

## A Parallel Implementation of k-Means in MATLAB

**Authors :** Dimitris Varsamis, Christos Talagkozis, Alkiviadis Tsimpiris, Paris Mastorocostas

**Abstract :** The aim of this work is the parallel implementation of k-means in MATLAB, in order to reduce the execution time. Specifically, a new function in MATLAB for serial k-means algorithm is developed, which meets all the requirements for the conversion to a function in MATLAB with parallel computations. Additionally, two different variants for the definition of initial values are presented. In the sequel, the parallel approach is presented. Finally, the performance tests for the computation times respect to the numbers of features and classes are illustrated.

**Keywords :** K-means algorithm, clustering, parallel computations, Matlab

**Conference Title :** ICADPC 2017 : International Conference on Advances in Distributed and Parallel Computing

**Conference Location :** Istanbul, Türkiye

**Conference Dates :** October 26-27, 2017