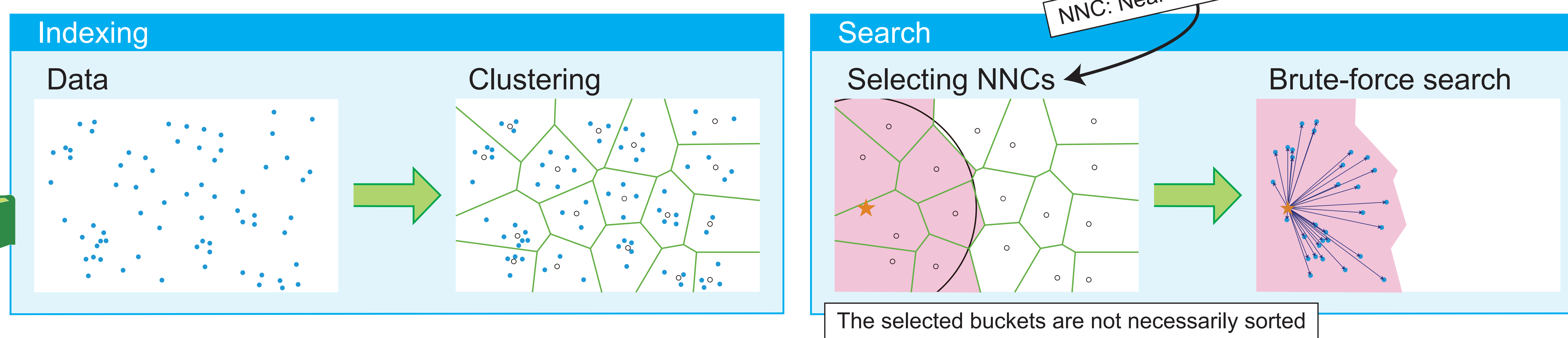


What Is the Most Efficient Way to Select Nearest Neighbor Candidates for Fast Approximate Nearest Neighbor Search?

Masakazu Iwamura, Tomokazu Sato and Koichi Kise
Osaka Prefecture University

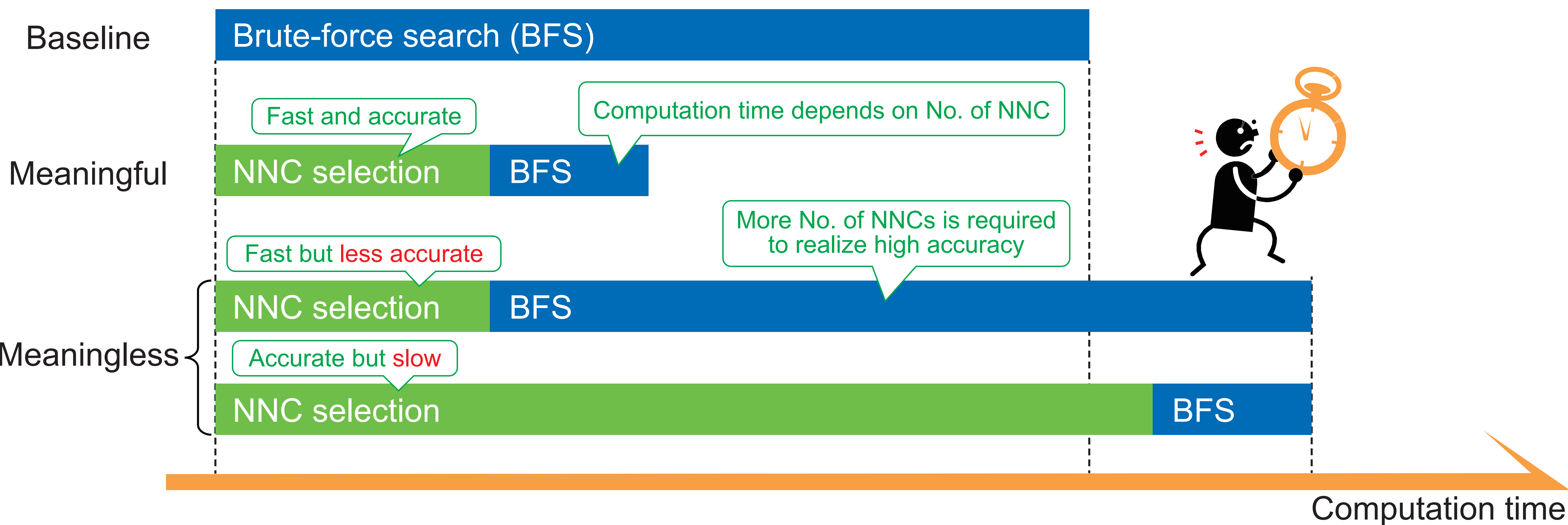
Standard process of approximate nearest neighbor search (ANNS)



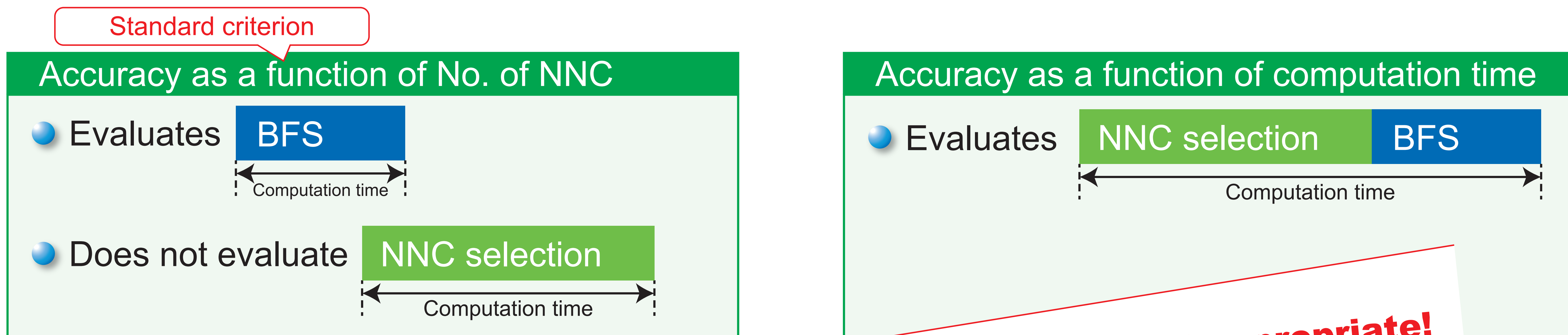
Contributions

- Proposed the most scalable ANNS method
- Pointed out shortage of the standard criterion of approximate nearest neighbor search (ANNS)
- Compared representative ANNS methods in the criterion, recall as a function of computation time

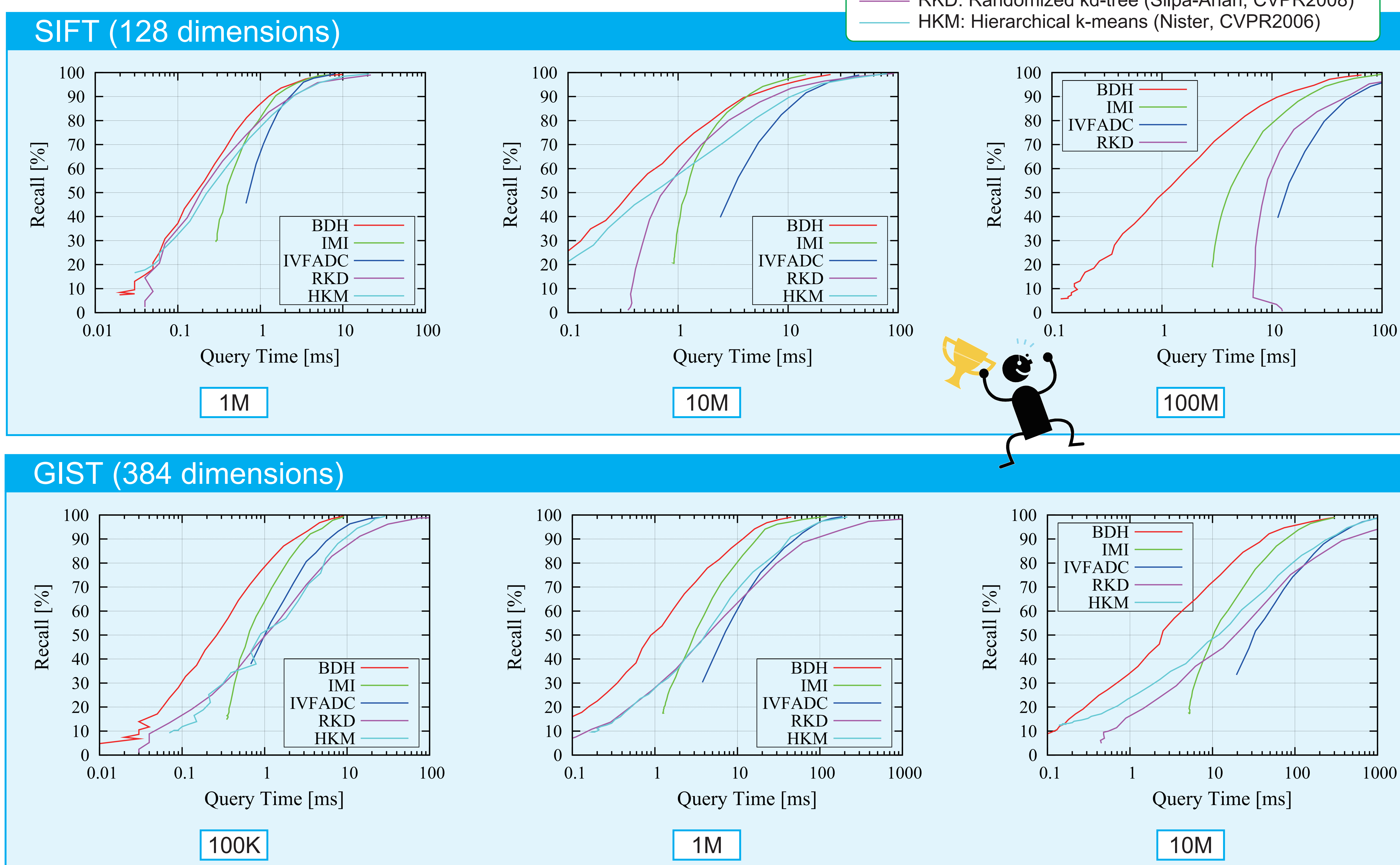
Computation times of approximate nearest neighbor search (ANNS)



Criteria of approximate nearest neighbor search (ANNS)



Experimental results

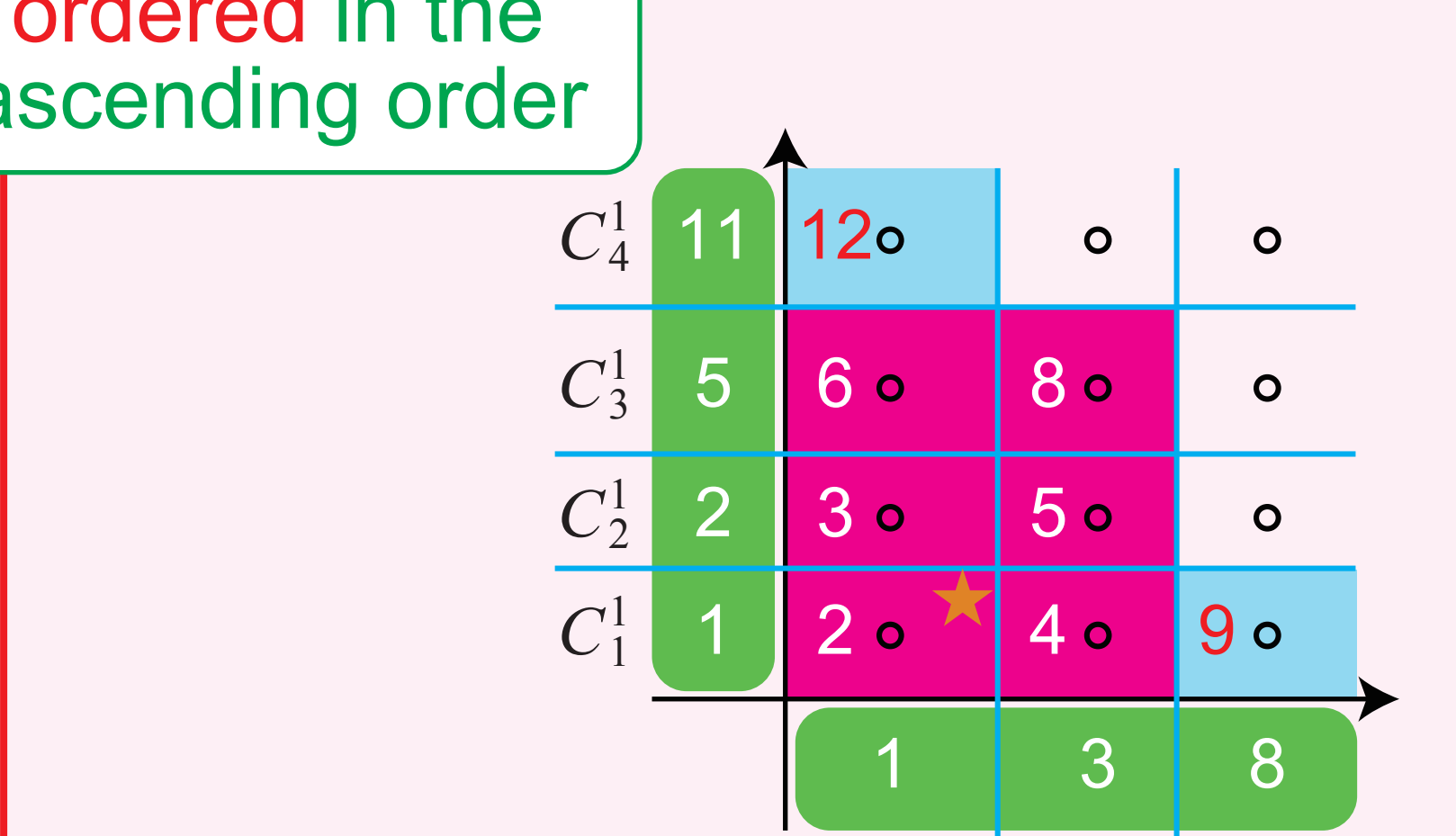
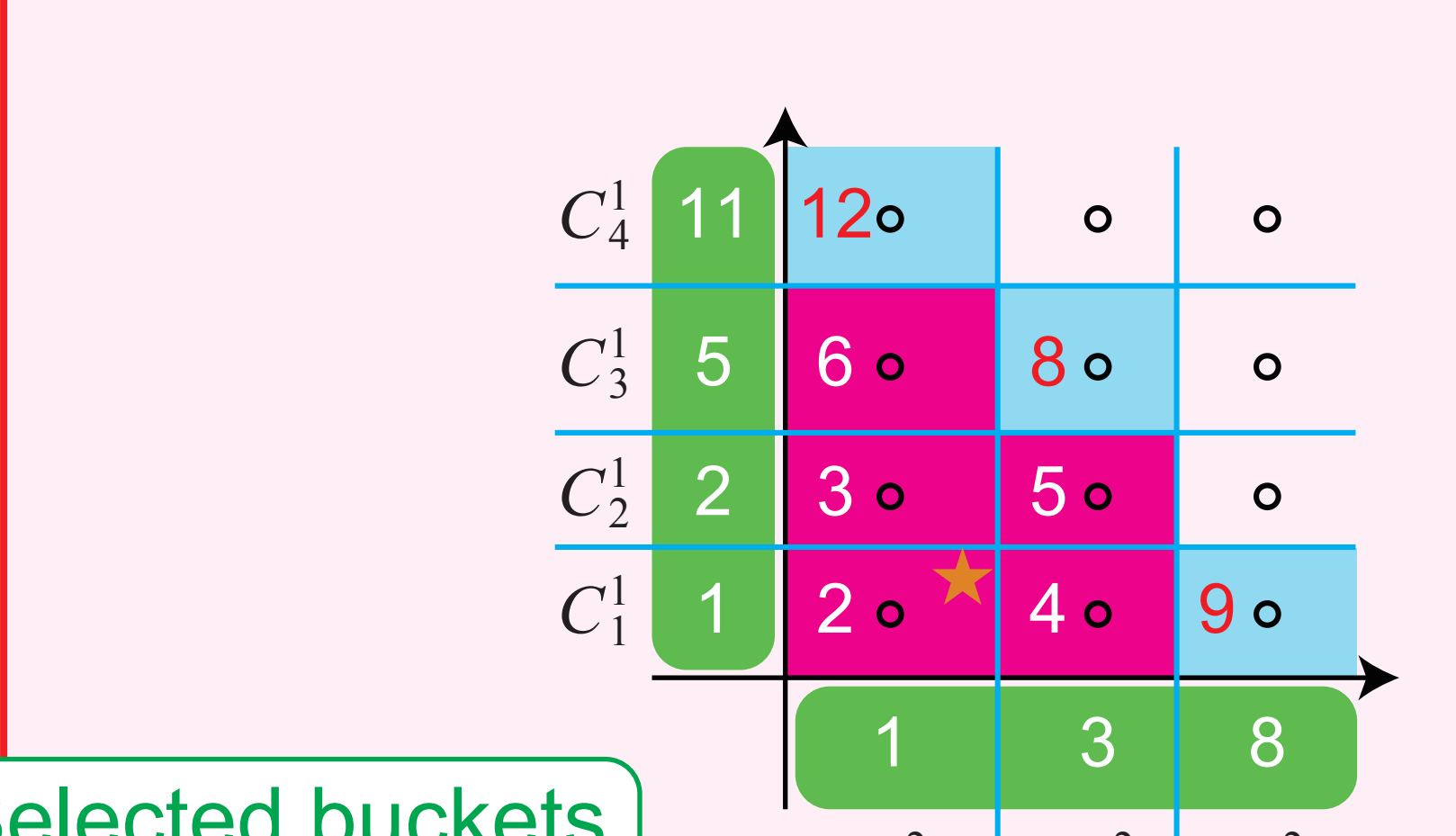
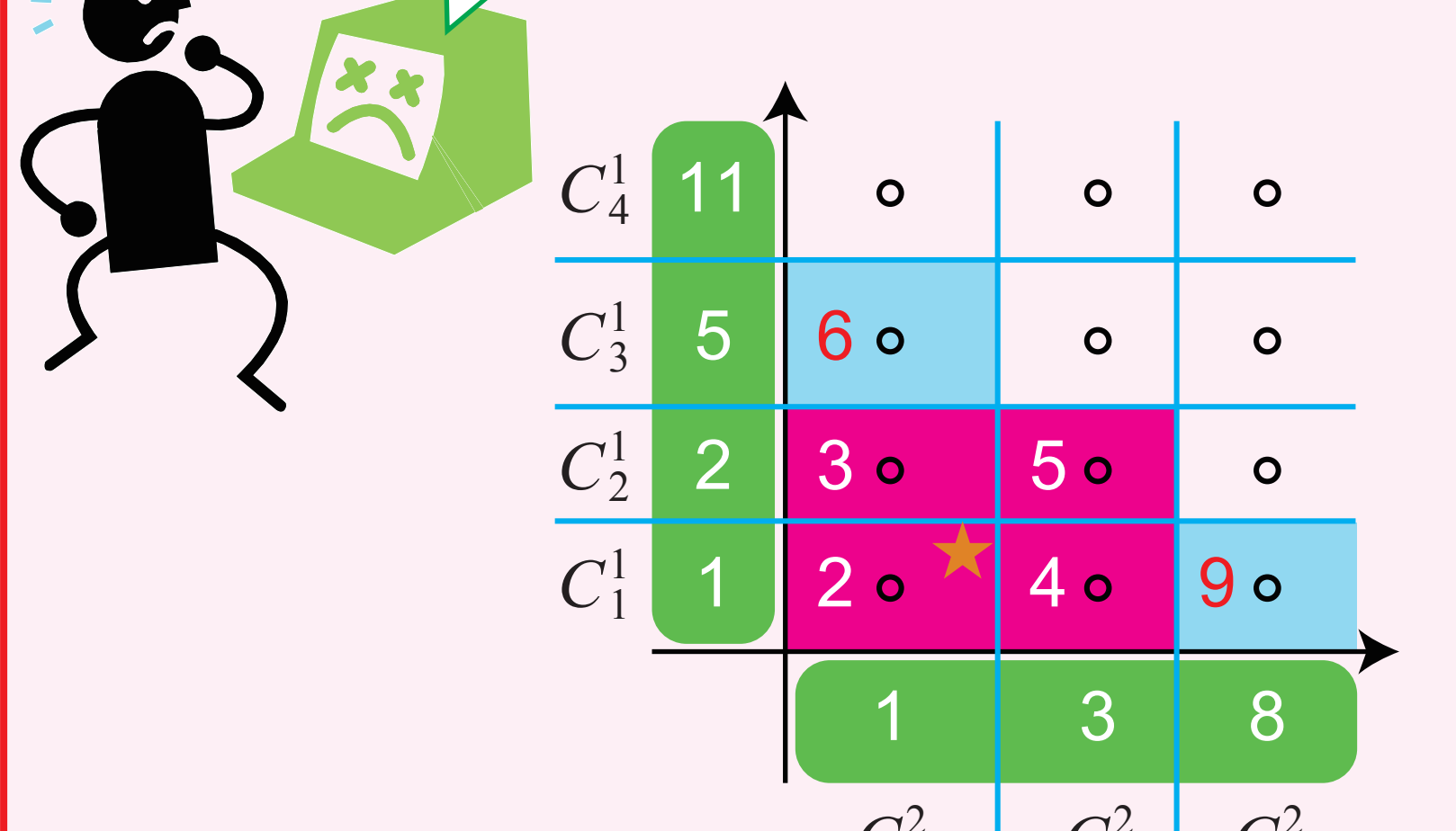
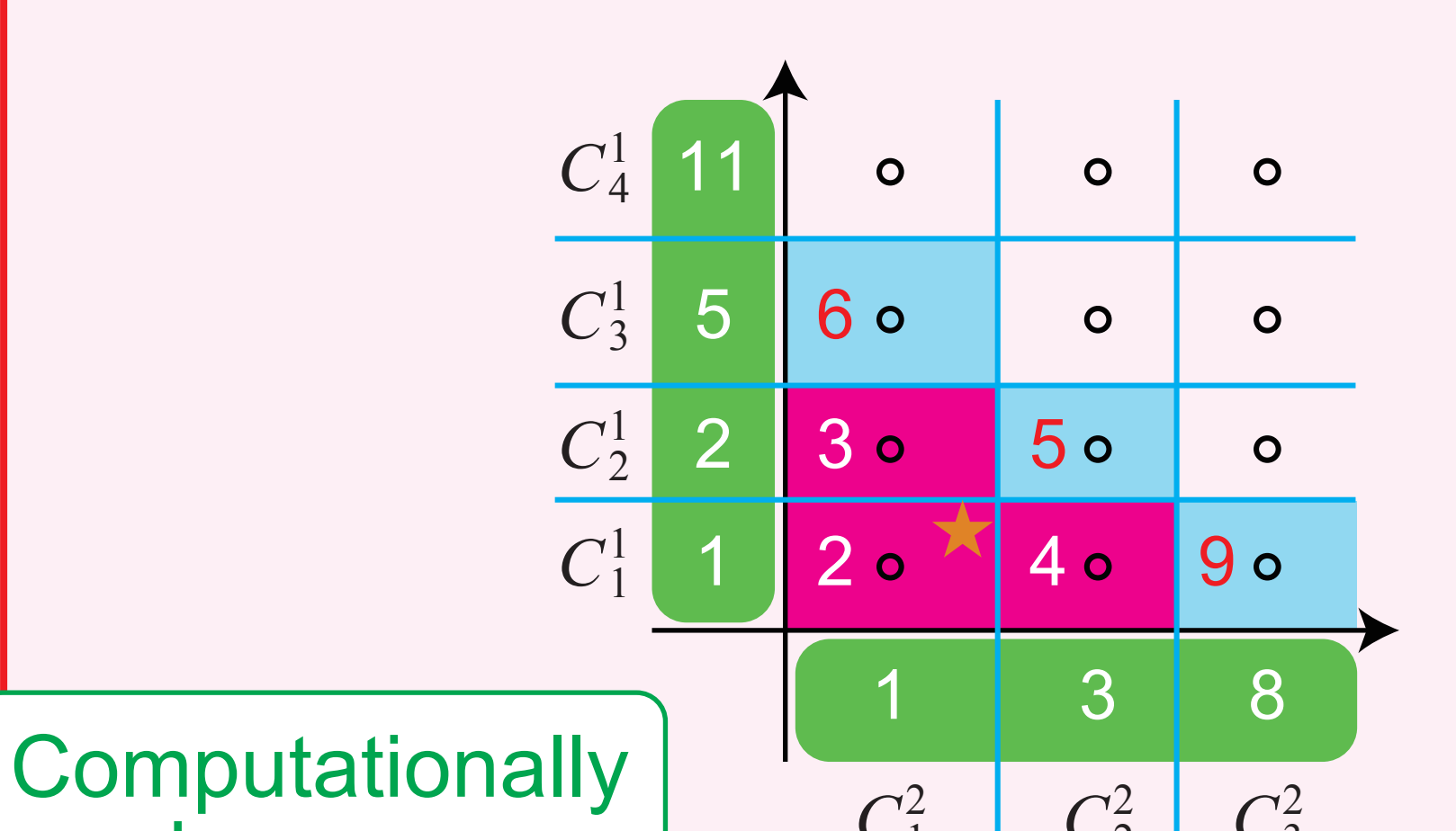
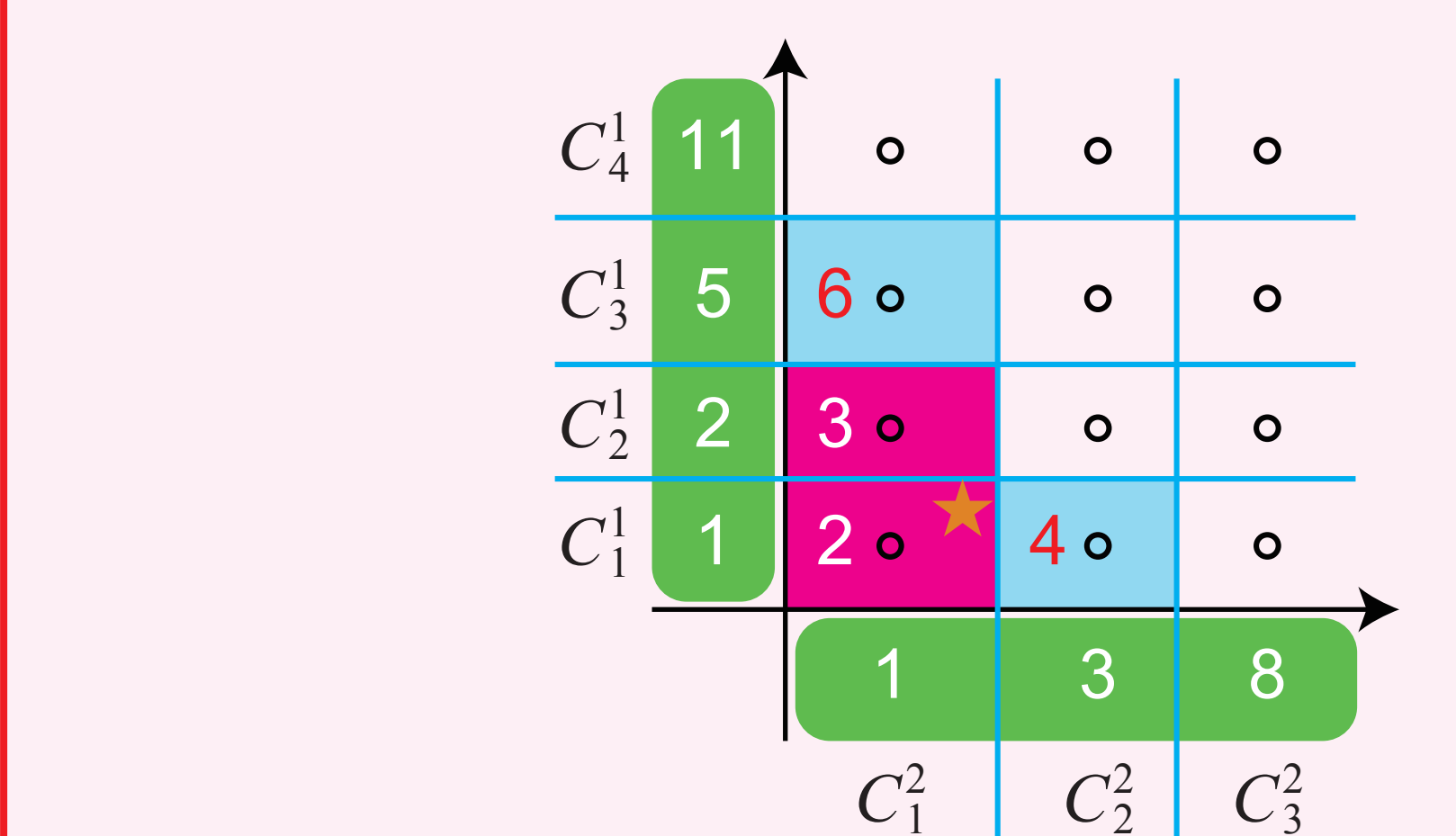
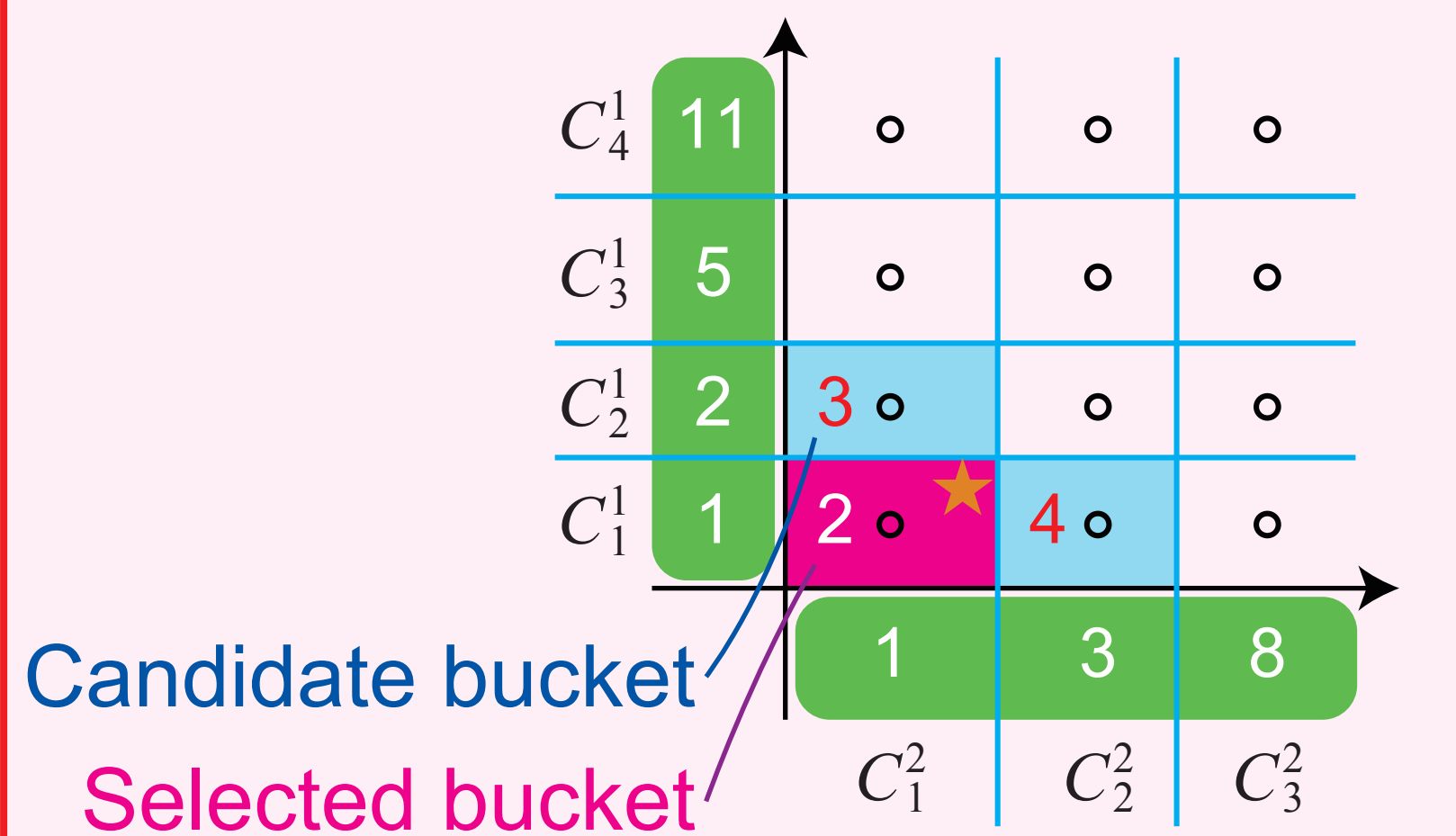
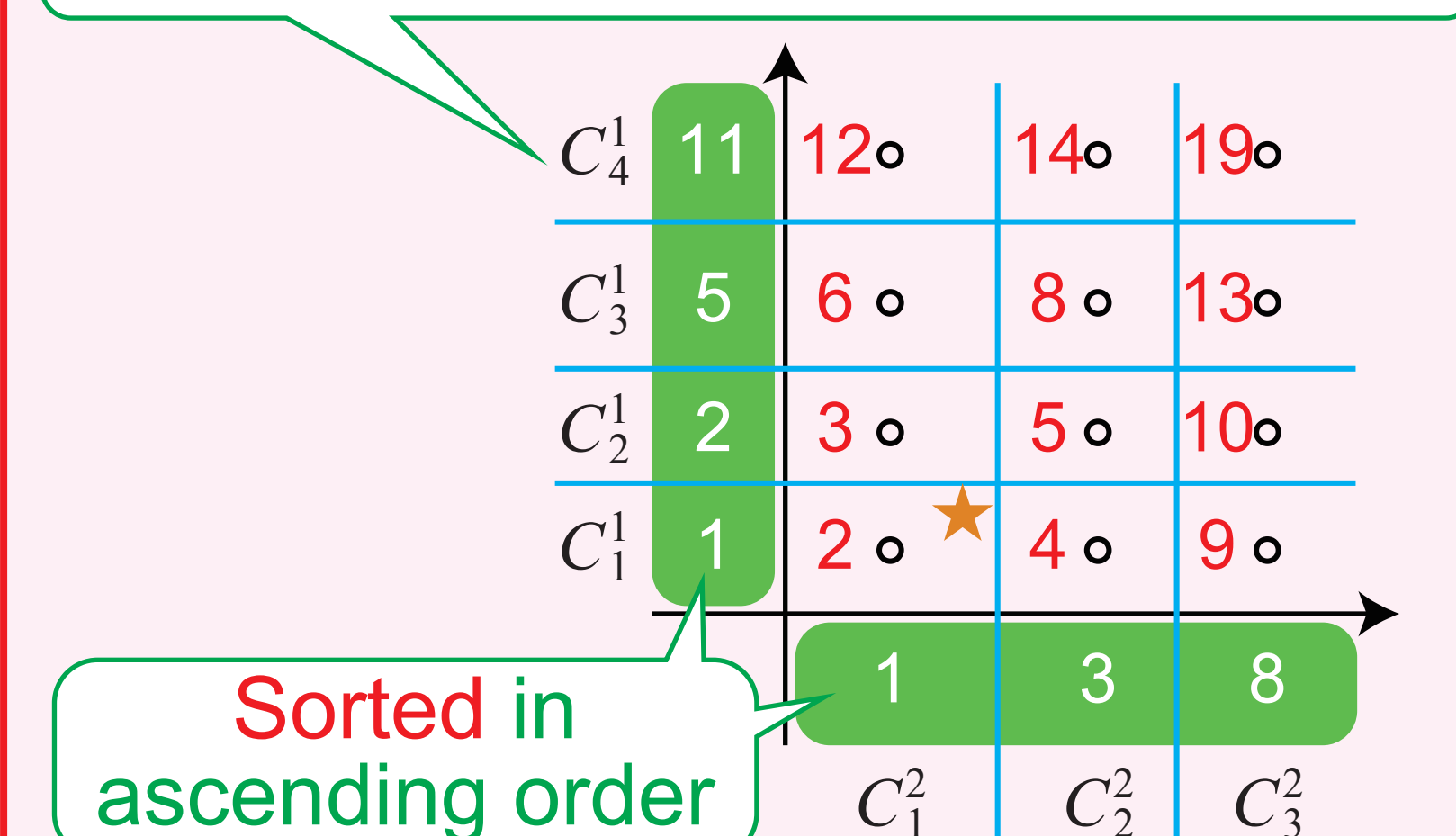


Algorithms of selecting NNCs

Former state-of-the-art: Inverted multi-index (IMI)

[This is called Multi-Sequence Algorithm]

Feature space is divided into two subspaces and clustering is applied to subvectors in each subspace



New state-of-the-art: Bucket distance hashing (BDH)

Bucket distance hashing (BDH) — The proposed method

