Project Proposal (due 3/7)

- ## Proposal Logistics:
  - Significant implementation, worth 55% of grade
  - Each person turns in the proposal (should be same as other team members)

- ## Proposal:
  - 3-4 page document (11pt, single-spaced)
  - Submit with handin program:

    "handin cs6963 prop <pdf-file>"

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Content of Proposal

I.   Team members: Name and a sentence on expertise for each member

II. Problem description

   - What is the computation and why is it important?

   - Abstraction of computation: equations, graphic or pseudo-code, no more than 1 page

III. Suitability for GPU acceleration

   - Amdahl's Law: describe the inherent parallelism. Argue that it is close to 100% of computation. Use measurements from CPU execution of computation if possible.

   - Synchronization and Communication: Discuss what data structures may need to be protected by synchronization, or communication through host.

   - Copy Overhead: Discuss the data footprint and anticipated cost of copying to/from host memory.

IV. Intellectual Challenges

   - Generally, what makes this computation worthy of a project?

   - Point to any difficulties you anticipate at present in achieving high speedup

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Projects – How to Approach

- ## Some questions:
  1. Amdahl's Law: target bulk of computation
     and can profile to obtain key computations…
  2. Strategy for gradually adding GPU execution to CPU code while maintaining correctness
  3. How to partition data & computation to avoid synchronization?
  4. What types of floating point operations and accuracy requirements?
  5. How to manage copy overhead?

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