Table 1. Widely used datasets of lesion detection/segmentation and DR diagnosis/grading

Dataset name	Number of images	Resolution	Camera	Availability
DIARETDB0	130 (110 DR, 20 Normal)	-	digital fundus cameras with unknown camera settings, FVO 50°	available online[1]
DIARETDB1	89 (84 DR, 5 Normal)	1500×1152	ZEISS FF 450plus fundus camera with Nikon F5 digital camera, FOV 50°	available online[2]
Retinopathy Online Challenge	100	-	a Topcon NW 100, a Topcon NW 200, or a CanonCR5-45NM, 2 differently shaped FOVs	available on registration[3]
RC-RGB-MA	250	2595×1944	a DRS non-mydriatic fundus camera, FOV45°	available online[4]
RC-SLO-MA	58	1024×1024	an EasyScan camera (i-Optics Inc., the Netherlands), FOV45°	available online[5]
IDRiD	516	4288×2848	a Kowa VX-10 alpha digital fundus camera, FOV 50°	available online[6]
Messidor	1200	1440×960, 2240×1488, 2304×1536	a color video 3CCD camera on a Topcon TRC NW6 non-mydriatic retinograph with FOV 45°	available on registration[7]
Messidor-2	1748	1440×960, 2240×1488, 2304×1536	a Topcon TRC NW6 non-mydriatic fundus camera with FOV 45°	available on registration[8]
e-ophtha EX	47 with 12,278 exudates, 35 healthy	ranging from 1440×960 to 2544×1696	-	available on registration[9]
e-ophtha MA	148 with 1306 MA, 233 healthy	ranging from 1440×960 to 2544×1696	-	available on registration[10]
DDR	13,673	mixed	42 types of fundus cameras with a 45°FOV	available online[11]
Kaggle/EyePACS	35,126 train, 53,576 test	mixed	multiple fundus cameras and different fields of views	available on registration[12]
CLEOPATRA	298	-	multiple fundus cameras	not available online
APTOS 2019	13,000	-	-	available online[13]
FGADR	2842 (1842 both pixel-level and image-level, 1000 image-level)	-	-	available online[14]
DeepDR	2256 images in total	1956×1934, 3900×3072	TOPCON, Optomap P200Tx (Optos, Dunfermline, UK)	available online[15]

1https://www.it.lut.fi/project/imageret/
2https://www.it.lut.fi/project/imageret/

3http://webeye.ophth.uiowa.edu/ROC/
4http://www.retinacheck.org/datasets
5http://www.retinacheck.org/datasets
6https://ieee-dataport.org/open-access/indian-diabetic-retinopathy-image-dataset-idrid
7http://www.adcis.net/en/third-party/messidor/
8http://www.adcis.net/en/third-party/messidor2/
9http://www.adcis.net/en/third-party/e-ophtha/
10http://www.adcis.net/en/third-party/e-ophtha/
11https://github.com/nkicsl/DDR-dataset
12https://www.kaggle.com/c/diabetic-retinopathy-detection/dat
13https://www.kaggle.com/c/aptos2019-blindness-detection/data
14https://csyizhou.github.io/FGADR/
15https://isbi.deepdr.org/data.html

Table 2. Widely used datasets for vessel segmentation

Dataset name	Number of images	Resolution	Camera	Availability
DRIVE	40 (33 healthy, 7 mild early DR)	768×584	a Canon CR5 non-mydriatic 3CCD camera, FOV 45°	available on registration[1]
STARE	400 (vessel segmentation labeling of 40 , A/V labeling of 10)	700 × 605	a TopCon TRV-50 fundus camera, FOV35°	available online[2]
CHASE DB1	28	1280× 960	-	available online[3]
HRF	45, 15 each of healthy, DR and glaucomatous	3504 × 2336	a Canon CR-1 fundus camera with FOV 45°	available online[4]

1https://drive.grand-challenge.org/Download/
2http://cecas.clemson.edu/ ahoover/stare/
3https://blogs.kingston.ac.uk/retinal/chasedb1/
4http://www5.cs.fau.de/research/data/fundus-images/

Table 3. Widely used datasets for OD/OC segmentation and glaucoma diagnosis/grading

Dataset name	Number of images	Resolution	Camera	Availability
ONHSD	100	640×480	a Canon CR6 45MNf fundus camera, FOV 45°	available online[1]
Drishti-GS	101	2896×1944	a fundus camera with FOV 30°	available online[2]
Drions-DB	110	600×400	a colour analogical fundus camera	available online[3]
ORIGA	650 (168 glaucomatous, 482 normal)	3072×2048	-	not available online
RIGA	750	ranging from 2240×1488 to 2743×1936	multiple fundus cameras with different FOV	available online[4]
RIM-ONE	169 ONH	-	a fundus camera Nidek AFC-210 with a body of a	not available online

			Canon EOS 5D Mark II of 21.1 megapixels	
ACHIKO-K	258 (144 glaucomatic)	640×480; 2144×1424; 3216×2136, etc	NIKON D80, NIKON D90	available online[5]
SEED	235 (43 glaucoma)	-	-	not available online
REFUGE	1200	2124×2056, 1634×1634	a Zeiss Visucam 500 fundus camera and a Canon CR-2 device	available on registration[6]
SCES	1676	3072×2048	-	not available online
SINDI	5783	3072×2048	-	not available online
LAG	11,760 (6882 glaucoma)	ranging from 582×597 to 3456×5184	3 types of devices: Topcon, Canon and Carl Zeiss	available online[7]
SIGF	3671	-	-	available on registration[8]

1http://www.aldiri.info/Image%20Datasets/ONHSD.aspx
2http://cvit.iiit.ac.in/projects/mip/drishti-gs/mip-dataset2/Home.php
3https://www.researchgate.net/publication/326460478_Glaucoma_dataset_-_DRIONS-DB
4https://deepblue.lib.umich.edu/data/concern/data_sets/3b591905z/
5https://oar.a-star.%20edu.sg/jspui/handle/123456789/1080?mode=full
6https://refuge.grand-challenge.org/
7https://github.com/smilell/AG-CNN
8https://github.com/XiaofeiWang2018/DeepGF

Table 4. Widely used datasets for AMD diagnosis/grading

Dataset name	Number of images	Resolution	Camera	Availability
AREDS	Over 206,500 images	-	-	available online[1]
iChallenge-AMD	1200	-	-	available on registration[2]
KORA	images from 2840 individuals	-	-	available online[3]
ADAM	-	-	-	available on registration[4]

1https://www.ncbi.nlm.nih.gov/projects/gap/cgi-bin/study.cgi?study_id=phs000001.v3.p1
2http://ai.baidu.com/broad/introduction?dataset=amd
3https://epi.helmholtz-muenchen.de/
4https://amd.grand-challenge.org/

Table 5. Widely used datasets for A/V classification

Dataset name	Number of images	Resolution	Camera	Availability

DRIVE-A/V	40 (33 healthy, 7 mild early DR)	768×584	a Canon CR5 non-mydriatic 3CCD camera, FOV 45°	available online[1] or contact the author
HRF-A/V	45, 15 each of healthy, DR and glaucomatous	3504 × 2336	a Canon CR-1 fundus camera with FOV 45°	available online[2]
IOSTAR	30	1024×1024	an EasyScan camera	available online[3]
LES-AV	22	1444×1620, 1958×2196	-	available online[4]

1http://reviewdb.lincoln.ac.uk/ And the paper is https://ieeexplore.ieee.org/document/6627847

2https://github.com/rubenhx/av-segmentation

3http://www.retinacheck.org/datasets

4https://ignaciorlando.github.io/

Table 6. Widely used datasets for other tasks

Dataset name	Task	Number of images	Resolution	Camera	Availability
ODIR	Multiple-disease	Over 10,000 images	mixed	various cameras including Canon, Zeiss and Kowa	available online[1]
RFMiD	Multiple-disease(46 conditions)	3200	-	3 different cameras	available on registration[2]
PALM	Pathological myopia	-	-	-	available on registration[3]
Ichallenge-PM	Pathological myopia	1200	-	Zeiss Visucam 500	available online[4]
FIRE	Image Registration	129	2912x2912	a Nidek AFC-210 fundus camera, FOV of 45°	available online[5]
Eye-Q	Image Quality Assessment & Image enhancement	28,792	mixed	multiple fundus cameras and different fields of views	available online[6]
PRIME-FP20	Vessel detection, multi-modality	15 pairs of concurrently captured UWF FP and UWF FA images	4000×4000	Optos California and 200Tx cameras	available online[7]

1https://github.com/nkicsl/OIA-ODIR

2https://riadd.grand-challenge.org/

3https://palm.grand-challenge.org/

4http://ai.baidu.com/broad/introduction?dataset=pm

5https://projects.ics.forth.gr/cvrl/fire/

6https://github.com/hzfu/EyeQ

7https://ieee-dataport.org/open-access/prime-fp20-ultra-widefield-fundus-photography-vessel-segmentation-dataset