**Time Series Models and Object Clustering**

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Introduction

Clustering

Clustering is the act of separating data into discrete groups to help analysis and prediction.

K means

k-means clustering is a popular method of cluster analysis that simplifies the process of partitioning a dataspace into equivalently spaced cells. It has been used by… for… and is great for…

Despite its advantages, or perhaps because of them, k-means clustering suffers from some blatant flaws such as… These problems have attempted to be solved by different methods, such as K++ means etc other initializations or variations

K++ means

K++ means clustering differs from k-means clustering by…

Initialization Effects

The difference in initialization methods has a clear effect on the resultant groupings as shown in figure x:

* Interesting that there are clusters of centroids far away from any groups

Comparisons

Image Segmentation Experiments

Time Series Models

Time Series Models are used for a number of analytive and predictive purposes, such as modelling fluctuating inventory levels or stock prices etc… They tend to be univariate though a number of multivariate algorithms exist..

ARIMA Models – content ready

ARIMA Models are a combination of … They are denoted by ARIMA(p,d,q)… And these variables indicate … (+ SARIMA variables)

ARIMA Variable Selection – content ready

P chosen based on… d chosen based on… q chosen based on… … Automated variable selection?

Recurrent Neural Network -

How these work and how they relate with time series models…

Multivariate Analysis -

Armax Model

Price Prediction Experiments

Cross Validation + results on Bitcoin testing data and some comparisons

Conclusion

Figures & Tables

References

* Poloniex api reference
* Wiki page for arima
* Wiki page for k means, k++

Appendix

R Code:

Python Code: