

## Accelerating Multi-Dimensional Search

### Start of Iteration Supervisor Meeting

#### Iteration #1 (10/03/14 to 24/03/14)

#### Summary of Previous Iteration

Objective	Progress
Decide on initial index structure to implement	Completed
Submit mid-project report	Completed
Design structure of evaluation framework	Not Complete
Setup development tools and environment	Completed
<b>Findings</b>	
N/A	
<b>Issues</b>	
N/A	

#### New Items to Discuss

- Format of iteration meetings
- Insufficient memory storage on School of Computing lab machines, for:
  - development tools
  - test data (especially astrophysics simulation, even with sampling!)
- Level of optimisation of baselines
  - prevent misleading results in evaluation by using very inefficient implementations
- Existing pyramid tree implementation
  - possible to get a hold of it, outside of VTK?
  - link to the VTK implementation?
  - plan is to use that as a (non-official) baseline
- First iteration will be two weeks
  - hope is to get evaluation framework and baselines implemented in first week...
  - ...and Splay quadtree implementation and evaluation done in second

## Objectives for This Iteration

1. Implement evaluation framework
2. Implement evaluation baselines (Sequential Scan and Quadtree)
3. *Optimise evaluation baselines???*
4. Implement Splay Quadtree
5. Analyse performance of Splay Quadtree
6. Evaluate found performance of Splay Quadtree, comparing with baselines

## Task Breakdown

Task	For Objective(s)	Start	End
Implement sequential scan	2	--	--
Implement quadtree	2	10/03/14	10/03/14
Implement pooled, contiguous memory manager that is used to create point instances (and use for data generators/loaders)	3	???	???
Design evaluation framework (interfaces, command line args, configuration, etc.)	1	11/03/14	11/03/14
Decide how points will be selected for dynamic operations/queries and what techniques will be used to generate clustered/skewed data	1	11/03/14	11/03/14
Implementation evaluation framework	1	12/03/14	13/03/14
Implement decided point selection mechanism	1,5	14/03/14	14/03/14
Implement clustered dataset generator	1,5	14/03/14	14/03/14
Implement skewed dataset generator	1,5	15/03/14	15/03/14
Implement uniform sampler for astrophysics dataset	1,5	17/03/14	17/03/14

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Load astrophysics data into framework	1,5	17/03/14	17/03/14
Implement Splay quadtree	4	18/03/14	20/03/14
Run evaluation framework on Splay Quadtree with various sets of test data	5	21/03/14	21/03/14
Produce short report providing evaluation of Splay quadtree's test data	6	21/03/14	24/03/14