

CPSC 424/524 Fall 2018

Final Exam Topics

The final exam is intended for 2.5 hours, so you will have 3 hours to work on it.

Part I: This topic list is in addition to the list of sample questions provided for the midterm exam:

1. Operation and semantics of MPI send and receive operations
2. Differences among MPI point-to-point communication modes
3. MPI collective operations
4. Blocking vs. nonblocking operations
5. Partitioning and divide-and-conquer strategies. (Excludes Lecture 10A, which covers N-body problems, but was not presented in class.)
6. General Nvidia GPU architecture
7. Cuda execution model (e.g., kernels, blocks, grids, warps, latency hiding, etc.)
8. GPU memories (e.g., memory hierarchy, coalescing, memory banks, resource limitations, etc.)

Part II: Programming Exercise:

You should expect this to be a modest-size programming exercise in Cuda or MPI for a simple problem. You'll be given a working serial program or fragment and asked to parallelize it, possibly making some small modifications to the serial algorithm. While syntax will matter here, you'll be provided with reference cards for MPI, Cuda, and OpenMP. In connection with the program, you might be asked some questions about performance issues for it. Expect the programming exercise to be work approximately 30-40% of the entire exam.