

**From point cloud to Grid DEM: A scalable approach**  
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**Class discussion**

1. What is a point cloud?
2. When running on very large data, what is typically the bottleneck in performance? Explain.
3. What is an IO-efficient algorithm?
4. Related work: How does it handle large data efficiently?
5. In what ways does the presented algorithm improve over the previous work?
6. Describe the phases of the algorithm, at a high level. Which phases does this paper target (improve)?
7. The authors claim that the incremental construction is not efficient: under what circumstances?
8. The neighbor finding phase: What problem specifically is it solving? When is it necessary?
9. The authors describe how a LIDAR dataset is usually thinned up to a user-specified threshold. What does this mean? How is it chosen?
10. How do bit masks reduce computation time?
11. How does the open source GIS GRASS implement neighbor finding (in the context of interpolation).
12. What datasets are used for experiments? resolution? size?
13. If these datasets were stored in memory, how much RAM would they occupy?
14. What is the most time consuming phase? (see Table 1) Why is interpolation time getting smaller for larger grids?
15. Is the approach described in this paper amenable to other interpolation methods?
16. What software packages do they compare to?
17. How do they compare the accuracy of their output?
18. Why aren't the results identical?

19. Future work?