

# HUE Dataset: High-Resolution Event and Frame Sequences for Low-Light Vision

## Supplementary Material

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In this supplementary document, we provide a breakdown of all the sequences in our dataset. We give a separate table for each of the dataset categories, where each row in a table stands for a single sequence. For each sequence, we give the name of the sequence (column 1), duration of the sequence in seconds (column 2 - Dur.), number of frames in the sequence (column 3 - Fr.), number of events in the sequence in millions (column 4 - Ev.(M)), sensor illuminance level in lux (column 5), exposure time of the frame camera (column 6 - Exp.), digital gain setting of the frame camera (column 7), characteristic scene motion in the sequence (column 8 - SM), dominant light source in the scene (column 9 - LS), and a short description of the sequence (column 10). For column 8, D stands for dynamic scenes and S stands for static scenes. For column 9, N stands for natural lights and A stands for artificial lights. In Tables 1 to 6 we present these for Indoor, City, Twilight, Night, Driving, and Controlled categories of our dataset, respectively.

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Table 1: Breakdown of sequences in HUE-Indoor.

Name	Dur.	Fr.	Ev.(M)	Lux	Exp.	Gain	SM	LS	Description
bookshelves	14,4	361	542,94	0	35	15	S	N	Indoor bookshelves
building_entrance	18,6	465	404,83	0	35	30	S	N	Entrance of building, board
corridor_person	26,1	654	593,02	3	35	10	D	N	Corridor, walk, window view and a dynamic person
corridor_selfie	10,8	271	244,36	2	35	10	D	N	Indoor, corridor, mostly rotation, and selfie
dolls	12,4	309	172,92	0	35	15	S	N	Indoor dolls
dome	7,4	184	115,73	0	35	30	S	A	Dome of the hall and writings on it
figures_classics	18,7	467	628,84	0	35	15	S	N	Shelves, figures and CD collection
frames	17,8	446	387,91	0	35	15	S	N	Indoor photo frames and wall decoration
lab_1	11,9	299	536,04	1	30	15	S	N	Laboratory, static scene
lab_2	4,9	123	194,05	0	35	15	S	N	Laboratory, static scene
lab_3	34,7	869	1340,72	1	35	30	S	N	Laboratory, static scene, longer
letters	9,4	234	355,07	0	35	30	S	A	Display of hanging letters in the public library
miniature	8,8	220	156,21	0	35	30	D	A	Display of old miniature paintings
old_books	8,4	211	134,29	0	35	30	D	A	Display of old books
old_classroom_1	17,7	442	254,37	0	35	30	S	A	Old classroom
old_classroom_2	17,1	427	259,29	0	35	40	S	A	Old classroom
posters_window	32,1	803	1050,20	0	35	30	D	N	Posters and window view walking people
recycle_art	7,2	179	133,79	0	35	30	S	N	Recycle art of birds, writing
selfie	5,0	125	54,56	0	35	20	D	N	Indoor selfie
stairs_dark	30,1	754	244,51	0	35	40	S	N	Going down the stairs, dark, shaky
stairways	11,5	287	215,64	0	35	30	D	A	Stairways of large public library, people walking
very_dark_hand	3,8	96	22,82	0	35	5	D	A	Very dark room, hand motion
very_dark_room	7,6	189	34,73	0	35	5	S	A	Very dark room, camera motion

Table 2: Breakdown of sequences in HUE-City.

Name	Dur.	Fr.	Ev.(M)	Lux	Exp.	Gain	SM	LS	Description
city_night_1	13,3	332	60,41	0	35	48	S	A	City view from window, very dark night
city_night_2	12,6	316	36,34	0	35	48	S	A	City view from window, very dark night
hdr_plants_1	21,2	530	606,94	12	35	10	S	N	Indoor plants and window city view, HDR
hdr_plants_2	20,6	516	601,89	14	35	10	S	N	Indoor plants and window city view, HDR
city_twilight_1	14,4	360	240,98	4	35	10	S	N	Window view of city in twilight
city_twilight_2	21,9	549	372,87	1	35	10	D	N	Window view in twilight, close by car
city_twilight_3	18,4	461	178,79	5	35	10	S	N	Window view of city in twilight
city_twilight_4	25,5	639	572,84	1	35	10	S	N	Window view of trees and apartments
city_twilight_5	22,3	557	447,07	1	35	10	S	N	Window view of closer cars and apartments
city_twilight_6	23,1	577	362,18	0	35	10	D	N	Window view in twilight, two people walk
plants_and_city	22,9	572	388,80	0	35	30	S	N	Low light indoor plants and window view

Table 3: Breakdown of sequences in HUE-Twilight.

Name	Dur.	Fr.	Ev.(M)	Lux	Exp.	Gain	SM	LS	Description
dark_equipment_1	7,4	186	57,78	0	35	35	S	N	Dark forest and construction equipment
dark_equipment_2	20,3	507	163,92	0	35	45	S	N	Forest, path, and construction equipment
dark_forest_1	30,4	760	551,10	0	35	36	S	N	Dark forest
dark_forest_2	11,3	282	177,69	0	35	36	S	N	Dark forest and illuminated path ahead
duck_fence	15,1	379	266,56	0	35	32	D	N	Ducks behind fence, sign with writings
duck_fence_lake	22,7	569	811,88	0	35	32	D	N	Lake and ducks behind fences
duck_lake	38,9	974	1322,53	1	35	20	D	N	Ducks standing and walking and bathing, waves
duck_lake_2	28,8	721	849,72	0	35	32	D	N	Lake with small waves, two ducks stand and move
duck_lake_3	35,6	891	552,69	0	35	32	D	N	Ducks swimming in the lake
duck_lake_pause	34,2	855	259,18	0	35	30	D	N	Ducks swimming, camera stationary at the end
hdr_terrace_sun_1	32,3	807	1032,75	24	30	10	D	N	Terrace, walking, reflections, sun, HDR, car
lake_1	13,6	340	310,04	1	35	30	S	N	Cafe, lake with reflections, people across the lake
lake_2	14,8	370	275,57	1	35	10	S	N	Cafe, lake with reflections, underexposed frames
lake_3	23,8	595	426,14	1	35	15	S	N	Cafe, lake with reflections, mostly static scene
lake_turtle	24,1	603	222,70	0	35	20	D	N	A barely visible turtle swimming in lake
sunset_parking_lot	24,6	615	408,38	3	35	10	D	N	Parking lot, sun is down, a few cars pass
sunset_parking_lot_pause_1	40,2	1005	614,94	3	35	10	D	N	Parking lot, camera stationary at the end
sunset_parking_lot_pause_2	23,4	585	249,12	1	35	10	D	N	Parking lot, camera stationary at the end
terrace.flies	37,1	929	402,61	2	30	20	D	N	Getting darker, on the terrace, flies
terrace_puddle	19,1	477	325,49	0	30	20	S	N	Walking besides puddle on the terrace, reflections
terrace_sunset	21,9	548	715,16	5	35	10	D	N	Terrace, laptop, reflection selfie, sunset
waterflow_1	25,9	647	786,63	1	35	25	D	N	Water flowing, long trees
waterflow_2	26,5	662	488,97	0	35	32	D	N	Water flowing, camera slowly moves

Table 4: Breakdown of sequences in HUE-Night.

Name	Dur.	Fr.	Ev.(M)	Lux	Exp.	Gain	SM	LS	Description
night_face	5,8	145	24,02	0	35	48	D	A	Person face (further)
night_face_close	7,8	196	63,58	0	35	48	D	A	Person face (close)
night_park_1	5,8	146	12,62	0	35	48	S	A	Dark, trees, buildings far away
night_park_2	5,1	128	7,36	0	35	48	S	A	Park
night_park_3	9,6	241	66,62	0	35	48	S	A	Park, closer to lamp, brighter
night_park_4	6,9	173	9,30	0	35	48	S	A	Park
night_park_person_1	10,2	255	25,30	0	35	48	D	A	Park, person walking
night_park_person_2	12,5	313	37,82	0	35	48	D	A	Park, person walking
night_park_swing	8,6	216	3,80	0	35	48	D	A	Park, swinging
night_park_walk_1	11,1	278	36,22	0	35	48	S	A	Park, walking, light and dark regions
night_park_walk_2	12,5	313	64,01	0	35	48	S	A	Park, walking and panning
night_parking_lot	23,9	598	148,11	0	35	30	D	A	Camera moves slowly, a person walks
night_street_1	11,4	285	46,43	0	35	48	S	A	Streets, buildings
night_street_car_1	5,8	146	24,59	0	35	48	D	A	Car passing, person
night_street_car_2	2,9	73	9,16	0	35	48	D	A	Car passing
night_street_car_bike	13,1	328	63,07	0	35	48	D	A	Three car and a motorbike passing

Table 5: Breakdown of sequences in HUE-Driving.

Name	Dur.	Fr.	Ev.(M)	Lux	Exp.	Gain	SM	LS	Description
drive_1	20,1	502	249,56	0	35	30	D	N	Driving in the street, a few cars moving ahead
drive_2	23,1	577	157,05	0	35	30	D	N	Camera moves slowly inside a car at the intersection
drive_3	27,0	675	181,50	0	35	30	D	N	Driving on the road, other cars moving in the same or opposite direction
drive_4	9,6	240	85,13	0	35	30	D	N	Driving on the road, a moving pedestrian and car ahead
drive_5	30,4	760	195,78	0	35	30	D	N	Driving faster on a three lane road, under a bridge, other cars moving
drive_6	20,6	515	691,15	0	35	30	D	N	Driving and stopping at the intersection, other cars moving
drive_7	38,3	958	354,44	0	35	30	D	N	Driving through the interchange and roundabout, other cars moving
drive_8	48,2	1205	262,87	0	35	30	D	N	Driving on the road, lots of vehicles moving in the opposite direction
drive_9	19,9	498	141,99	0	35	30	D	N	Driving on a very dark street, passing by a pedestrian and a bus
drive_10	31,2	780	209,17	0	35	30	D	N	Driving and turning in dark streets
drive_11	6,0	151	67,96	0	35	40	D	A	Driving in the street, cars moving in the opposite direction
drive_12	9,6	239	42,68	0	35	40	D	A	Driving on the road and under a signboard illuminated by headlights
drive_13	16,0	401	61,47	0	35	40	D	A	Driving on a four lane road, under signboards illuminated intermittently
drive_14	22,5	563	113,97	0	35	40	D	A	Driving at dark road, roundabout, just a few other cars
drive_15	19,4	486	68,07	0	35	40	D	A	Driving at mostly straight dark road, few other cars
drive_16	21,1	527	97,87	0	35	45	S	A	Driving at mostly straight very dark road, no other cars

Table 6: Breakdown of sequences in HUE-Controlled.

Name	Dur.	Fr.	Ev.(M)	Lux	Exp.	Gain	SM	LS	Description
zebra_L1_G10	7,2	180	29,59	2	35	10	S	A	Static toy zebra at light level L1 (brightest)
zebra_L1_G6	10,7	267	37,03	2	35	6	S	A	Static toy zebra at light level L1
zebra_L2_G16	10,3	257	34,26	1	35	16	S	A	Static toy zebra at light level L2
zebra_L2_G12	7,1	177	28,51	1	35	12	S	A	Static toy zebra at light level L2
zebra_L3_G23	7,7	192	22,15	0	35	23	S	A	Static toy zebra at light level L3
zebra_L3_G19	6,0	149	21,44	0	35	19	S	A	Static toy zebra at light level L3
zebra_L4_G27	7,4	186	17,54	0	35	27	S	A	Static toy zebra at light level L4
zebra_L4_G22	7,2	180	16,34	0	35	22	S	A	Static toy zebra at light level L4
zebra_L5_G34	7,8	194	13,77	0	35	34	S	A	Static toy zebra at light level L5
zebra_L5_G29	6,8	171	17,19	0	35	29	S	A	Static toy zebra at light level L5
zebra_L6_G39	8,9	222	12,60	0	35	39	S	A	Static toy zebra at light level L6
zebra_L6_G35	5,8	146	11,60	0	35	35	S	A	Static toy zebra at light level L6
zebra_L7_G46	6,9	172	7,33	0	35	46	S	A	Static toy zebra at light level L7
zebra_L7_G42	7,4	184	7,11	0	35	42	S	A	Static toy zebra at light level L7
zebra_L8_G48	6,6	164	2,26	0	35	48	S	A	Static toy zebra at light level L8
zebra_L9_G48	6,6	164	1,61	0	35	48	S	A	Static toy zebra at light level L9
zebra_L10_G48	8,6	214	0,99	0	35	48	S	A	Static toy zebra at light level L10 (darkest)