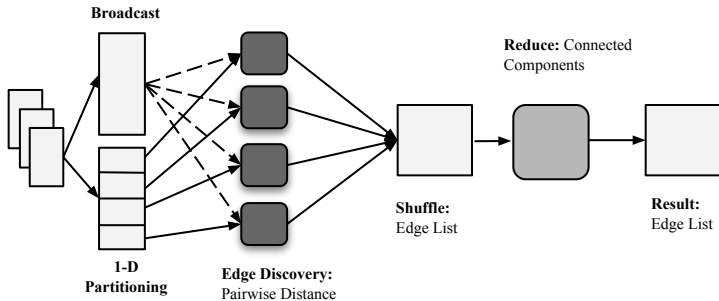


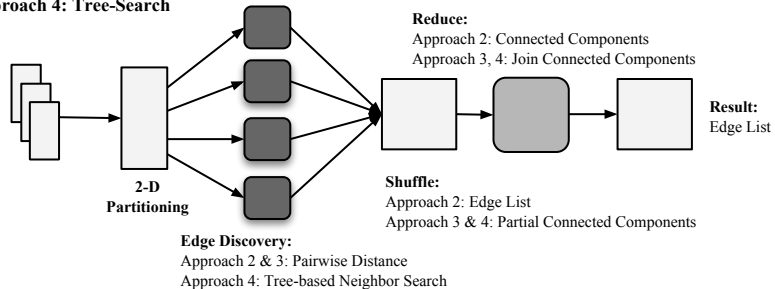
Approach 1: Broadcast and 1-D Partitioning



Approach 2: Task-API and 2-D Partitioning

Approach 3: Parallel Connected Components

Approach 4: Tree-Search



 **Input Data (3D Atoms positions)**  **Data (Partition, Intermediate, Output)**



Map Tasks



Reduce Tasks

 **Data Movement**

 **Broadcast**