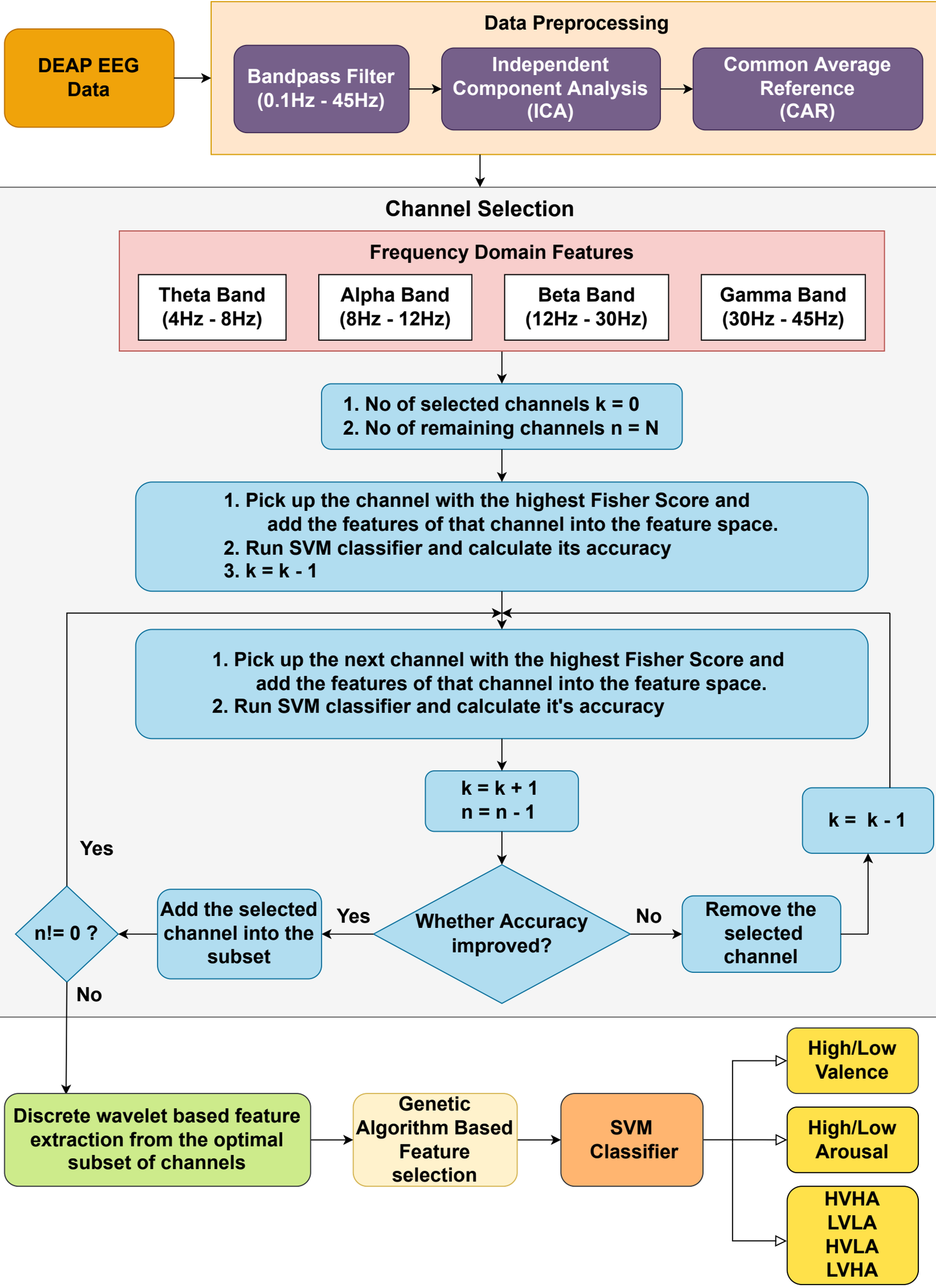
DEAP EEG Data
Data Preprocessing
Bandpass Filter (0.1Hz - 45Hz)
Independent Component Analysis (ICA)
Common Average Reference (CAR)
Channel Selection
Frequency Domain Features
Theta Band (4Hz - 8Hz)
Alpha Band (8Hz - 12Hz)
Beta Band (12Hz - 30Hz)
Gamma Band (30Hz - 45Hz)
1. No of selected channels k = 0
2. No of remaining channels n = N
1. Pick up the channel with the highest Fisher Score and add the features of that channel into the feature space.
2. Run SVM classifier and calculate its accuracy
3. k = k - 1
1. Pick up the next channel with the highest Fisher Score and add the features of that channel into the feature space.
2. Run SVM classifier and calculate it's accuracy
k = k + 1
n = n - 1
k = k - 1
Whether Accuracy improved?
Yes
No
Remove the selected channel
Add the selected channel into the subset
n!= 0 ?
Yes
No
Discrete wavelet based feature extraction from the optimal subset of channels
Genetic Algorithm Based Feature selection
SVM Classifier
High/Low Valence
High/Low Arousal
HVHA
LVLA
HVLA
LVHA