, Jan 2003) by Ananth Grama et al., *Pearson Addison Wesley*. Online resource through Raynor library.
3. **Recommended:** Parallel Computer Architecture: A Hardware/Software Approach by David Culler et al., *Morgan Kaufmann Publishers* .

Course Description

This course will give students an understanding of the basic concepts of parallel and distributed systems. It will also prepare and enable them to write simple programs on parallel/distributed systems. Topics covered include basic distributed and parallel architectures, distributed and parallel algorithms, and fundamental problems in parallel and distributed computing, and basic structures and services in parallel and distributed systems.

Prerequisites: COSC3100 analysis of algorithms or equivalent.

Learning Objectives

A student will be able to

1) understand parallel computing basics including the concepts of parallel computing, parallel architecture, and parallel algorithms.
2) understand message passing and shared memory parallel programming paradigms and write parallel programs using these paradigms (MPI and OpenMP).
3) use parallel execution environment to compile, submit, and run parallel jobs on parallel and distributed systems
4) understand major performance issues of parallel systems and programs; perform basic performance benchmarking and analysis on parallel systems; apply performance evaluation and analysis techniques to evaluate parallel applications.
5) know the emerging architecture, the new challenges, and hot research topics in parallel computing.

Tentative Schedule