

PFLOCK Report

Andres Calderon

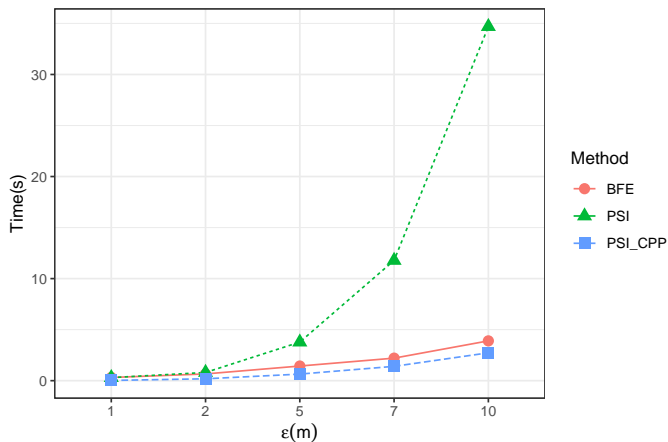
University of California, Riverside

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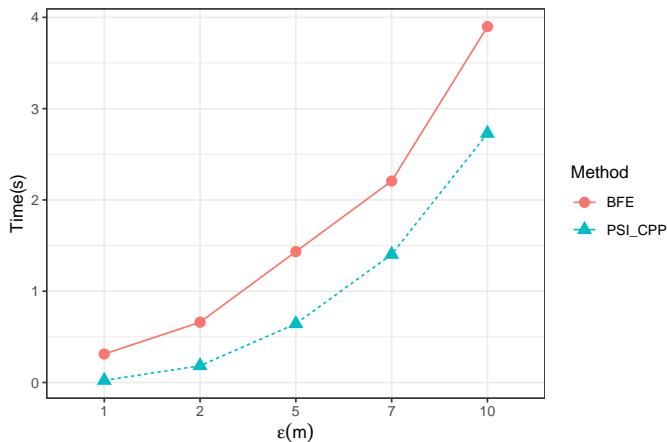
Fixing bug about reporting subset disks...

```
and@and-pc:~/Research/Scripts/Scala/PFlock$ bash $ ./checker_scala --dataset ~/Research/Datasets/dense_recde.tsv --epsilon 5 --nu 5 --tester
2023-10-13 15:27:54.333 [0] and-pc INFO [0] 342332314688926 [1] dense_recde [5,0|5|5] PFlock [START
2023-10-13 15:27:54.336 [3] and-pc INFO [0] 342332314688926 [1] dense_recde [5,0|5|5] PFlock [BFE
2023-10-13 15:27:55.451 [1118] and-pc INFO [0] 342332314688926 [1] dense_recde [5,0|5|5] BFE [Points |2101
2023-10-13 15:27:55.452 [1119] and-pc INFO [0] 342332314688926 [1] dense_recde [5,0|5|5] BFE [Pairs |6963
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2023-10-13 15:27:55.455 [1122] and-pc INFO [0] 342332314688926 [1] dense_recde [5,0|5|5] BFE [Maximals |530
2023-10-13 15:27:55.455 [1122] and-pc TIME [0] 342332314688926 [1] dense_recde [5,0|5|5] BFE [Count |0.139358989
2023-10-13 15:27:55.455 [1122] and-pc TIME [0] 342332314688926 [1] dense_recde [5,0|5|5] BFE [Grid |0.015567896
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2023-10-13 15:27:57.619 [3286] and-pc INFO [0] 342332314688926 [1] dense_recde [5,0|5|5] PSI [Points |2101
2023-10-13 15:27:57.621 [3288] and-pc INFO [0] 342332314688926 [1] dense_recde [5,0|5|5] PSI [Pairs |7592
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2023-10-13 15:27:57.621 [3288] and-pc INFO [0] 342332314688926 [1] dense_recde [5,0|5|5] PSI [Candidates |7962
2023-10-13 15:27:57.621 [3288] and-pc TIME [0] 342332314688926 [1] dense_recde [5,0|5|5] PSI [Boxes |395
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2023-10-13 15:27:57.622 [3289] and-pc TIME [0] 342332314688926 [1] dense_recde [5,0|5|5] PSI [Pairs |0.036444677000000001
2023-10-13 15:27:57.622 [3289] and-pc TIME [0] 342332314688926 [1] dense_recde [5,0|5|5] PSI [Centers |0.03614977599999978
2023-10-13 15:27:57.623 [3290] and-pc TIME [0] 342332314688926 [1] dense_recde [5,0|5|5] PSI [Candidates |0.120861679
2023-10-13 15:27:57.623 [3290] and-pc TIME [0] 342332314688926 [1] dense_recde [5,0|5|5] PSI [Boxes |0.14111329
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2023-10-13 15:27:57.623 [3290] and-pc TIME [0] 342332314688926 [1] dense_recde [5,0|5|5] PSI [Insert |1.40819267
2023-10-13 15:27:57.623 [3290] and-pc TIME [0] 342332314688926 [1] dense_recde [5,0|5|5] PSI [Total |1.9794976919999998
Testing...
Saved /tmp/PSI_pids.txt in 0.00s [530 records].
Saved /tmp/BFE_pids.txt in 0.00s [530 records].
Files /tmp/PSI_pids.txt and /tmp/BFE_pids.txt are identical
2023-10-13 15:27:57.707 [3374] and-pc INFO [0] 342332314688926 [1] dense_recde [5,0|5|5] PSI [Maximals|OK!!
2023-10-13 15:27:57.707 [3374] and-pc INFO [0] 342332314688926 [1] dense_recde [5,0|5|5] PSI [END
```

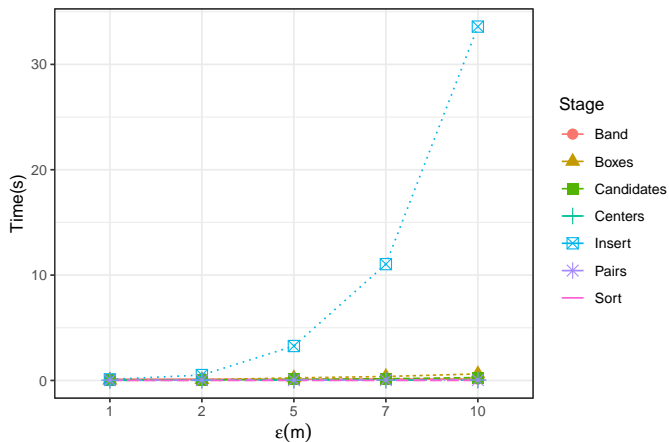
Dealing with (my) PSI performance...



Dealing with (my) PSI performance...



Dealing with (my) PSI performance...



Dealing with (my) PSI performance...

Algorithm 2: Filter out disks which are subsets

1 Algorithm FilterCandidates(\mathcal{B})**Input:** \mathcal{B} : active boxes of timestamp t_i , sorted by x-axis values**Output:** \mathcal{C} : final set of disks for timestamp t_i **2** $\mathcal{C} \leftarrow \emptyset$ **3** **for** $j \leftarrow 0$ **to** $j \leq |\mathcal{B}|$ **do****4** **for** $k \leftarrow j + 1$ **to** $k \leq |\mathcal{B}|$ **do****5** **if** $\text{IntersectsWith}(\mathcal{B}[j], \mathcal{B}[k])$ **then****6** **foreach** $c \in \mathcal{B}[j].\text{disks}$ **do****7** $\mathcal{C} \leftarrow \text{InsertDisk}(\mathcal{C}, c)$ **8** **else** // No intersection.**9** **break****10 Procedure InsertDisk(\mathcal{C}, c)****Input:** \mathcal{C} : set of disks, c : new disk**11** **foreach** $d \in \mathcal{C}$ **do****12** **if** $c.\text{sign} \wedge d.\text{sign} = c.\text{sign} \ \&\& \ \text{dist}(c, d) \leq \epsilon$ **then** // c can be a subset of d **13** **if** $d \cap c = c$ **then** // Remove chance of false-positive**14** **return** \mathcal{C} // No need to insert c **15** **else if** $c.\text{sign} \wedge d.\text{sign} = d.\text{sign}$ **then** // d can be a subset of c **16** **if** $c \cap d = d$ **then** // Remove chance of false-positive**17** $\mathcal{C} \leftarrow \mathcal{C} \setminus d$ // Remove d **18** **return** $\mathcal{C} \cup c$
