

Goals KB FTP

Jelle van Wezel

February 23, 2018

1 Goal 1, Pipeline durability prediction

The first goal of the project is to predict in some way the durability of the current gas pipes hold by Cogas.

With the data we have the following techniques can be applied.

1.1 Regression

The following regression techniques were selected.

- Linear Regression
- Sin Regression
- Non-linear Regression
- Auto Regression

1.2 Learning Vector Quantization

With the help of a sliding window we can use LVQ to predict a future trend.

- LVQ with the Linear regression as label
- LVQ with binning as label

Both LVQ methods can be done on: the whole dataset, measuring points (mps), and cathodic protection area (cpa).

1.3 Feature Extraction

- PCA
- Suvrel
- GML
- Covariance Matrix
- RGLVQ and GMLVQ, look at the matrix / vector

2 Goal 2, Suggesting new anode location

The second goal is to suggest a location for a new anode such that the worst parts of an existing cathodic protection (cp) area can be better protected.

2.1 Questions

- Is this even possible?
- Are there now cp areas with multiple anodes?
- How would this be implemented? (create 2 new cp areas?)

2.2 Clustering

A method of finding a location could be to cluster the mps and find the clusters with the lowest voltage readings/trends, these areas could then be suitable for a new anode.

- K-means
- Neural Gas