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**
- 4/3: 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
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