

Pages

ECE 7720 Parallel Architecture

Created by Allen Hill, last modified by Koushik Chakraborty on Sep 26, 2016

Announcement

Course Description

This course will cover parallelism and the design of parallel computer architectures. Historically, only a handful of people had access to parallel computers, which were primarily used to solve numerically intensive scientific computation. However, with the advent of commodity multicore systems and specialized processing engines such as graphics processor in the last decade, parallel computers have become commodity items accessible to our society at large. Software industry is currently undergoing major transformation, primarily to harness this pervasive parallelism.

This course will study various hardware techniques designed to support parallel execution across a range of real world application. We will cover various components of parallel computer systems, and design trade-offs in the light of underlying circuit characteristics. This webpage will serve as the syllabus for the course.

We will closely follow [Tentative Schedule](#), but expect to see regular updates there.

Lectures

Tuesday and Thursday 9:00-10:15 PM, EL 109

Instructor

Dr. Koushik Chakraborty

koushik.chakraborty@usu.edu

Office Hours: Tuesday and Thursday 10:30-11:45 AM, EL 255B, or email for appointment.

Readings

Closely follow the [Paper Readings](#) page for assigned readings with discussion leader.

Grading

This course will heavily depend on class discussion, homework assignments covering parallel programming, and a substantial course project. The project will be primarily research oriented.

Description	Weight
Homework	30%
Paper Discussion	30%
Project	40%

Paper Discussion

Each week, we will typically discuss one or two papers for about 15-20 minutes each. All students will be responsible to bring a short review for every paper. Your paper reviews will be peer evaluated, and your grading will be derived from there.

Paper Review Date Assigned	Description	Due Date
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Paper reviews are short summary consisting of three paragraphs:

- *Problem Addressed*: describe the main problem addressed in the paper.
- *Main Idea*: Key idea presented in the paper
- *Critique*: Your critical comment on it, where you can point out a serious drawback, possible worthwhile extension, or the implication of this work in a related topic.

In general, you should aim to write 2-4 sentences at most for each of this topic. Paper reviews are due before class, on the day of discussion. Please bring your reviews of the paper in class.

Project

A significant component of the course is a project. Depending on the specific project, students should work individually or in groups of two. You are expected to produce a 8 to 10-page conference-style paper (ACM/IEEE format) and a public presentation on a research topic. Students will decide on a research topic within the first month, and we will meet several times during the course to provide advice and make sure you are making solid progress towards your deliverable.

Homeworks

There will be three homeworks in the course.

Homework Schedule

Date Assigned	Description	Due Date
9/6/2016	Homework 1 Parallel Programming	9/29/16
10/4/16	Homework 2 GPU Programming	11/3/16
11/3/16	Homework 3: Exploring NoC Design	11/29/16

Academic Honesty

Students in the class must strictly adhere to the University policies on academic honesty. All work in this class must be your own, unless when explicitly allowed by the instructor. Homework solutions must be done all on your own. General discussion on problem solving is encouraged, but do not discuss specific solutions pertaining to your homework assignments. You are expected to reproduce your solution in class. Do not copy other's work in homework or during exams. Students violating these principles (copying, allowing someone to copy, reproducing answers/solutions from the internet) will receive a zero on assignment or exam, and will be docked a full letter grade for the course. Drastic or repeat offences will result in failure of the course.

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