

Final Project Guidelines

15-418/618 Spring 2019

Overall Requirements

- **Explore some aspect of parallel programming and computer architecture**
 - Wide range of possibilities
 - Something of interest to you—creativity encouraged
- **Significant effort: 25% of course grade**
 - Assignment 2, Assignment 3 each worth 12% of grade

Schedule: Now to Poster Session

Su	M	T	W	Th	F	Sa
			27	28	29	30
31	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	1	2	3	4
5	6	7				

 **Something Due**

General Project Types

■ Application

- Take some application and speed it up through parallelism
- Many interesting possibilities, but our focus is on parallel computing

■ System Capabilities

- Implement or evaluate useful system capabilities
- E.g., synchronization, language extensions, encryption

■ Explore Platforms

- Understand other GPUs, evaluate other machines, compare programming languages

Resources

■ Familiar hardware

- Multicore servers
- NVIDIA GPUs

■ Available hardware

- Your phone / tablet
- Xeon Phi's (part of Latedays cluster)
- Amazon Web Services
- Others you can find

■ Software

- C, C++, Go
- CUDA
- Available frameworks

Important Dates

■ Proposal

- 4/3: Checkpoint
- 4/10: Proposal

■ Project

- 4/19: Checkpoint I
- 4/26: Checkpoint II
- 5/6: Report
- 5/7: Poster Session
 - During the scheduled final exam slot for course

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Of Interest to Us

■ Further the cause of GraphRats

- Novel Platforms
 - Map onto GPU
 - Map onto Xeon Phi
 - Implement in ISPC
- Coupled with Variations
 - Adjust graph structures and initial distributions
 - Different random number generator
 - Different reward function