

Parametric Searching:

1. Given a set S of n points in the plane, using parametric searching find two identical axis-parallel squares of smallest possible size whose union contains S . Describe all the ingredients of the algorithm (monotonic function, sequential and parallel algorithms for the fixed-value problem etc.), and analyze the running time.
Can you find a faster algorithm (without using parametric searching)?

Streaming:

1. Given a set P of n points in d dimensions, give a two-pass data streaming algorithm that uses $O(d)$ space, takes $O(d)$ time per point and gives a $\sqrt{3}$ -approximation to the diameter of the point set P .