

Final Exam Prep

CS1625/2045

Exam Date: April 18, 2018

- Parallel Algorithm Design Patterns
 - Fork/Join
 - What is a Future, how does this work with parallel systems?
 - Speculative Selection
 - Parallel Iteration
 - Data Dependency
 - Map
 - Reduction
 - Scan
 - Know the algorithms covered in class (whole class and homework on this)
 - Stencil
 - Tail Recursion
 - Gather
 - Scatter
 - Pack and Unpack
- MPI
 - What type of system is this design for - SPMD.
 - Shared memory or distributed memory?
 - What is a rank?
 - Send/Recv versus Isend/Irecv
 - Commands to know: Scatter, Gather, Bcast, Reduce, Allgather
 - Who received stdin? Reads Files?
- GPU
 - Kernel Functions and how they are called from the main processor
 - Copying data
 - Blocks vs Threads
 - Shared Memory
 - Warps and Branch Divergence
 - Syncthreads? What does this do?
- GPU Algorithms
 - Reduction
 - Scan
 - Compact
 - Sorting: Merge sort, even odd, sorting networks, radix