

For each topic I need:

- Related works (various methods used)
- Our choice of method
- Contribution

For example:

- Our topic of RBF-FD on multiple GPUs is many-faceted. Any PDE solutions on multiple GPUs would involve the following:
 - a system assembly
 - a domain decomposition
 - a solver
 - an algorithm for time-stepping
- Our system assembly:
 - Assemble and solve for weights with RBF-FD
 - multiple RHS to achieve highest throughput
 - Alternative neighbor queries to improve throughput.
 - Kernel to compute weights on GPU
- Our domain decomposition approach is straightforward:
 - slices (1-D partitions)
 - METIS for load-balancing
- Our solver:
 - an OpenCL implementation
 - we compare custom kernels treating stencils as parallel unit vs. matrix optimization
 - consider optimizations presented in clSpMV to achieve most bandwidth
 - we implement GMRES using distributed SpMV and SAXPY operations
 - we implement ILU factorization for preconditioning RBF-FD system

- Our algorithm for time-stepping:
 - RK4
- Communication:
 - overlapping comm and comp.

My approach: iterate through papers. update each section with citation and how they approach the subject. Add paper reference to a table indicating their use of algorithms/approaches.

0.1 Flow

The first task is to iterate through references and associate each one with a section. I need to write-up the process of assembling an RBF-FD problem and solving it. Then I need details of GPU computing, followed by details of pre-conditioning systems.

The easiest section to start with will be GPU computing for PDEs (Euler-class)