Concurrent GARTH (Genetic AlgoRiTHms) using C++11

1. Cover
2. Outline
3. Intro & Motivations
4. Application Area
   1. Thomson Problem – Open Problem
      1. Simple Case: Electrostatic potential minimization
         1. Like charges on a uniform sphere
      2. Harder Case: Quantum Dots, quantum condensed matter, etc.
         1. Manifolds & weird topologies, non-uniform charges
   2. NP-Hard, solved with Heuristics
   3. Great candidate for GAs
5. Genetic Algorithms
   1. Go over general GA structure
   2. Say why adding parallelism is helpful!!!
6. Genetic Algorithm Framework
   1. Zoo, ZooKeeper, Habitat, Trainer
7. Results – Cross-Compiler/Platform
8. Results – Performance
9. Future Work
   1. Better scalability testing with up to 32 threads
   2. Test MPI