<https://github.com/diegocarrera89/quantTree/tree/main>

<https://polimi365-my.sharepoint.com/personal/10245349_polimi_it/_layouts/15/onedrive.aspx?csf=1&amp%3bweb=1&amp%3be=FPx3U7&CID=4d3df0e8%2D23da%2D4ae9%2Da017%2D16fd9edb2ede&id=%2Fpersonal%2F10245349%5Fpolimi%5Fit%2FDocuments%2FResearch%2FRoba%20Mia%2F2025%5F01%5FPort%5FAI%5FPolicies%5FEANN&FolderCTID=0x0120000ECBFD9D4556FE45A256F7B9438DC9CF&view=0>

<https://politecnicomilano.webex.com/politecnicomilano/ldr.php?RCID=8c4386ab0da1f84493e668d7efeed24b>

Hello,

Here’s a quick update on the experiments:

After creating the sequences as previously explained, we tested Quantree EWMA for the following distribution cases:

1. Multimodal Poisson (50% weekday - 50% weekend)
   1. Minimal change: 5 seconds longer in a single red phase of a single traffic light.
2. Multimodal Uniform (50% weekday - 50% weekend)
   1. Medium change: alternative policy keeping the basic scenario and changed slightly the timing of two traffic lights
3. Gaussian
   1. Bigger change: one of the port gates is closed, forcing trucks to reroute.

For all cases, we had the sequences with changing points equal the size of the training set, which was set to [64, 128, 256]. The number of bins for QTree was fixed K=32. And ARL\_0 was iterated for the following values [500, 1000, 2000, 5000].

On the attached pdf file you can find the plots of the distributions for the variables for each set up and the results of qt\_ewma, which are the avg. delay detection, fa\_rate and empirical\_ARL.

In general, the results show a smaller avg. delay detection for a smaller ARL\_0 and also if the change is bigger between scenarios (this can be visualized by the distributions, if they are too similar, the delay is higher).

Let me know what you think of the results, mainly concerning ARL and FA.

Best,

Felipe