

1146-00-504

Benjamin McLaughlin* (benjamin.mclaughlin@navy.mil). *A Scatter-and-Collect Algorithm for Parallel Adaptive Clustering.*

Clustering is a tool for unsupervised learning which has become ubiquitous due to its versatility. However, many clustering techniques suffer from the burden of requiring that the number of clusters be chosen *a priori*, as well as a high computational cost when analyzing large sets of data. We present a novel algorithm for parallel computation of a regularized k -means, which leverages multi-core processing architecture to efficiently produce clusters while simultaneously choosing the number of clusters dynamically. This is advantageous when the optimal partitioning of the space is not known. This new algorithm has a close mathematical relationship with the regularized k -means. We discuss the properties of the partition produced by our algorithm and the results of numerical experimentation. (Received January 29, 2019)