EECS 570 Project Introduction

University of Michigan

Jan 24, 2025

Overview

Project Introduction

- What?
- When?
- Why?
- Who?

Project Introduction

- What?
  - A research project where you will innovate new designs or evaluate extensions to designs broadly in the domain of multiprocessor, multicore, SIMD, GPU and other parallel architectures.
- When?
- Why?
- Who?

Project Introduction

- What?
  - A research project where you will innovate new designs or evaluate extensions to designs broadly in the domain of multiprocessor, multicore, SIMD, GPU and other parallel architectures.
- When?
  - Jan 24 - April 22 ($\sim$ **three** months)
- Why?
- Who?

Project Introduction

- What?
  - A research project where you will innovate new designs or evaluate extensions to designs broadly in the domain of multiprocessor, multicore, SIMD, GPU and other parallel architectures.
- When?
  - Jan 24 - April 22 ($\sim$ **three** months)
- Why?
  - This is worth **25%** of your grade
- Who?

Project Introduction

- What?
  - A research project where you will innovate new designs or evaluate extensions to designs broadly in the domain of multiprocessor, multicore, SIMD, GPU and other parallel architectures.
- When?
  - Jan 24 - April 22 ($\sim$ **three** months)
- Why?
  - This is worth **25%** of your grade
- Who?
  - You (in groups of 4-5)

Important Deadlines

- Project Proposal & Declare Groups
  - By 11:59 PM, Wednesday, Feb 5
  - via canvas (only one student needs to submit)
  - group sign up via google sheet (link in handout)
- Project kick-off meetings
  - 20-min time slots on Thursday, Feb 6

Important Deadlines

- Milestone I
  - Report due 11:59 PM, Wednesday, Mar 12
  - Submit via Canvas
  - 20-min time slots on Thursday, Mar 13
- Milestone II
  - Work-in-progress presentations
  - 20-min time slots on Thursday, April 3
- Presentations and final report
  - April 18 Discussion & April 21 Lecture
  - Submit final report via Canvas before the first sessions starts
  - Submit slides after the presentation to canvas

Grading

- Project proposal and milestone reports: **5 points**
- Final report: **80 points**
  - Problem definition and motivation: **15 points**
  - Survey of previous work: **15 points**
  - Description of design: **15 points**
  - Experimentation methodology: **15 points**
  - Analysis of results: **20 points**
  - Statement of contribution of each team member
- presentation: **15 points**

Project Proposal

- (at most) 2-page proposal
- The problem definition and motivation
- A brief survey of related work based on *at least four* relevant papers
- A detailed description of your proposed infrastructure
- Project milestones and schedule
  - Expected achievements at the end of Milestones I and II
- Division of labor
- Help from us (e.g. GPU access, which simulator to use etc.)

Project Proposal

- (at most) 2-page proposal
- The problem definition and motivation
- A brief survey of related work based on *at least four* relevant papers
- A detailed description of your proposed infrastructure
- Project milestones and schedule
    - Expected achievements at the end of Milestones I and II
- Division of labor
- Help from us (e.g. GPU access, which simulator to use etc.)
- **The challenge is to formulate a project that can be feasibly completed in the given timeframe**
    - Come to OH for help

Final Report and Poster Session

- 6-page final report in the format of typical architectural conference papers
  - Include a section with contributions of each team member
  - Citations/references are important
- The target format is that of a high-quality workshop paper
- Presentation (15 min + 5 min Q&A, subject to change) to the whole class.
  - Easy to understand for the audience (who may not have a lot of experience with your topic)
  - Expect questions from the audience and the teaching group

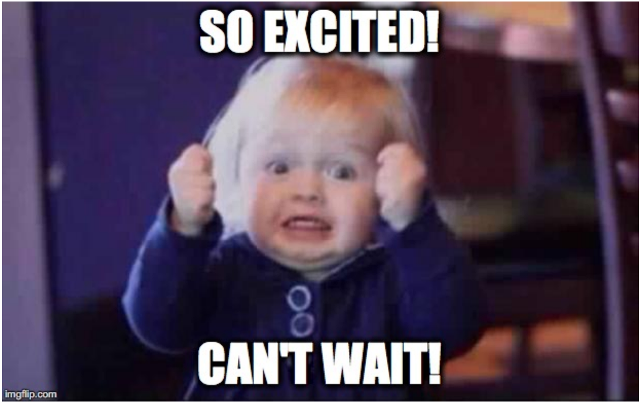
Infrastructure

- Cycle-accurate architectural simulators
  - gpgpusim, gem5, snipersim
- Multicore machines
  - CAEN systems, bane and penguin
- GPUs
  - Ask the teaching group for access to Greatlakes
- Amazon EC2 F1 instances
  - FPGA on the cloud!
- confidential computing nodes
  - Azure confidential computing
- RTL Synthesis Library
  - Synopsys available on CAEN
- Link to Tools
  - https://www.eecs.umich.edu/courses/eecs570/?page=tools.php

Project Ideas

- Confidential! DO NOT distribute. May include project ideas that are not published yet.

Questions?


SO EXCITED!
CAN'T WAIT!
imgflip.com