Clustering Results

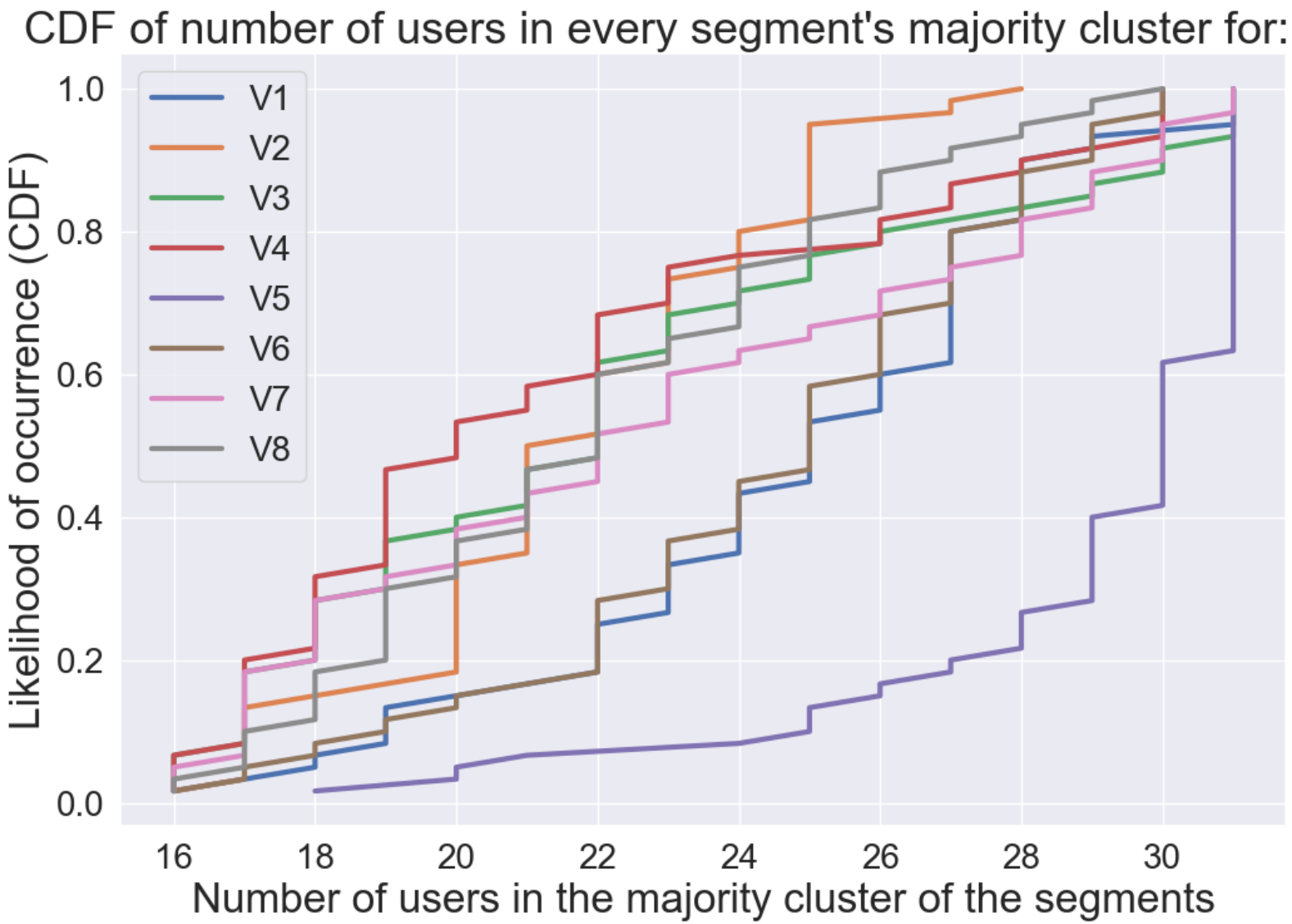
Tasks

- Clustering steps
  - Clustering based on HM_X, HM_Y, and HM_Z values
- Two types of analysis
  - User-level analysis
    - CDF plots for K=2,3
  - Frame-level analysis
- Bounding box calculation

User-level Analysis

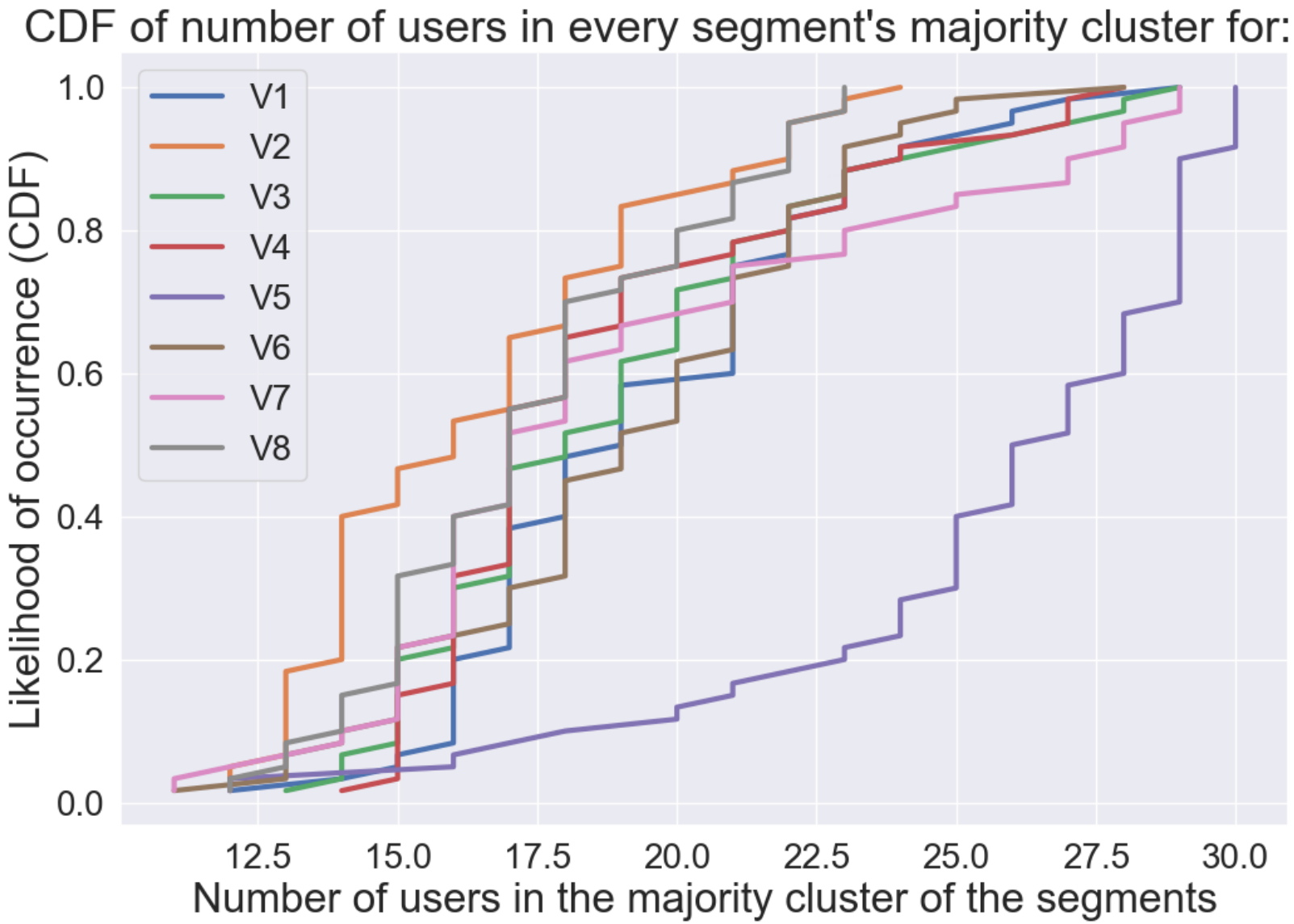
- For every segment of the video
  - Clustering is done based on HM_X, HM_Y, and HM_Z values
  - A user is assigned to *that cluster*, which contains most of her samples

CDF of the number of users in majority cluster (K=2)



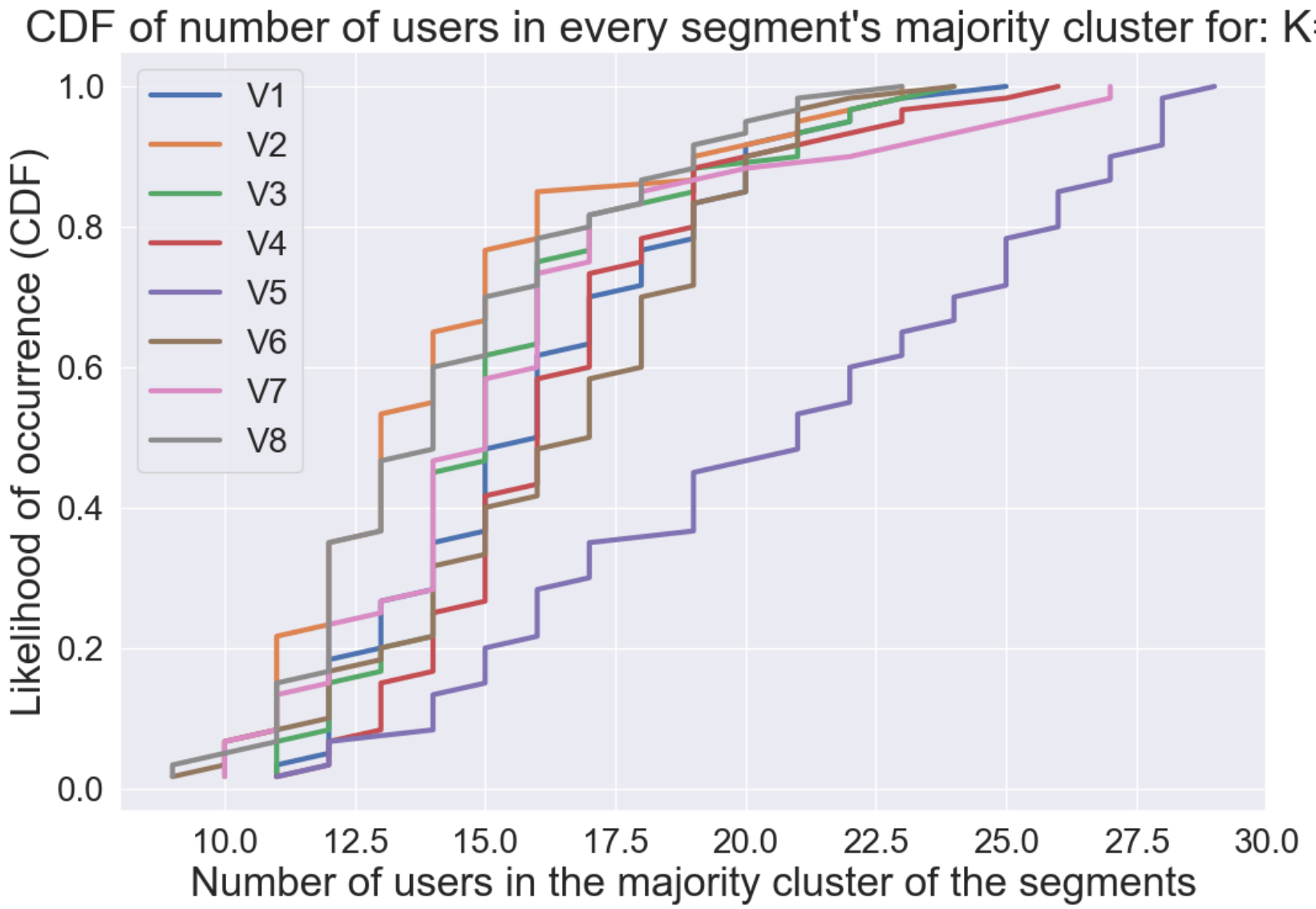
- For all videos, 80% of the segments' majority cluster contains at least 18 users

CDF of the number of users in majority cluster (K=3)



- For all videos, 80% of the segments' majority cluster contains at least 14 users

CDF of the number of users in majority cluster (K=4)

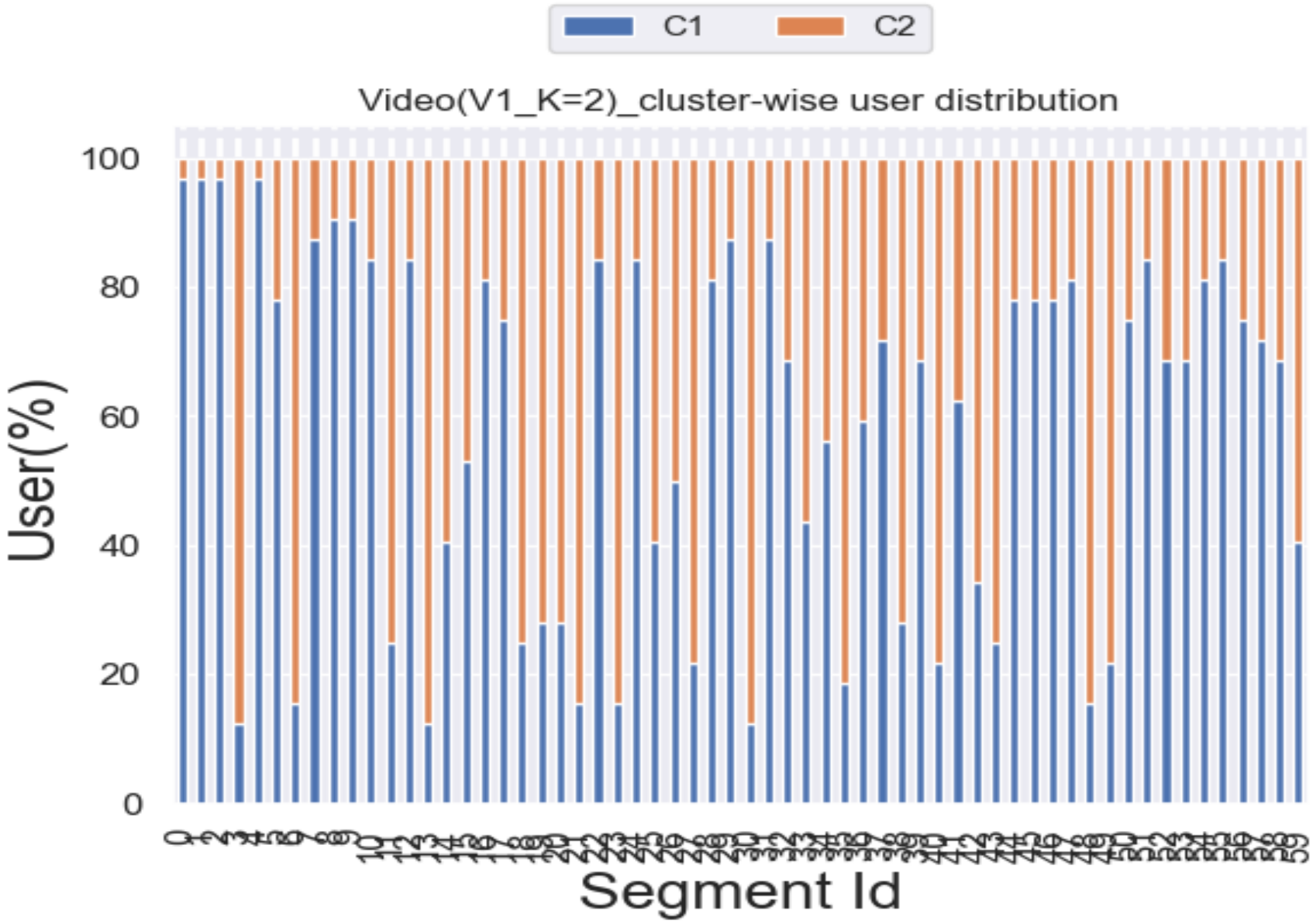


- For all videos, 80% of the segments' majority cluster contains at least 11 users

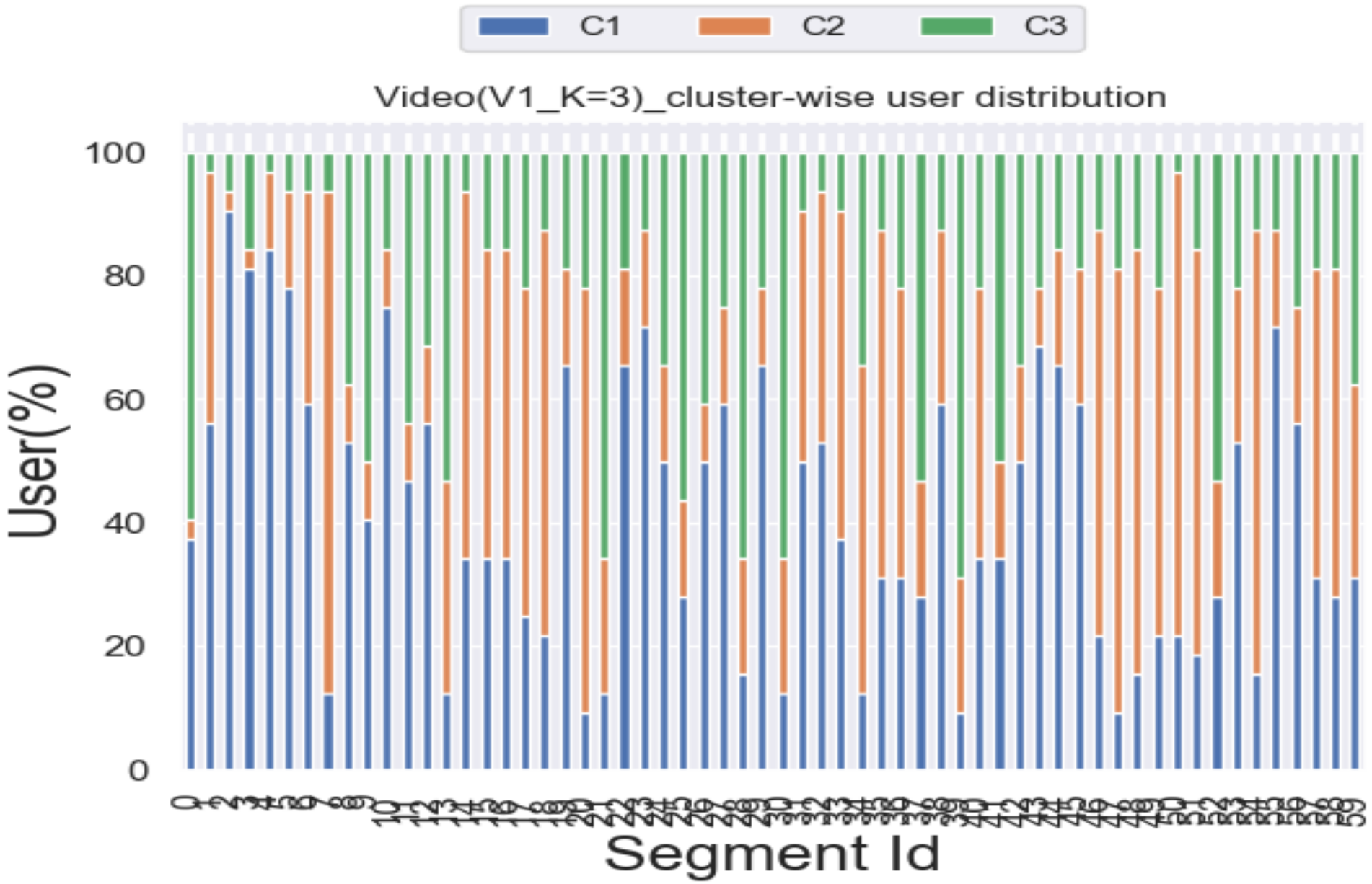
Frame-level Analysis

- For every segment of the video
  - Clustering is done based on HM_X, HM_Y, and HM_Z values
  - Part of the samples (frames, pitch, yaw) of one user can be in one cluster, and other samples in another cluster

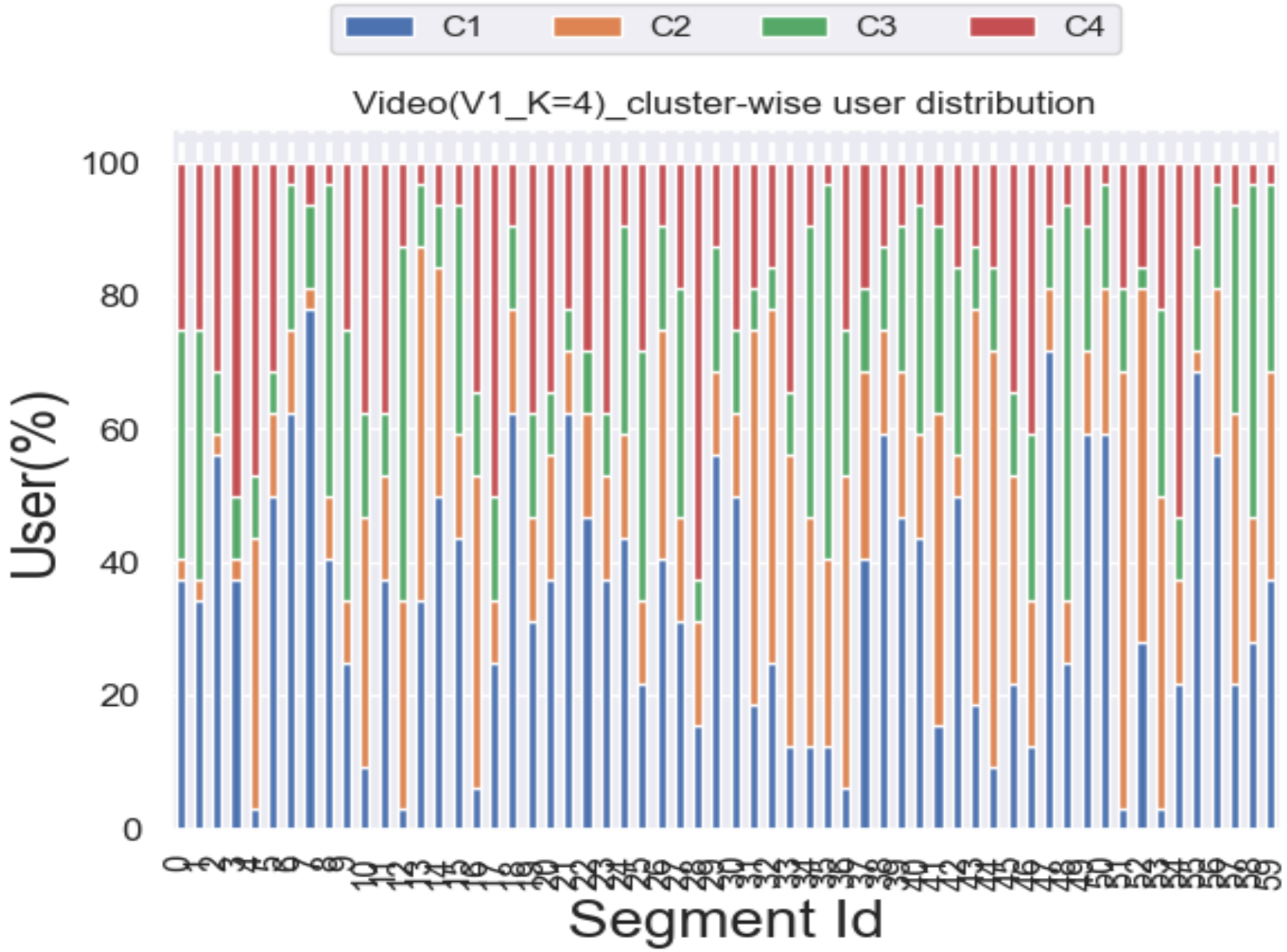
Cluster-wise user distribution



Cluster-wise user distribution



Cluster-wise user distribution



Bounding box calculation

- For every cluster of the segment
  - 2-types of bounding boxes are provided
    - Based on Pitch and Yaw (Min Pitch, Min Yaw; Max Pitch, Max Yaw) of the cluster
    - Based on HM_X and HM_Y (Min HM_X, Min HM_Y; Max HM_X, Max HM_Y) of the cluster

Related files

- Code
  - clustering_users.py
- Clustering output files
  - clustering_op_K=2.csv
  - clustering_op_K=3.csv
  - clustering_op_K=4.csv
- Cluster-wise user distribution
  - Cluster_wise_user_dist_V1K=2.PNG
  - Cluster_wise_user_dist_V1K=3.PNG
  - Cluster_wise_user_dist_V1K=4.PNG
- CDF files
  - K=2_segment_wise_no_of_similar_users_CDF.PNG
  - K=3_segment_wise_no_of_similar_users_CDF.PNG
  - K=4_segment_wise_no_of_similar_users_CDF.PNG