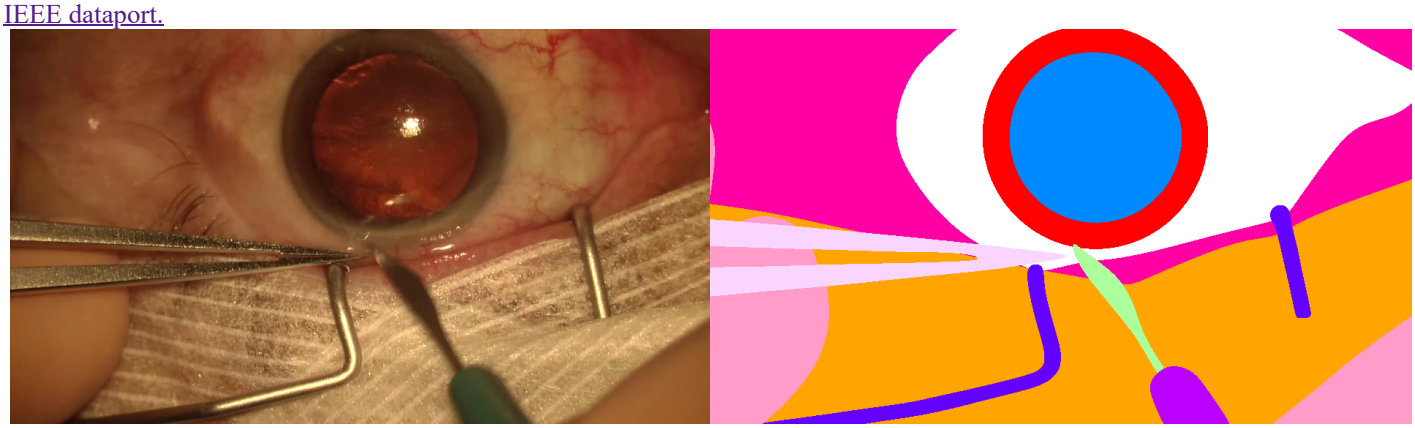
The CATARACTS challenge paper has been accepted for publication in Medical Image Analysis. This dataset has been published on IEEE dataport.



CaDIS Dataset

CaDIS: a Cataract Dataset for Image Segmentation is a dataset for semantic segmentation created by Digital Surgery Ltd. on top of the CATARACTS dataset. CaDIS consists of 4670 images sampled from the 25 videos on CATARACTS' training set. Each pixel in each image is labeled with its respective instrument or anatomical class from a set of 36 identified classes. More details about the dataset could be found in the paper (https://arxiv.org/pdf/1906.11586.pdf).

Who is Digital Surgery?

Digital Surgery is a health tech company, based in London, UK, shaping the future of surgery through the convergence of surgical expertise and technology. The Innovation team is working on bridging the gap between Artificial intelligence and the OR.

Why are we releasing CaDIS to the public?

We believe releasing a semantic dataset will encourage the computer vision community to push surgical research further.

Data

The dataset consists of 4670 images in total and includes 36 classes: 29 surgical instrument classes, 4 anatomy classes and 3 classes of other object appearing in the scene. The following table gives an overview of the classes included in the dataset with their respective class ID per category. The training, validation and test sets contain 3550, 534 (Videos 5, 7 and 16) and 586 (Videos 2, 12 and 22) images respectively.

Category	ID Class Name	All videos			Training set		Validation set		Test set	
		Instances per class	Presence in videos	Avg. pixels per class	Instances per class	Presence in videos	Instances per class	Presence in videos	Instances per class	Presence in videos
Anatomy	0 Pupil	4664	25	87215	3544	19	534	3	586	3
	4 Iris	4667	25	58247	3547	19	534	3	586	3
	5 Skin	4664	25	69351	3550	19	528	3	586	3
	6 Cornea	4670	25	253631	3550	19	534	3	586	3
Instruments	7 Hydrosdissection Cannula	447	25	6840	341	19	52	3	54	3
	8 Viscoelastic Cannula	587	25	3697	462	19	58	3	67	3
	9 Capsulorhexis Cystotome	448	25	5016	334	19	56	3	58	3
	10 Rycroft Cannula	439	25	3571	325	19	54	3	60	3
	11 Bonn Forceps	384	22	16476	283	16	27	3	74	3
	12 Primary Knife	308	24	11040	237	18	30	3	41	3
	13 Phacoemulsifier Handpiece	459	25	9745	341	19	59	3	59	3
	14 Lens Injector	403	24	19543	290	18	55	3	58	3
	15 Irrigation/Aspiration (I/A) Handpiece	774	23	11291	566	17	112	3	96	3
	16 Secondary Knife	297	25	8644	228	19	31	3	38	3
	17 Micromanipulator	621	25	7690	461	19	81	3	79	3
	18 Irrigation/Aspiration Handpiece Handle	100	17	12894	66	11	7	3	27	3
	19 Capsulorhexis Forceps	129	12	13268	107	9	8	2	14	1
	20 Rycroft Cannula Handle	84	13	10556	52	8	18	3	14	2
	21 Phacoemulsifier Handpiece Handle	71	10	16199	57	8	7	1	7	1
	22 Capsulorhexis Cystotome Handle	84	11	4993	60	7	11	1	13	3
	23 Secondary Knife Handle	133	20	10004	106	15	12	2	15	3
	24 Lens Injector Handle	40	4	17670	19	2	13	1	8	1
	25 Suture Needle	32	4	802	25	3	0	0	7	1
	26 Needle Holder	12	1	31156	12	1	0	0	0	0
	27 Charleux Cannula	20	2	5042	20	2	0	0	0	0
	28 Primary Knife Handle	3	2	2395	1	1	0	0	2	1
	29 Vitrectomy Handpiece	17	1	14637	17	1	0	0	0	0
	30 Mendez Ring	7	1	151711	7	1	0	0	0	0
	31 Marker	169	1	7034	169	1	0	0	0	0
	32 Hydrosdissection Cannula Handle	12	2	2291	12	2	0	0	0	0
	33 Troutman Forceps	20	2	22246	6	1	0	0	14	1
	34 Cotton	20	3	16623	20	3	0	0	0	0
	35 Iris Hooks	126	1	4525	126	1	0	0	0	0
Others	1 Surgical Tape	3597	24	39907	2557	18	463	3	577	3
	2 Hand	607	25	29473	451	19	55	3	101	3
	3 Eye Retractors	3434	25	4033	2545	19	499	3	390	3

Download the dataset

Uploading - Link coming up soon

Digital Surgery™

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