

# Anomaly Detection

By Fateme

# Studying the Famous Dataset on Anomaly Detection

- ++1.UCSD
- ++5.UMN
- ++6.ChukAvenue
- 2++++.UCF-Crime
- 3.XD-Violence
- 4.RWF-2000
- 7+8++++.DOTA+A3D
- 9.TrafficGaze
- 10.DR(eye)VE
- 11.JAAD
- 12.UBNormal
- 13.Virat
- 14.ShangaiTech
- 15++++++.DADA2000
- 16.AnomalousBehaviourDataset
- 17. StreetSence
- 18+19-Subway Enterence and Exit
- 20. TAD
- 21. Hocky Fights
- 22. Movie Fight
- 23.Traffic-Bellevue Traffic-Train
- 24., Violent Flows
- 25.CF-violence
- 26.IITH
- 27.Iowa DOT

# Focusing on this dataset especially determining with Orange Color

A	B	C	D	E	F	G	
Domain	Dataset	Number of papers that used the dataset(35)	Year	Citation	Link	Reference Paper	Journal/Conference
General	1. UCF-Cime	12	2018	801	<a href="http://crcv.ucf.edu/projects/real-world/">http://crcv.ucf.edu/projects/real-world/</a>	Real-world anomaly detection in surv	IEEE conference on compu
Violence	2.XD-Violence	3	2020	57	<a href="https://roc-ng.github.io/XD-Violence/">https://roc-ng.github.io/XD-Violence/</a>	Not only look, but also listen: Learnin	European conference on c
Violence	3.RWF-2000	4	2021	52	<a href="https://github.com/mchengny/RWF2000-Video-Database-for-">https://github.com/mchengny/RWF2000-Video-Database-for-</a>	RWF-2000: an open large scale video	Conference on Pattern Rec
Campus	4.UCSD	17	2013	831	<a href="http://www.svcl.ucsd.edu/projects/anomaly/dataset.html">http://www.svcl.ucsd.edu/projects/anomaly/dataset.html</a>	Anomaly detection and localization in	IEEE transactions on patte
Campus	5.CHUK Avenue	11	2013	823	<a href="http://www.cse.cuhk.edu.hk/leojia/projects/detectabnormal/">http://www.cse.cuhk.edu.hk/leojia/projects/detectabnormal/</a>	Abnormal event detection at 150 fps	IEEE international confere
Campus	6.ShanghaiTech	9	2017	386	<a href="https://github.com/StevenLiuWen/sRNN_TSC_Anomaly_Detect">https://github.com/StevenLiuWen/sRNN_TSC_Anomaly_Detect</a>	A revisit of sparse coding based anoma	IEEE international confere
Campus	7.UMN	5	2006-2010		<a href="http://mha.cs.umn.edu/proj_events.shtml">http://mha.cs.umn.edu/proj_events.shtml</a>	Unusual Crowd Activity Dataset	
Traffic	8.DoTA	1	2018-2022	18	<a href="https://github.com/MoonBlvd/Detection-of-Traffic-Anomaly">https://github.com/MoonBlvd/Detection-of-Traffic-Anomaly</a>	DoTA: unsupervised detection of	IEEE transactions on patte
Traffic	9.A3D	1	2019	73	<a href="https://github.com/MoonBlvd/tad-IROS2019">https://github.com/MoonBlvd/tad-IROS2019</a>	Unsupervised traffic accident detectio	IEEE/RSJ International Con
Traffic	10.DADA	3	2019-2021	22-21	<a href="https://github.com/JWFangit/LOTVS-DADA">https://github.com/JWFangit/LOTVS-DADA</a>	DADA: Driver attention prediction in	IEEE Transactions on Intell
Driving	11.DR(eye)VE	2	2018	170	<a href="https://aimagelab.ing.unimore.it/imagelab/page.asp?IdPage=8">https://aimagelab.ing.unimore.it/imagelab/page.asp?IdPage=8</a>	driving accident scenarios	IEEE Intelligent Transporta
						Predicting the Driver's Focus of Attent	IEEE transactions on patte

# UCF-Crime Paper

## Real-world Anomaly Detection in Surveillance Videos

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	# of videos	Average # of frames	Dataset length	Example anomalies
UCSD Ped1 [27]	70	201	5 min	Bikers, small carts, walking across walkways
UCSD Ped2 [27]	28	163	5 min	Bikers, small carts, walking across walkways
Subway Entrance [3]	1	121,749	1.5 hours	Wrong direction, No payment
Subwa Exit [3]	1	64,901	1.5 hours	Wrong direction, No payment
Avenue [28]	37	839	30 min	Run, throw, new object
UMN [2]	5	1290	5 min	Run
BOSS [1]	12	4052	27 min	Harass, disease, panic
Abnormal Crowd [31]	31	1408	24 min	Panic, fight, congestion, obstacle, neutral
<b>Ours</b>	<b>1900</b>	<b>7247</b>	<b>128 hours</b>	<b>Abuse, arrest, arson, assault, accident, burglary, fighting, robbery</b>

Table 1. A comparison of anomaly datasets. Our dataset contains larger number of longer surveillance videos with more realistic anomalies.

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# DoTA Paper

TABLE 1: Comparison of published driving video anomaly datasets.

Dataset	type	# anomaly videos	# frames		Annotations
UCSD Ped1/2 [65]	Surveillance	98	18560	(30fps)	temporal
CUHK Avenue [11]		37	30,652	(30fps)	temporal
UCF-Crime [24]		1,900	13,769,300	(30fps)	temporal
ShanghaiTech [13]		437	317,398	(30fps)	temporal
StreetAccident [1]	Dashcam	620	62,000	(20fps)	temporal
A3D [22]		1,500	128,175	(10fps)	temporal
CCD [26]		1,500	75,000	(10fps)	temporal, spatial (tracklets), causation
DADA [3]		2,000	648,476	(30fps)	temporal, spatial (eye-gaze)
<b>DoTA</b>		<b>4,677</b>	<b>731,932</b>	(10fps)	temporal, spatial (tracklets), categories

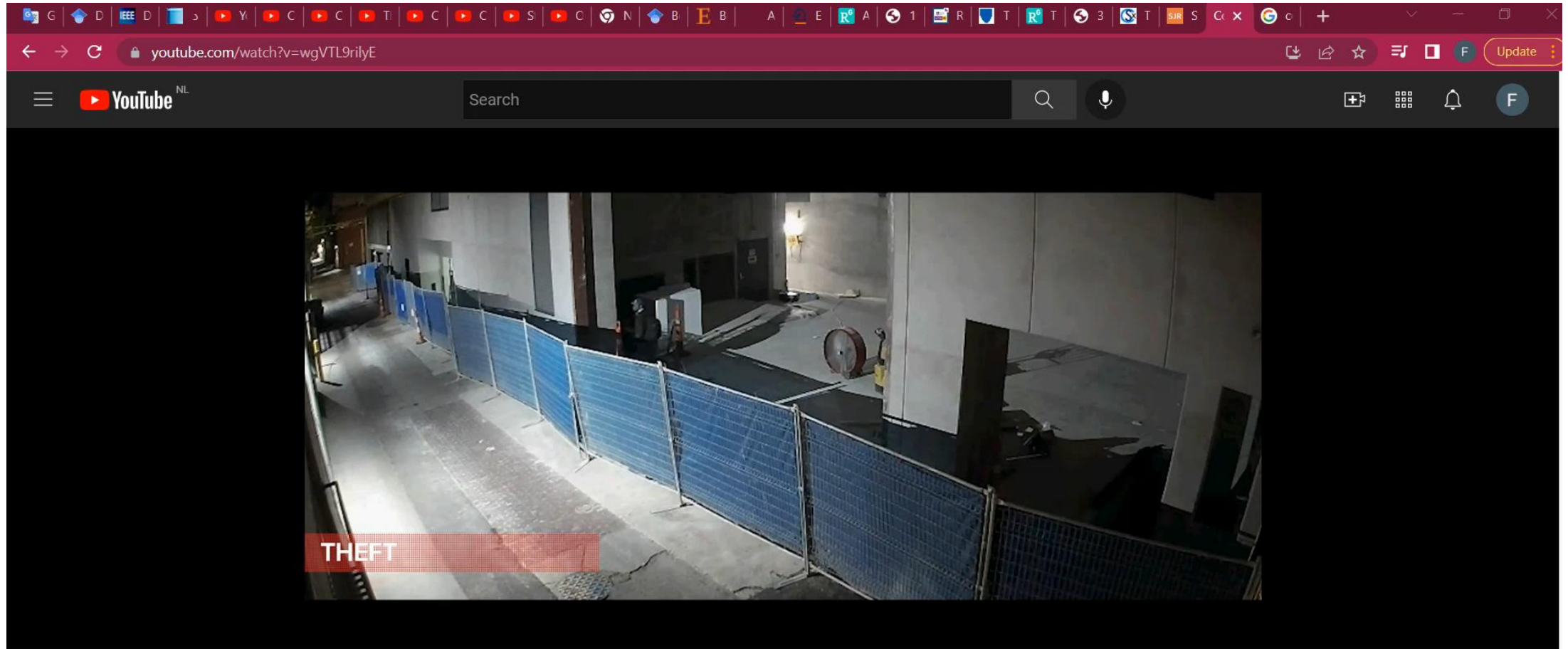
# Accident– UCF-Crime: a sample video



# Fighting in UCF-Crime: a sample video



# Security based on Video Surveillance on Construction Sites





<https://stealthmonitoring.com/construction>

# Anomalies in UCF-Crime Dataset

world anomalies, including *Abuse*, *Arrest*, *Arson*, *Assault*, *Accident*, *Burglary*, *Explosion*, *Fighting*, *Robbery*, *Shooting*, *Stealing*, *Shoplifting*, and *Vandalism*. These anomalies