Final Project Guidelines

15-418/618 Spring 2018
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

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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**
  - 4/4: Checkpoint
  - 4/9: Proposal

- **Project**
  - 4/18: Checkpoint I
  - 4/27: Checkpoint II
  - 5/7: Report
  - 5/8: Poster Session
    - During the scheduled final exam slot for course
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