

Model evaluation

We evaluate our proposed model on five Dataset.

1-ADS data set

2-DCSASS Abuse Dataset

3: Automatic violence detection data set

4- DCSASS Abuse Dataset + Automatic violence detection data set

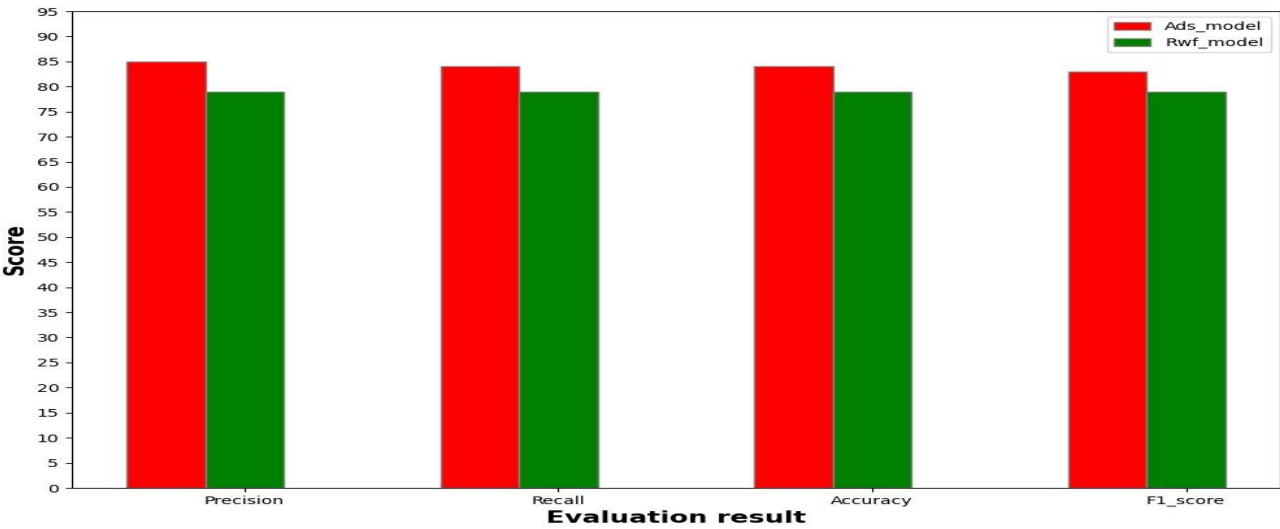
5-RWF real world fight dataset

Evaluation 1 :ADS Dataset

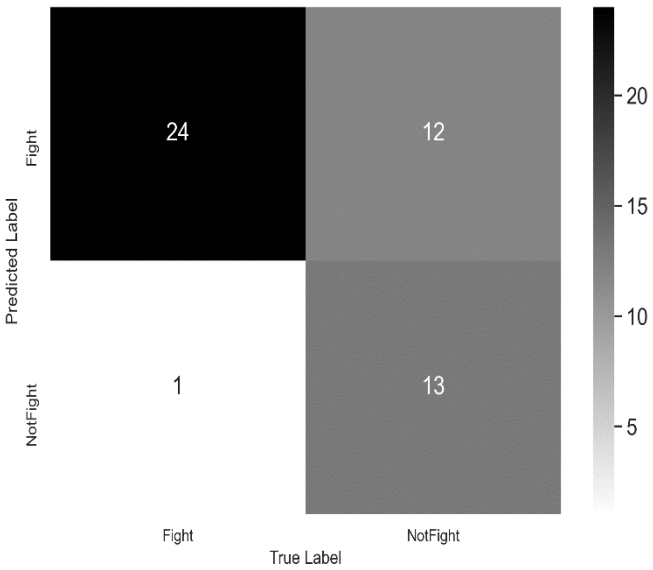
ADS Dataset description is mention in the Data preprocessing section

RESULT:

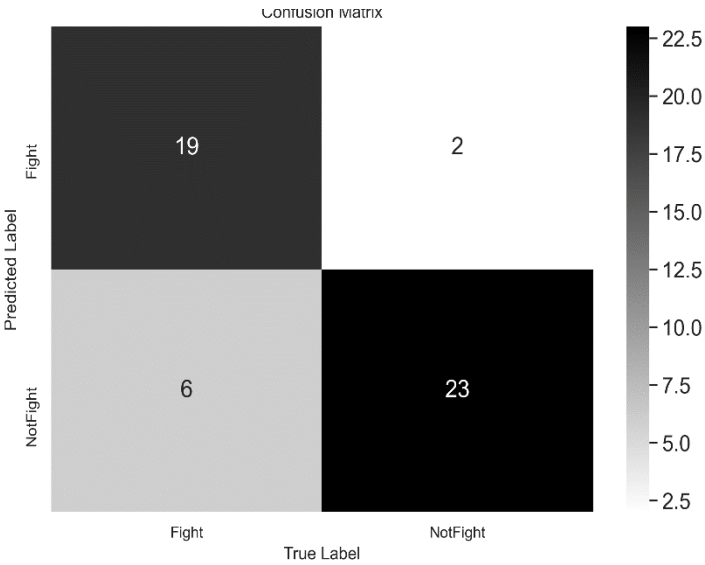
Models	Accuracy	Recall	Precision	F1-Score
Ads	0.84	0.84	0.85	0.84
Rwf	0.74	0.74	0.80	0.73



: RWF model confusion matrix1 Figure



: ADS model confusion matrix2 Figure



Evaluation 2 DCSASS Abuse Dataset

DCSASS Dataset Abuse link:

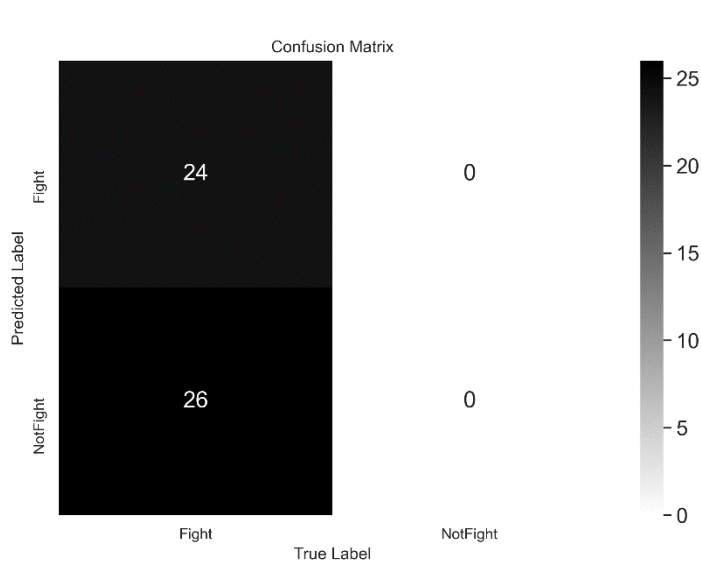
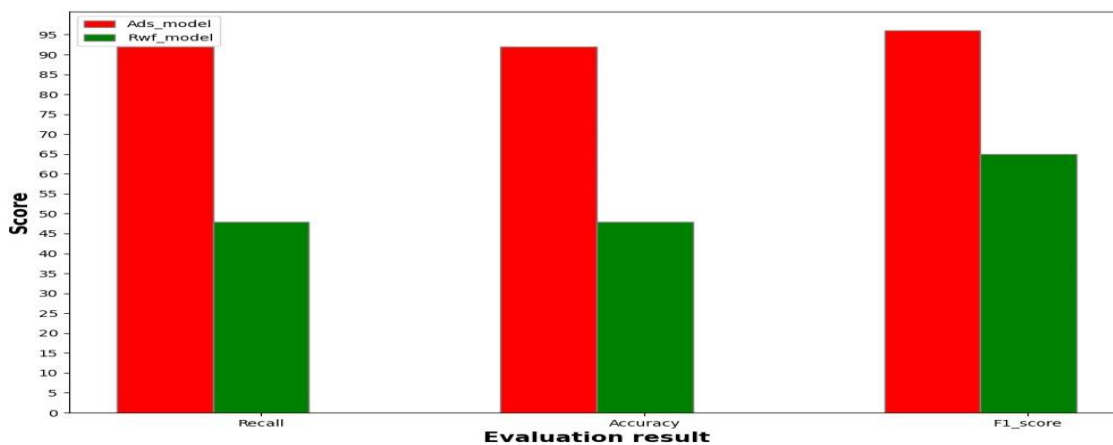
<https://www.kaggle.com/mateohervas/dcsass-dataset>

Note:

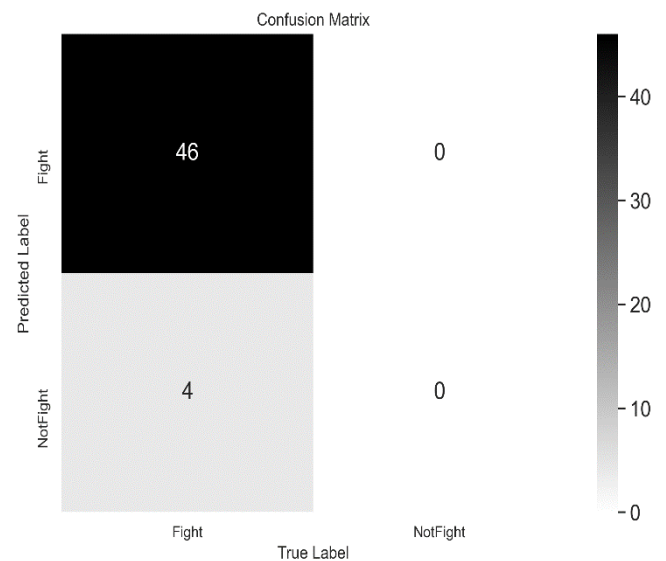
For testing we use only the Abuse section part in the Dataset

RESULT:

Models	Accuracy	Recall	Precision	F1-Score
Ads	<u>0.92</u>	<u>0.92</u>	<u>1.00</u>	<u>0.95</u>
Rwf	<u>0.48</u>	<u>0.48</u>	<u>1.00</u>	<u>0.64</u>



RWF model confusion matrix4



ADS model confusion matrix3

Evaluation 3 : Automatic violence detection data set

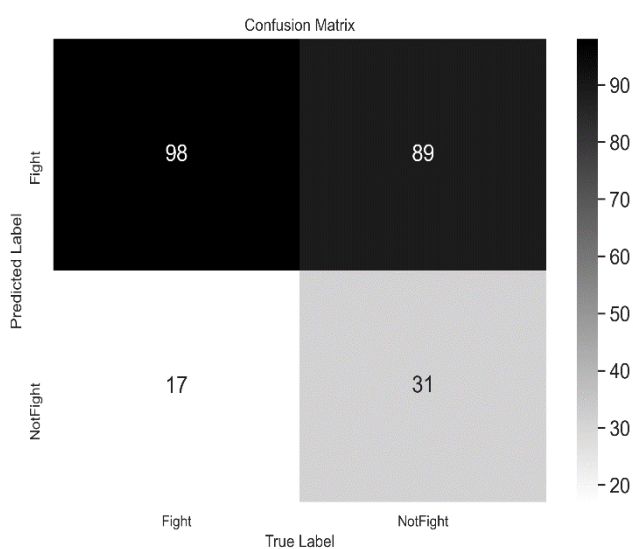
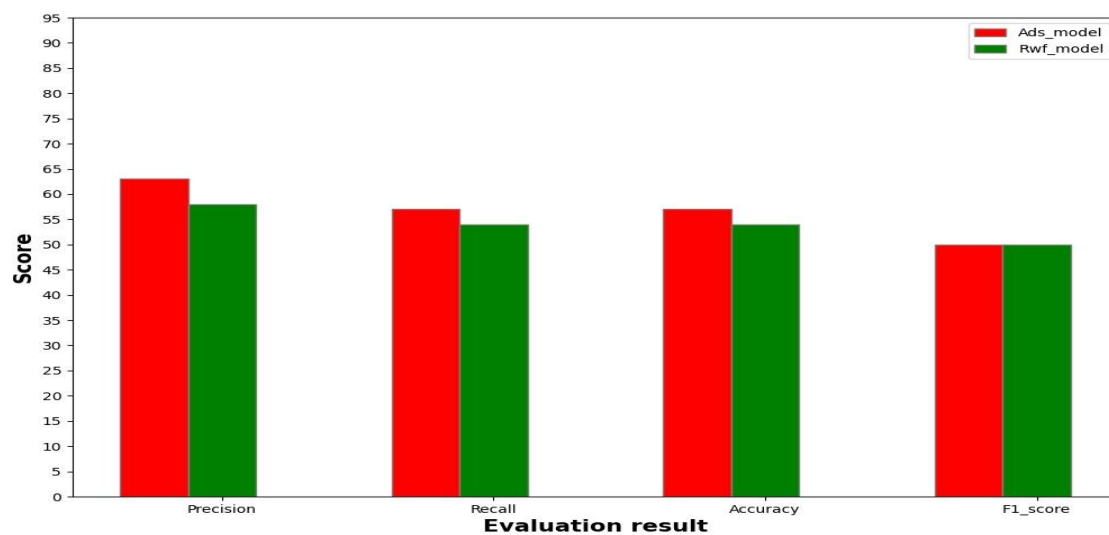
Data set description:

350 video clips labelled as “non-violent” and “violent”, to be used to train and test algorithms for violence detection in videos.

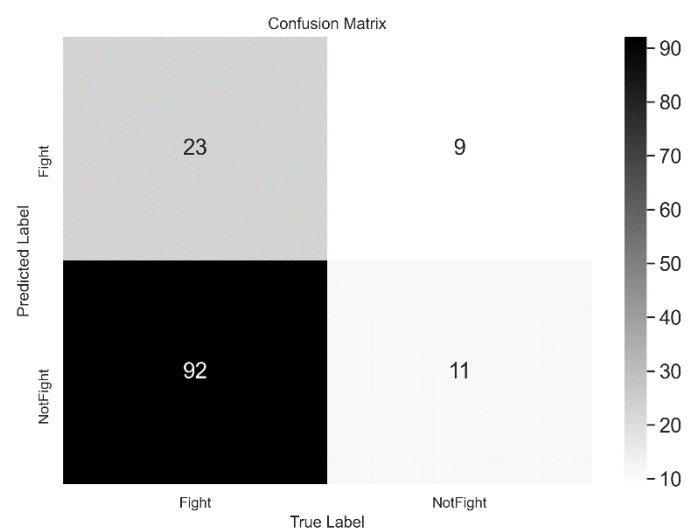
Link:<https://github.com/airtlab/A-Dataset-for-Automatic-Violence-Detection-in-Videos>

Result:

Models	Accuracy	Recall	Precision	F1-Score
<u>Ads</u>	<u>0.57</u>	<u>0.57</u>	<u>0.631</u>	<u>0.504</u>
<u>Rwf</u>	<u>0.54</u>	<u>0.54</u>	<u>0.58</u>	<u>0.506</u>



RWF model confusion matrix6 Figure



: ADS model confusion matrix5 Figure

Evaluation 4 DCSASS Dataset + Automatic violence detection

in order to evaluate the models with not abuse event, we combine Automatic violence detection Dataset and DCSASS Dataset.

Link: <https://github.com/airtlab/A-Dataset-for-Automatic-Violence-Detection-in-Videos>

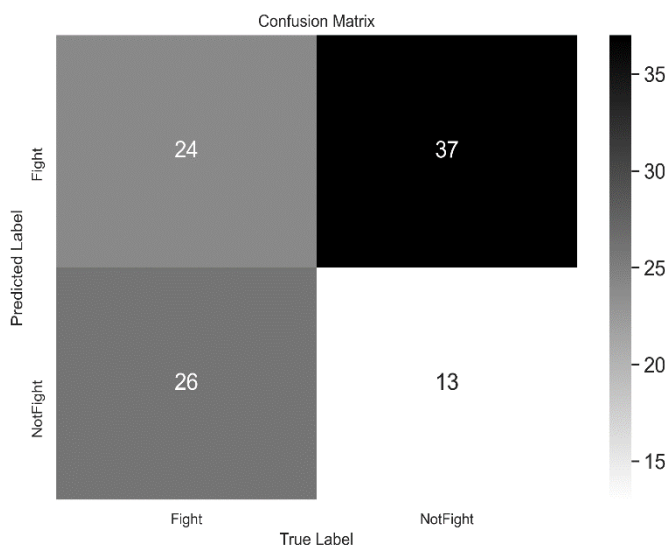
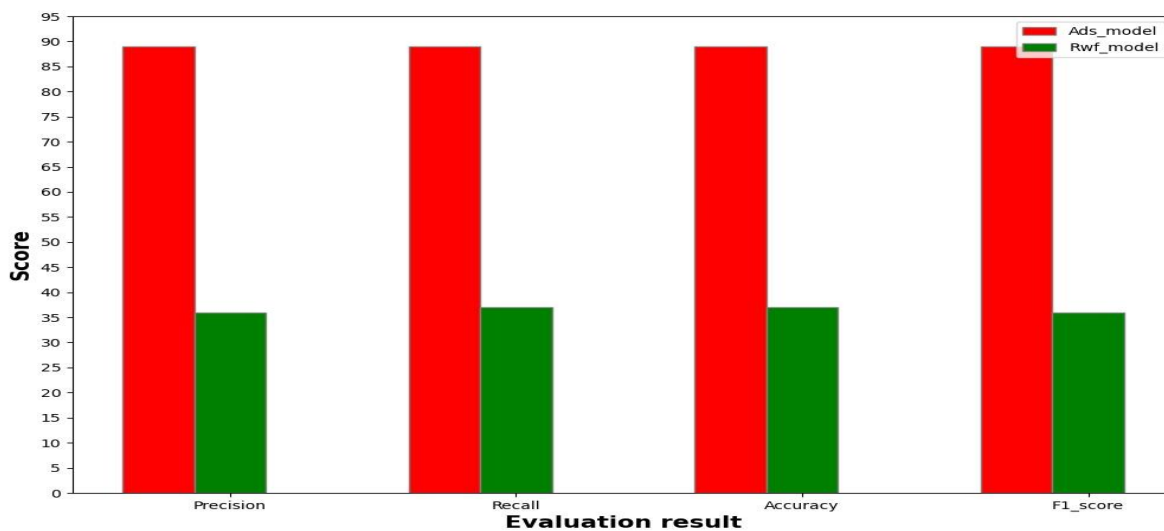
Note:

DCSASS abuse Dataset used as positives sample → abuse event

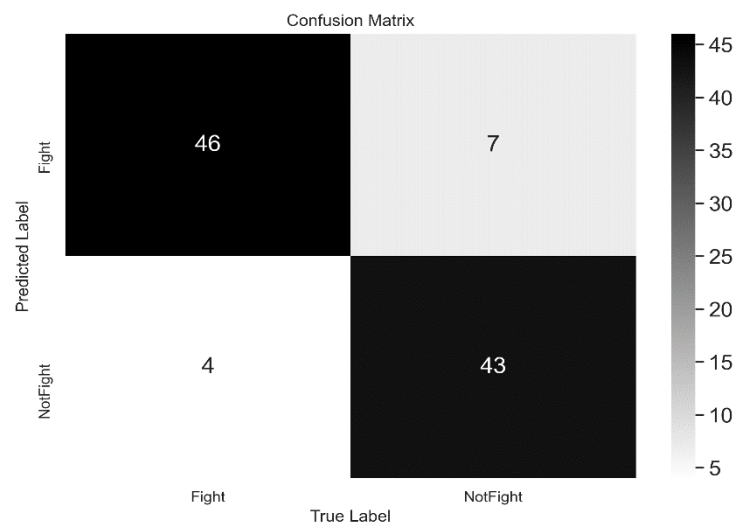
Automatic violence used as negative example → Not abuse event.

RESULT:

Models	Accuracy	Recall	Precision	F1-Score
<u>Ads</u>	<u>0.89</u>	<u>0.89</u>	<u>0.89</u>	<u>0.89</u>
<u>Rwf</u>	<u>0.37</u>	<u>0.37</u>	<u>0.36</u>	<u>0.36</u>



RWF model confusion matrix8 Figure



ADS model confusion matrix7 Figure

Evaluation 5 : RWF Real world fight

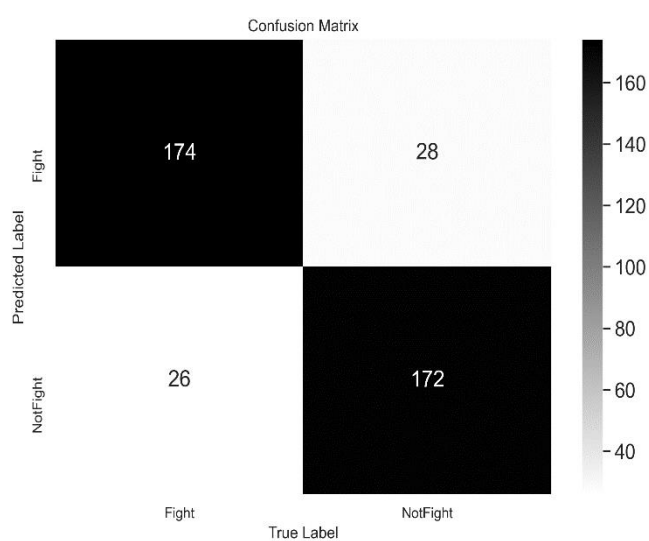
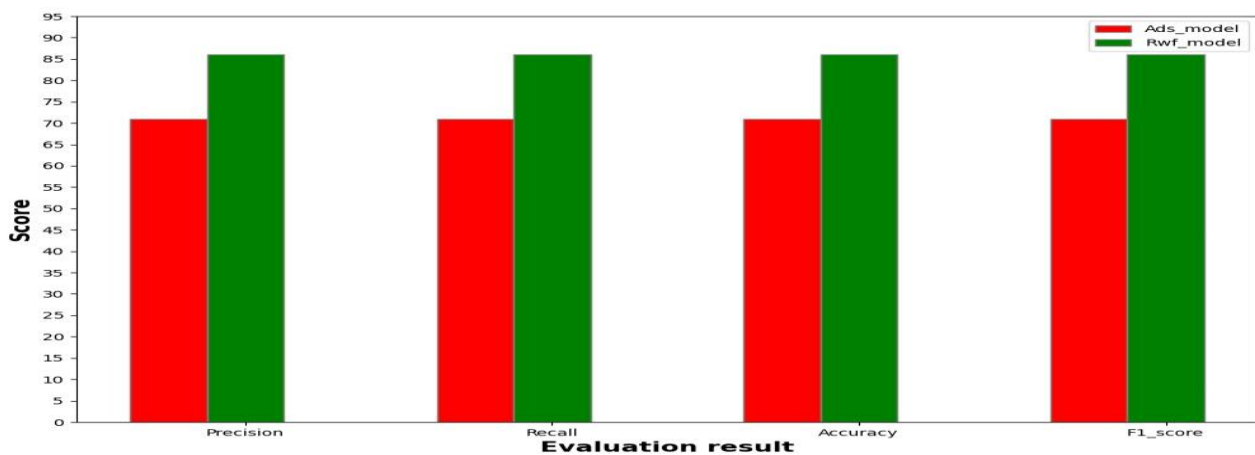
link: <https://arxiv.org/abs/1911.05913>

Data set description:

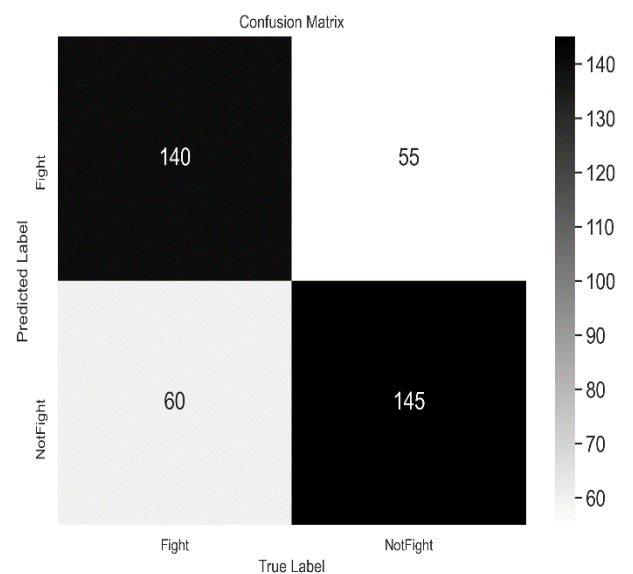
RWF-2000 database with 2,000 videos captured by surveillance cameras in real-world scenes.

Result:

Models	Accuracy	Recall	Precision	F1-Score
<u>Ads</u>	<u>0.71</u>	<u>0.71</u>	<u>0.71</u>	<u>0.71</u>
<u>Rwf</u>	<u>0.86</u>	<u>0.86</u>	<u>0.86</u>	<u>0.86</u>



RWF model confusion matrix



: ADS model confusion matrix