MSGI : RFID LOCALIZATION

RFID detection is 100% but state of the art **localization/zoning accuracy is poor**

Use case: fashion fitting room with magic mirror:

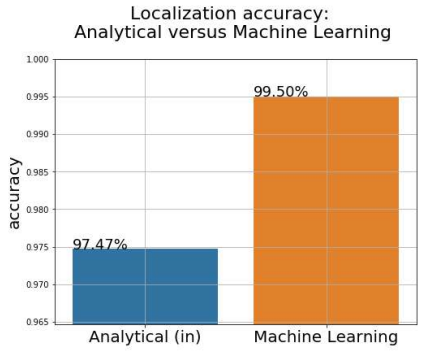
1. the fitting room RFID reader automatically detected all RFID tags
2. Based on the RFID detected tags, the large size (2x1m) mirror switches into a display mode and triggers interaction with customer (ask for a different size, color, … marketing push for the selected products …)
3. Issue: RFID detected tags can be physically outside the fitting room, fooling the application

Raw RFID data: time series

1. timeseries with epc (tag_ID), timestamp, antenna, rssi (tag signal strength).
2. 200 detections/sec … 200Ku dataset in 15min, large size data are collected quickly
3. Zoning (« in » or « out ») can be made with a simple analytical rule based on rssi, only partially valid (hypothesis: free space, right polarisation, not met in real world)

Pre-study results:

1. Machine Learning gives zoning accuracy, 5x better than analytical (errors : 0.5% versus 2.5%)
2. However, some results appear weird and hard to understand (antenna_coverage versus individual_antennas))



Objective#1: tag zoning classification (« in » or « out ») ML fully understanding

Objective#2: AI versus statistical ML