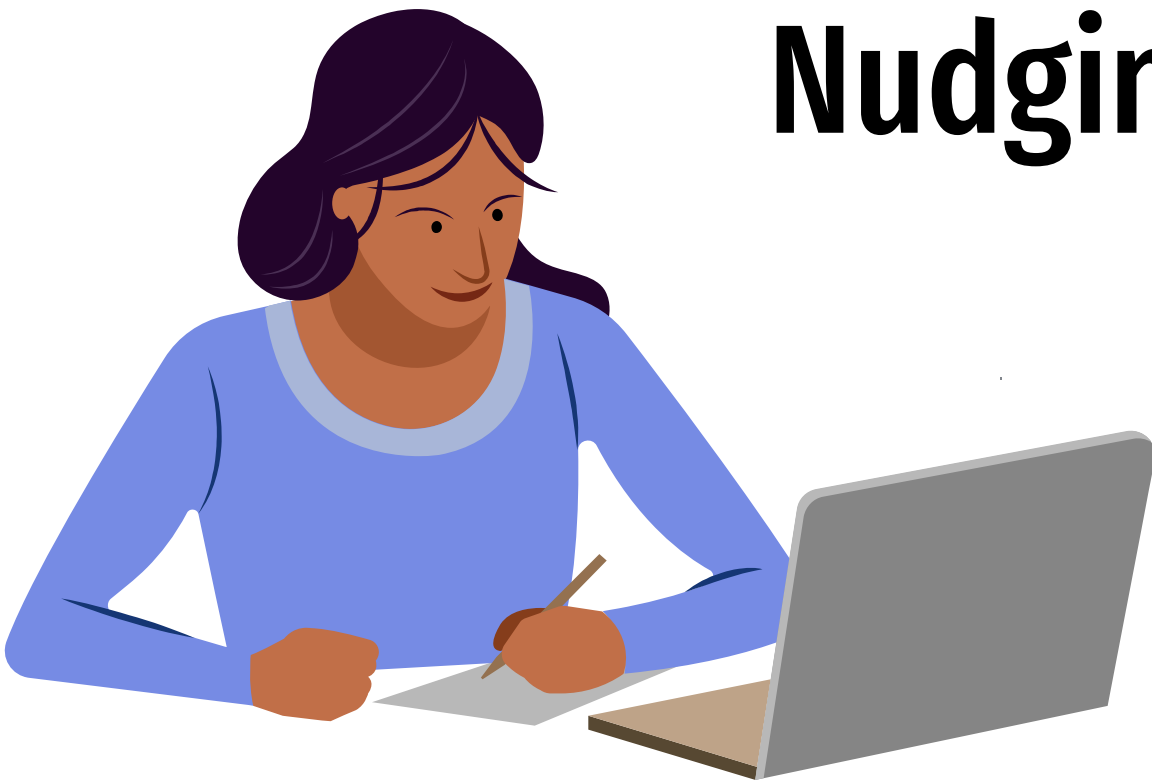


Personalized Nudging Contents



M. Rizzo
A. Frabetti
A. Iacovelli
R. Aitkaliyev
L. Marcosignori

GOAL: Personalized Nudging Contents

1.
STORYTELLING

2. PEER
COMPARISON

3.
FRAMING

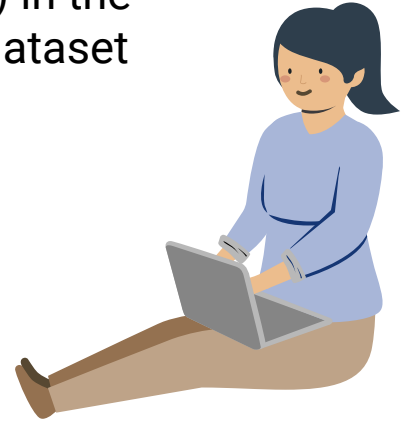


**8 Different
Customer
Personas**

Incremental Models

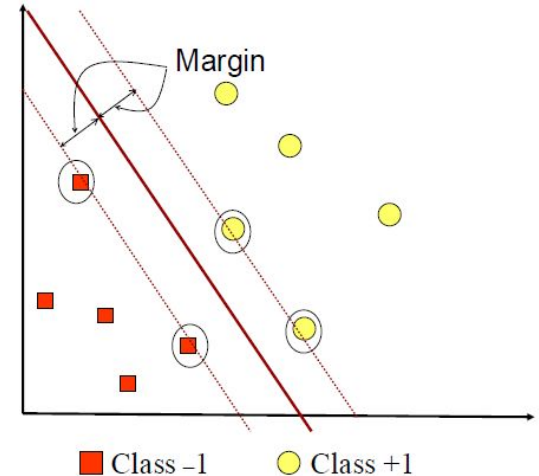
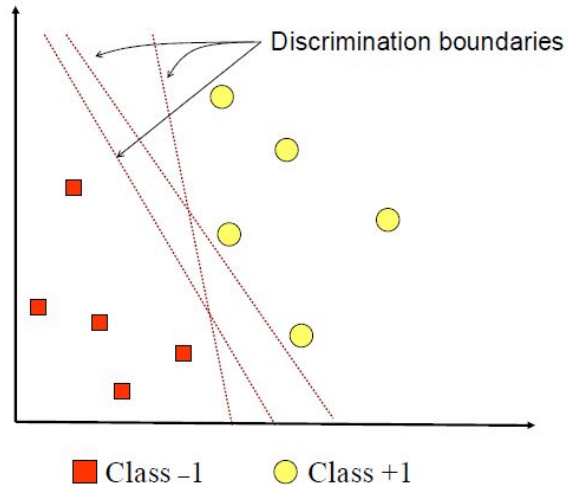


Both analyzed
with and without
labels (dummy
variables) in the
training dataset



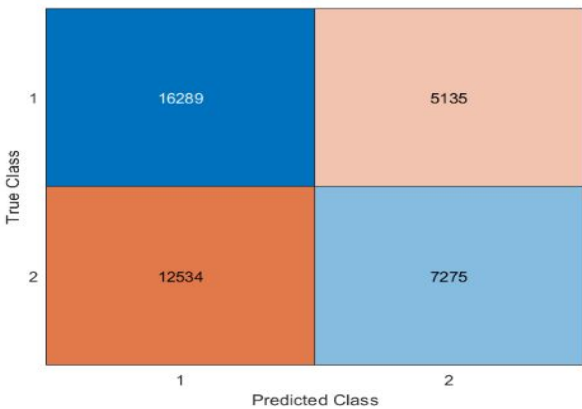
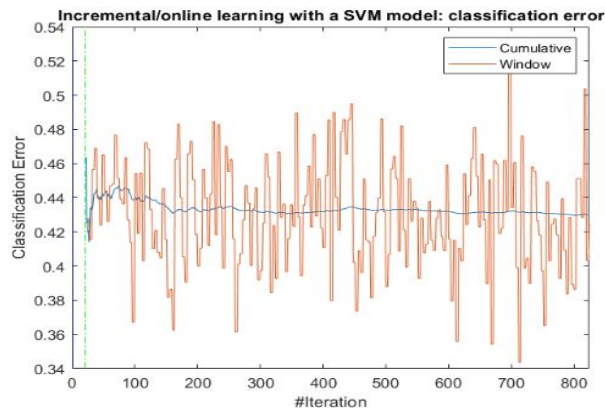
SVM: Support Vector Machine

- Support Vector Machine (SVM) is a type of algorithm for classification.
- Aims to obtain the **best hyperplane line** that divides data into two class in the input space.

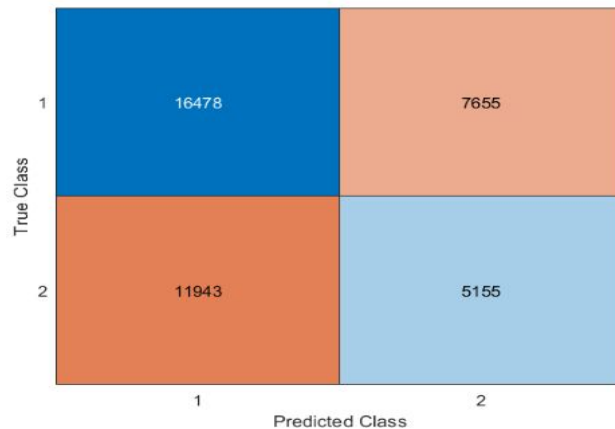
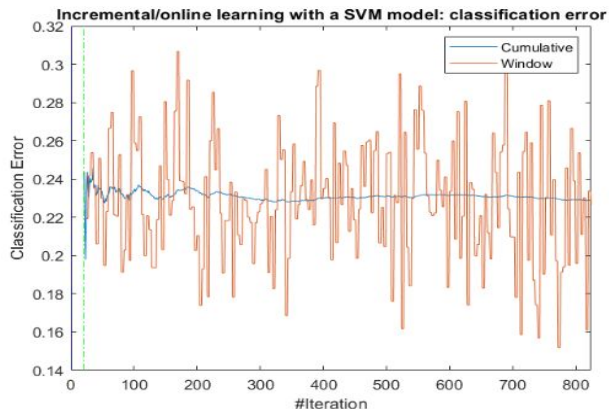


SVM (No labels)

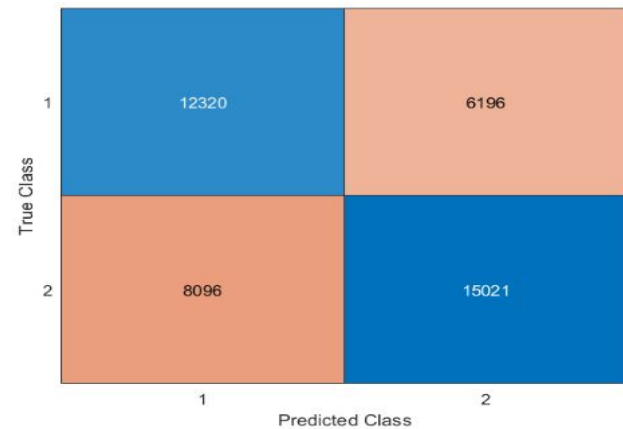
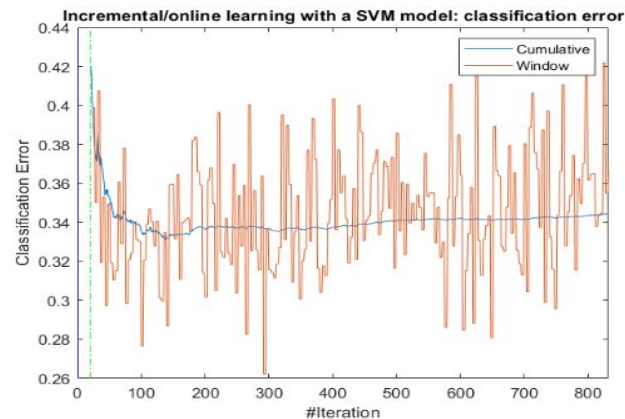
FRAMING



PEER COMPARISON

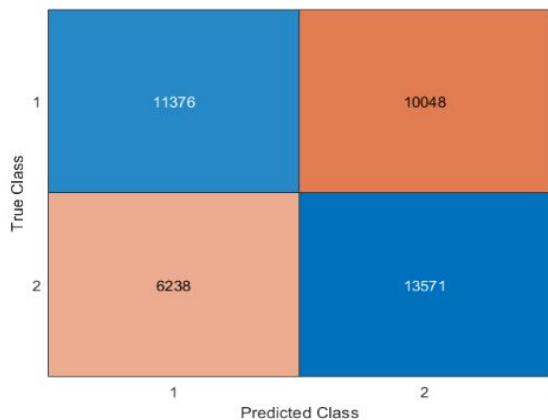
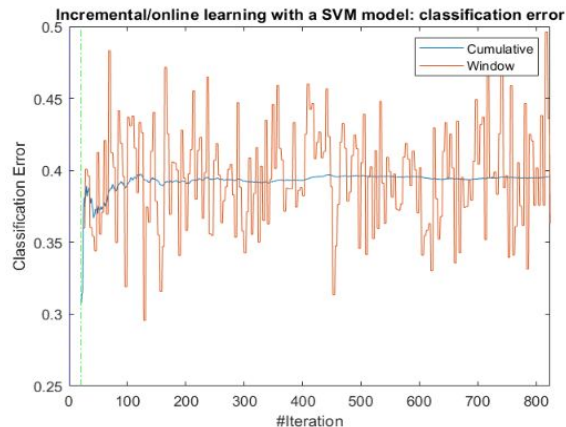


STORYTELLING

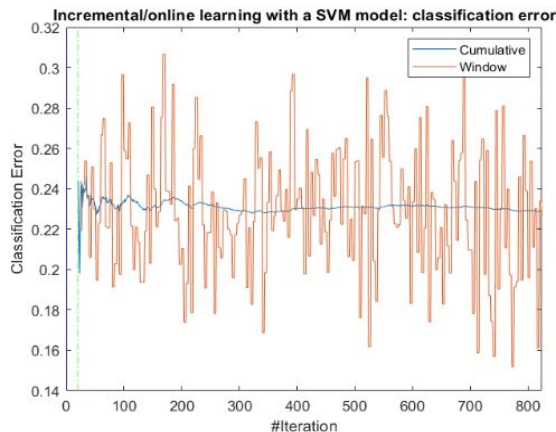


SVM (With labels)

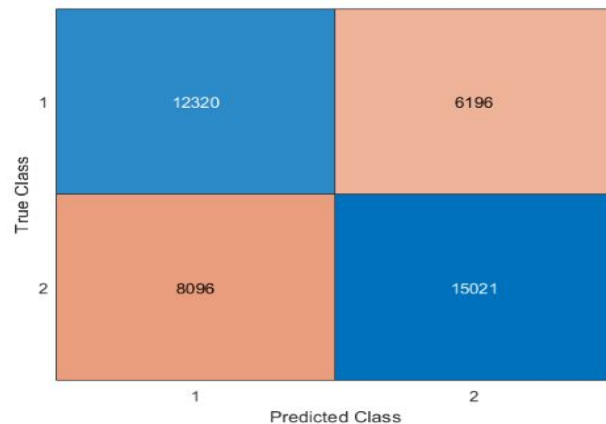
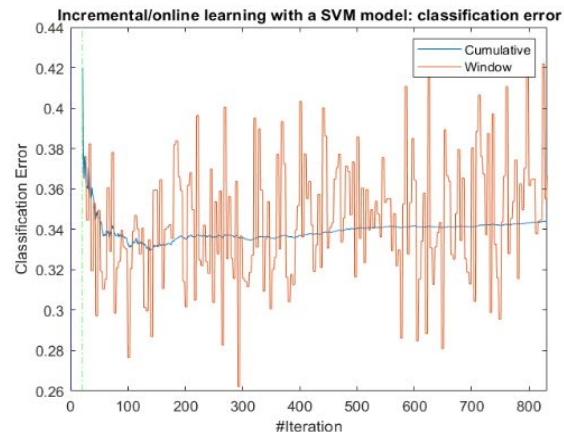
FRAMING



PEER COMPARISON



STORYTELLING





COMPARISON: Y/N labels?

Models with Labels:

→ **ADVANTAGES:**

Better models (less misclassifications)



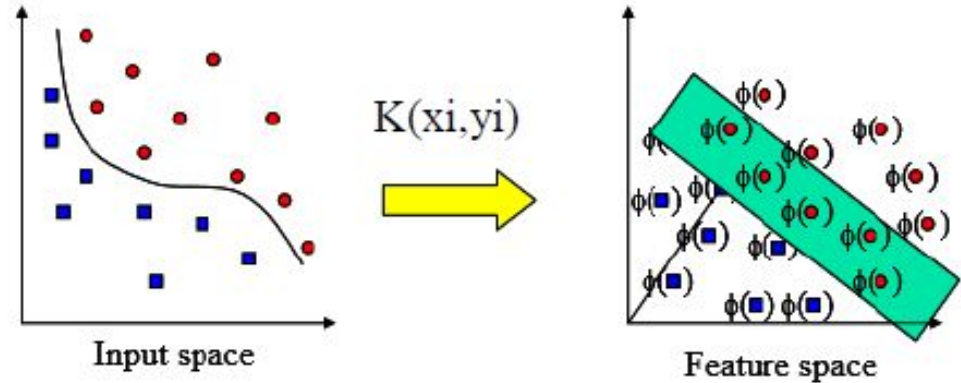
→ **DISADVANTAGES:**

Tendency to recommend nothing rather than to recommend wrongly. Do we prefer that?



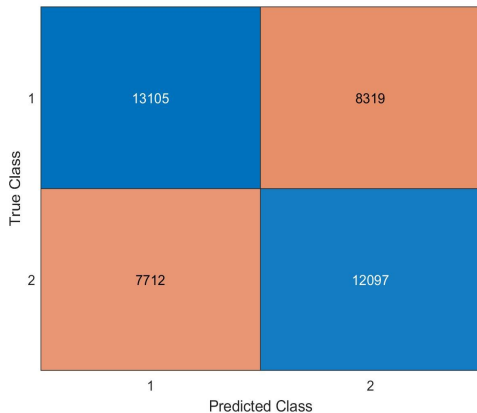
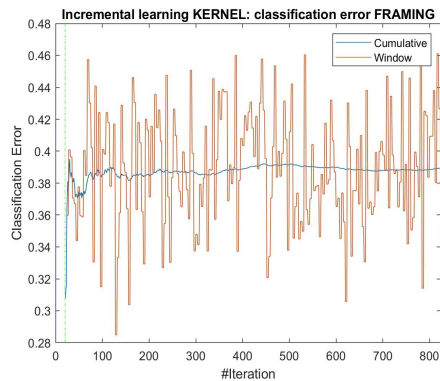
GAUSSIAN KERNEL

- SVM algorithm works non-linearly by looking for the **hyperplane** that is **used to calculate the distance between data classes**
- Using with dataset with a lot of features

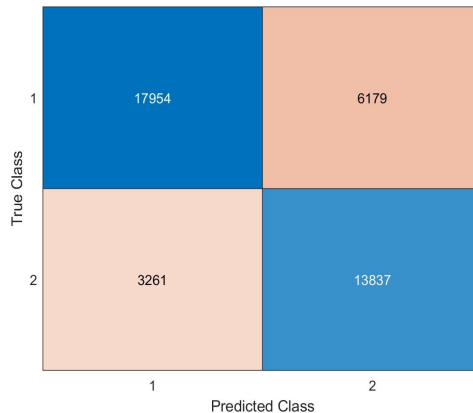
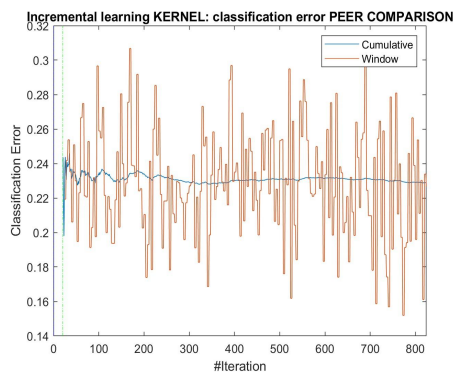


GAUSSIAN KERNEL (No labels)

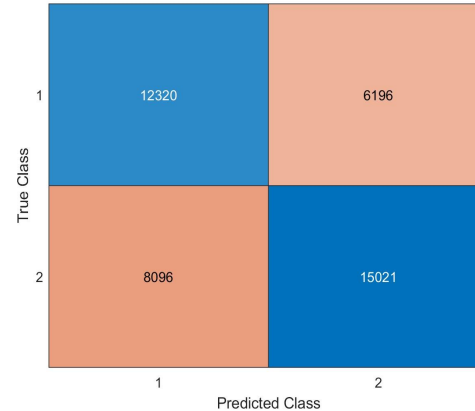
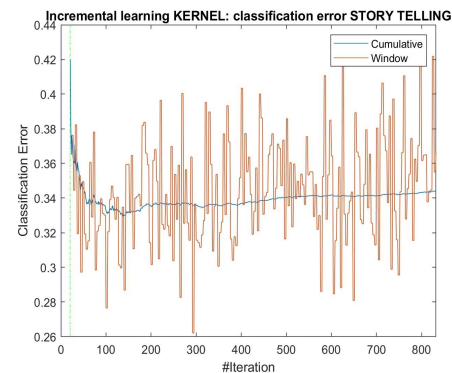
FRAMING



PEER COMPARISON

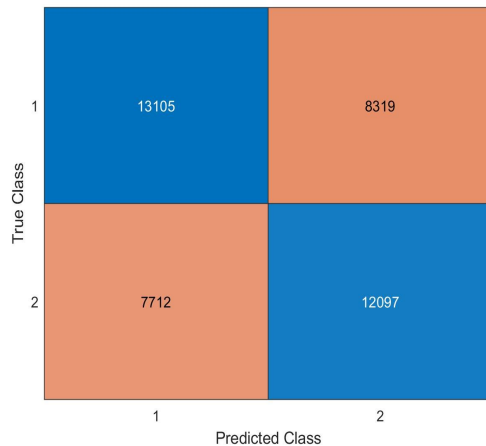
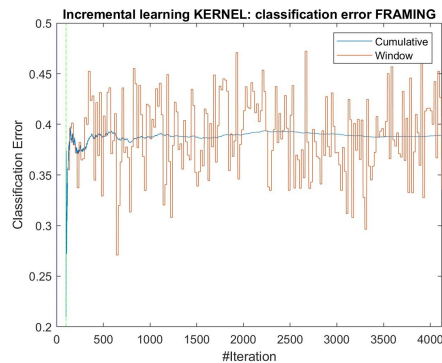


STORYTELLING

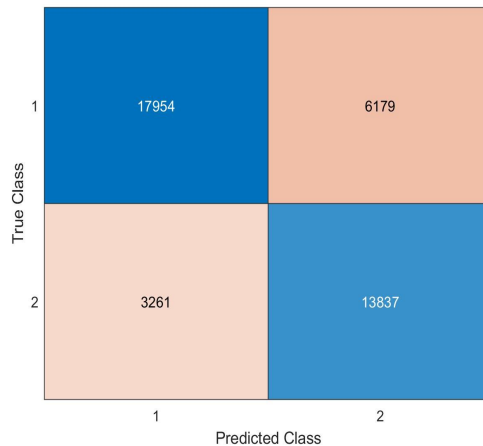
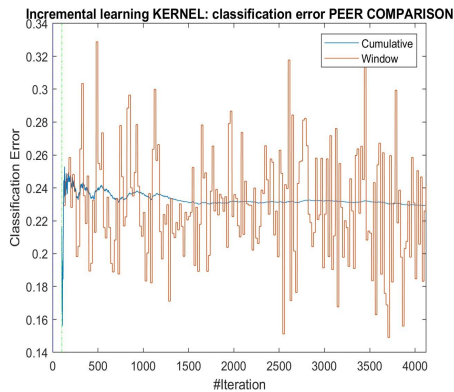


GAUSSIAN KERNEL (With labels)

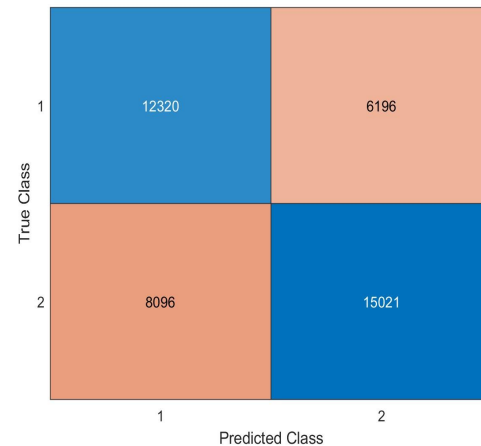
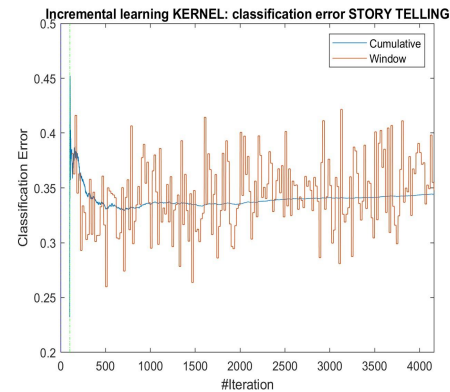
FRAMING



PEER COMPARISON



STORYTELLING





COMPARISON: Y/N labels?



CLASSIFICATION ERRORS

- FRAMING:
 - $(0.38892) \rightarrow (0.39003)$
- PEER COMPARISON:
 - $(0.22923) \rightarrow (0.22878)$
- STORY TELLING
 - $(0.34405) \rightarrow (0.34425)$



The classification error is nearly identical

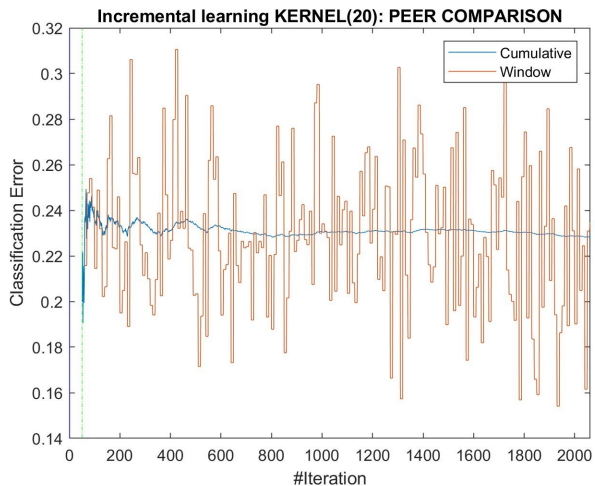
The **confusion matrix** are the same

The two models are pretty similar so we take the simplest

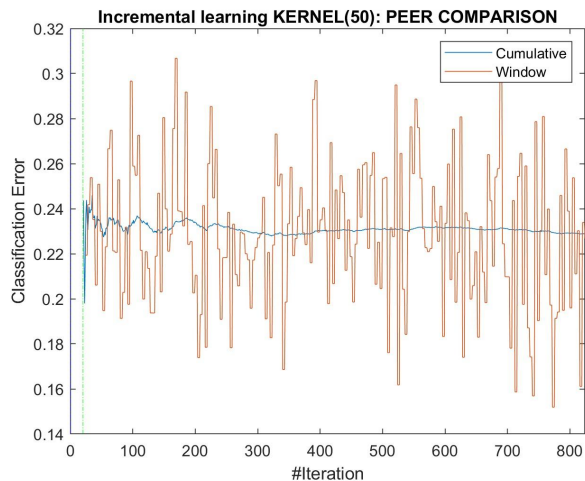


GAUSSIAN KERNEL (With labels)

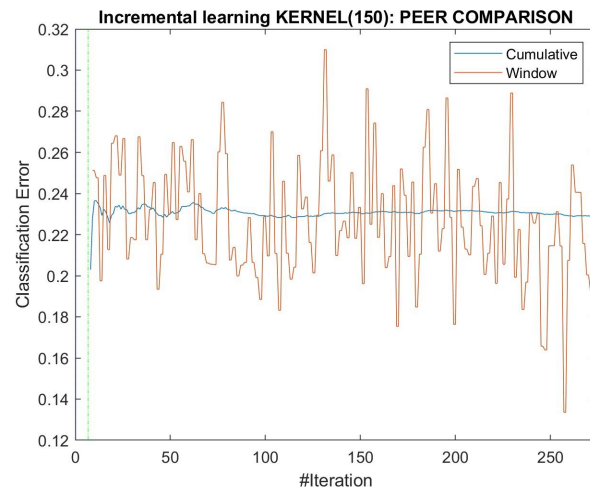
Chunk = 20



Chunk = 50



Chunk = 150



THE BEST MODEL:



GAUSSIAN KERNEL

Best chunk number: 50
“in medio stat virtus”





Thanks for your attention!

Doubts?

angelica.iacovelli@mail.polimi.it

alessandro.frabetti@mail.polimi.it

marco4.rizzo@mail.polimi.it

lucrezia.marcosignori@mail.polimi.it

ramazan.aitkaliyev@mail.polimi.it