Locating blood vessels in retinal images by piecewise threshold probing of a matched filter response

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#	Paper	IF	Citations
1596	Locating blood vessels in retinal images by piecewise threshold probing of a matched filter response. *IEEE Transactions on Medical Imaging*, **2000**, 19, 203-10	11.7	1285
1595	Abnormality detection in automated mass screening system of diabetic retinopathy.		4
1594	Retinal Vessel Analyzer (RVA)--design and function. **2002**, 47 Suppl 1 Pt 2, 678-81		45
1593	Supervised evaluation methodology for curvilinear structure detection algorithms.		6
1592	Analysis of vasculature for liver surgical planning. *IEEE Transactions on Medical Imaging*, **2002**, 21, 1344-57	11.7	301
1591	Automatic retinal image registration based on blood vessels feature point.		4
1590	Classifying convex sets for vessel detection in retinal images.		1
1589	Detection and measurement of retinal vessels in fundus images using amplitude modified second-order Gaussian filter. **2002**, 49, 168-72		200
1588	Retinal vascular tree morphology: a semi-automatic quantification. **2002**, 49, 912-7		167
1587	Progress towards automated diabetic ocular screening: a review of image analysis and intelligent systems for diabetic retinopathy. **2002**, 40, 2-13		128
1586	A specialized plug-in software module for computer-aided quantitative measurement of medical images. **2003**, 25, 887-92		12
1585	An efficient algorithm for extraction of anatomical structures in retinal images.		27
1584	An efficient blood vessel detection algorithm for retinal images using local entropy thresholding.		59
1583	Locating the optic nerve in a retinal image using the fuzzy convergence of the blood vessels. *IEEE Transactions on Medical Imaging*, **2003**, 22, 951-8	11.7	462
1582	Adaptive local thresholding by verification-based multithreshold probing with application to vessel detection in retinal images. **2003**, 25, 131-137		443
1581	Two variables compactly supported fluency sampling functions-based scalable conversion for fundus photograph.		
1580	Detecting the optic disc in retinal images by means of a geometrical model of vessel network.		2

1579	Blood vessel tracking technique for optic nerve localisation for field 1-3 color fundus images.		
1578	The dual-bootstrap iterative closest point algorithm with application to retinal image registration. *IEEE Transactions on Medical Imaging*, **2003**, 22, 1379-94	11.7	237
1577	A divide et impera strategy for automatic classification of retinal vessels into arteries and veins.		59
1576	Segmentation of vessels in retinal images by shortest path histogramming. **2003**,		3
1575	Vessel Segmentation and Branching Detection Using an Adaptive Profile Kalman Filter in Retinal Blood Vessel Structure Analysis. **2003**, 802-809		2
1574	A piecewise Gaussian model for profiling and differentiating retinal vessels.		31
1573	Segmentation of blood vessels in retinal images using 2D entropies of gray level-gradient cooccurrence matrix.		3
1572	Robust modelling of local image structures and its application to medical imagery. **2004**,		4
1571	Robust model-based vasculature detection in noisy biomedical images. **2004**, 8, 360-76		57
1570	Feature extraction of finger-vein patterns based on repeated line tracking and its application to personal identification. **2004**, 15, 194-203		454
1569	Feature extraction of finger vein patterns based on iterative line tracking and its application to personal identification. **2004**, 35, 61-71		34
1568	Automated detection of diabetic retinopathy in digital retinal images: a tool for diabetic retinopathy screening. **2004**, 21, 84-90		190
1567	A model based method for retinal blood vessel detection. **2004**, 34, 209-19		122
1566	Gradient orientation based feature detection: an application for extracting retinal blood vessels.		
1565	Optic nerve head segmentation. *IEEE Transactions on Medical Imaging*, **2004**, 23, 256-64	11.7	230
1564	Multimodal registration of retinal images using self organizing maps. *IEEE Transactions on Medical Imaging*, **2004**, 23, 1557-63	11.7	60
1563	Measurement of retinal vessel widths from fundus images based on 2-D modeling. *IEEE Transactions on Medical Imaging*, **2004**, 23, 1196-204	11.7	144
1562	Detection of optic disc in retinal images by means of a geometrical model of vessel structure. *IEEE Transactions on Medical Imaging*, **2004**, 23, 1189-95	11.7	284

1561	A new tracking system for the robust extraction of retinal vessel structure. **2004**, 2004, 1620-3		27
1560	A review of vessel extraction techniques and algorithms. **2004**, 36, 81-121		609
1559	Ridge-based vessel segmentation in color images of the retina. *IEEE Transactions on Medical Imaging*, **2004**, 23, 501-9	11.7	1968
1558	Detection of anatomical features in retinal images using a gradient orientation.		1
1557	Retinal vascular image analysis as a potential screening tool for cerebrovascular disease: a rationale based on homology between cerebral and retinal microvasculatures. **2005**, 206, 319-48		495
1556	Automatic grading of retinal vessel caliber. **2005**, 52, 1352-5		75
1555	Algorithms for automated oximetry along the retinal vascular tree from dual-wavelength fundus images. **2005**, 10, 054013		13
1554	Statistical and Adaptive Approaches for Optimal Segmentation in Medical Images. **2005**, 267-314		2
1553	Research on features of retinal images associated with hypertension and diabetes. **2005**, 2005, 6415-7		2
1552	Analysis of Neurite Outgrowth for a Laser Patterned Neuronal Culture.		4
1551	Computer assisted analysis of microtubule dynamics in living cells. **2005**, 2005, 3982-5		6
1550	Analysis of retinal images associated with hypertension and diabetes. **2005**, 2005, 6407-10		3
1549	MORPHOLOGICAL STRUCTURE RECONSTRUCTION OF RETINAL VESSELS IN FUNDUS IMAGES. **2005** , 19, 937-948		6
1548	Locating Vessel Centerlines in Retinal Images Using Wavelet Transform: A Multilevel Approach. **2005**, 688-696		1
1547	Vessel segmentation and analysis in laboratory skin transplant micro-angiograms.		2
1546	A novel approach to extract sublingual vein from color image.		0
1545	Automatic selection of parameters for vessel/neurite segmentation algorithms. **2005**, 14, 1338-50		22
1544	Design and implementation of a unique blood-vessel detection algorithm towards early diagnosis of diabetic retinopathy. **2005**,		9

1543	Wavelength dependence of the apparent diameter of retinal blood vessels. **2005**, 44, 1831-7		3
1542	A 2-D/3-D model-based method to quantify the complexity of microvasculature imaged by in vivo multiphoton microscopy. **2005**, 70, 165-78		24
1541	Computer Vision Algorithms for Retinal Image Analysis: Current Results and Future Directions. **2005**, 31-50		3
1540	Edge Detection and Segmentation. **2005**, 211-280		0
1539	Automatic detection of red lesions in digital color fundus photographs. *IEEE Transactions on Medical Imaging*, **2005**, 24, 584-92	11.7	325
1538	Gaussian Intensity Distribution Modelling of Blood Vessels in Fundus Images.		1
1537	Different averages of a fuzzy set with an application to vessel segmentation. **2005**, 13, 384-393		31
1536	Blood Vessel Detection via a Multi-window Parameter Transform. **2006**,		8
1535	Max-Min Central Vein Detection in Retinal Fundus Images. **2006**,		5
1534	Multifractal analysis of human retinal vessels. *IEEE Transactions on Medical Imaging*, **2006**, 25, 1101-7	11.7	143
1533	Blood Vessels Segmentation in Retina image using Mathematical Morphology and the STFT analysis.		1
1532	A New Approach to Automated Retinal Vessel Segmentation Using Multiscale Analysis. **2006**,		3
1531	Automated Retinal Vessel Segmentation Using Multiscale Analysis and Adaptive Thresholding.		1
1530	Automatic Retinal Vasculature Structure Tracing and Vascular Landmark Extraction from Human Eye Image. **2006**,		9
1529	Segmentation of trabeculated structures using an anisotropic Markov random field: application to the study of the optic nerve head in glaucoma. *IEEE Transactions on Medical Imaging*, **2006**, 25, 245-55	11.7	32
1528	An Efficient Method for Vessel Edge Detection of Fundus Images. **2006**,		1
1527	Retinal vessel segmentation using the 2-D Gabor wavelet and supervised classification. *IEEE Transactions on Medical Imaging*, **2006**, 25, 1214-22	11.7	942
1526	Retinal vessel centerline extraction using multiscale matched filters, confidence and edge measures. *IEEE Transactions on Medical Imaging*, **2006**, 25, 1531-46	11.7	230

1525	Ceulular Imaging Data Analysis: Mircotubule Dynamics in Living Cell. **2006**,		2
1524	Segmentation of retinal blood vessels by combining the detection of centerlines and morphological reconstruction. *IEEE Transactions on Medical Imaging*, **2006**, 25, 1200-13	11.7	580
1523	Segmentation of Retinal Image Vessels with a Novel Automated Approach. **2006**,		3
1522	Automatic microtubule tracking for QD-based in vivo cell imaging and drug efficacy study. **2006**, 2006, 3321-4		0
1521	On the adaptive detection of blood vessels in retinal images. **2006**, 53, 341-3		65
1520	Robust detection and classification of longitudinal changes in color retinal fundus images for monitoring diabetic retinopathy. **2006**, 53, 1084-98		107
1519	Hybrid retinal image registration. **2006**, 10, 129-42		111
1518	Retinal image analysis: concepts, applications and potential. **2006**, 25, 99-127		413
1517	Detecting false vessel recognitions in retinal fundus analysis. **2006**, 2006, 4449-52		1
1516	Segmentation of Retinal Blood Vessels Using Scale-Space Features and K-Nearest Neighbour Classifier.		5
1515	Segmentation of vasculature for intravital microscopy using bridging vessel snake.		3
1514	A Method for Segmentation of Retinal Image Vessels. **2006**,		2
1513	Blood Vessel Extraction Based on Mumford Shah Model and Skeletonization. **2006**,		3
1512	A Multiscale Approach to Retinal Vessel Segmentation Using Gabor Filters and Scale Multiplication. **2006**,		12
1511	Automated detection and differentiation of drusen, exudates, and cotton-wool spots in digital color fundus photographs for diabetic retinopathy diagnosis. **2007**, 48, 2260-7		260
1510	Separation of the Retinal Vascular Graph in Arteries and Veins. **2007**, 251-262		5
1509	Model based retinal analysis for retinopathy detection. **2007**, 2007, 6732-5		1
1508	A HYBRID FILTERING APPROACH TO RETINAL VESSEL SEGMENTATION. **2007**,		8

1507	Screening Diabetic Retinopathy Through Color Retinal Images. **2007**, 176-183		2
1506	Extraction and reconstruction of retinal vasculature. **2007**, 31, 435-42		12
1505	Novel Algorithm for Centerline Extraction of Coronary Arterial Tree in Coronary Angiographic Projections. **2007**,		0
1504	Detection of Blood Vessels in the Retina Using Gabor Filters. **2007**,		23
1503	Directional Local Contrast Based Blood Vessel Detection in Retinal Images. **2007**,		6
1502	Palm Vein Extraction and Matching for Personal Authentication. **2007**, 154-164		57
1501	Segmentation of Retinal Vessels Using Nonlinear Projections. **2007**,		1
1500	Robust Object Extraction and Change Detection in Retinal Images for Diabetic Clinical Studies. **2007**,		
1499	Texton-based segmentation of retinal vessels. **2007**, 24, 1384-93		10
1498	Automated segmentation of retinal blood vessels and identification of proliferative diabetic retinopathy. **2007**, 24, 1448-56		39
1497	Analysis of retinal vasculature using a multiresolution Hermite model. *IEEE Transactions on Medical Imaging*, **2007**, 26, 137-52	11.7	73
1496	Unsupervised curvature-based retinal vessel segmentation. **2007**,		33
1495	Automatic Extraction of Features from Retinal Fundus Image. **2007**,		6
1494	Blood Vessel Segmentation from Color Retinal Images using Unsupervised Texture Classification. **2007**,		12
1493	A general framework for vessel segmentation in retinal images. **2007**,		10
1492	Automatic Segmentation of Blood Vessels in Retinal Image Based on Fuzzy K-Median Clustering. **2007**,		4
1491	Improvement of a retinal blood vessel segmentation method using the Insight Segmentation and Registration Toolkit (ITK). **2007**, 2007, 892-5		43
1490	Extraction Blood Vessels from Retinal Fundus Image Based on Fuzzy C-Median Clustering Algorithm. **2007**,		4

1489	Detection of blood vessels in fundus images of the retina using Gabor wavelets. **2007**, 2007, 6452-5		15
1488	DSP implementation of a low-complexity algorithm for real-time automated vessel detection in images of the fundus of the human retina. **2007**,		
1487	Capillaroscopy Image Analysis as an Automatic Image Annotation Problem. **2007**,		8
1486	Robust 3-D modeling of vasculature imagery using superellipsoids. *IEEE Transactions on Medical Imaging*, **2007**, 26, 223-37	11.7	93
1485	Detecting Iris Lacunae Based on Gaussian Filter. **2007**,		4
1484	Biomarker identification and sorting for diabetic retinopathy. **2007**,		
1483	Segmentation of candidate dark lesions in fundus images based on local thresholding and pixel density. **2007**, 2007, 6736-9		25
1482	Segmentation of the optic disc, macula and vascular arch in fundus photographs. *IEEE Transactions on Medical Imaging*, **2007**, 26, 116-27	11.7	154
1481	Retinal blood vessel segmentation using line operators and support vector classification. *IEEE Transactions on Medical Imaging*, **2007**, 26, 1357-65	11.7	509
1480	Ocular Fundus Blood Vessel Registration using Repeated Application of the ICP Algorithm. **2007**,		
1479	Design and performance analysis of oriented feature detectors. **2007**, 16, 023007		44
1478	Effects of Preprocessing Eye Fundus Images on Appearance Based Glaucoma Classification. **2007**, 165-172		16
1477	An improved matched filter for blood vessel detection of digital retinal images. **2007**, 37, 262-7		206
1476	Segmentation of blood vessels from red-free and fluorescein retinal images. **2007**, 11, 47-61		294
1475	Novel and adaptive contribution of the red channel in pre-processing of colour fundus images. **2007**, 344, 243-256		42
1474	Visualization of root growth in heterogeneously contaminated soil using neutron radiography. **2007**, 58, 802-810		67
1473	Genetic algorithm matched filter optimization for automated detection of blood vessels from digital retinal images. **2007**, 87, 248-53		58
1472	Automatic identification of retinal arteries and veins from dual-wavelength images using structural and functional features. **2007**, 54, 1427-35		55

1471	Segmentation of retinal blood vessels using a novel clustering algorithm (RACAL) with a partial supervision strategy. **2007**, 45, 261-73		44
1470	Enhancing retinal image by the Contourlet transform. **2007**, 28, 516-522		95
1469	Detection of glaucomatous change based on vessel shape analysis. **2008**, 32, 183-92		20
1468	Diabetic retinopathy: a quadtree based blood vessel detection algorithm using RGB components in fundus images. **2008**, 32, 147-55		14
1467	A new method of three-dimensional coronary artery reconstruction from X-ray angiography: validation against a virtual phantom and multislice computed tomography. **2008**, 71, 28-43		29
1466	Enhancement of blood vessels in digital fundus photographs via the application of multiscale line operators. **2008**, 345, 748-765		48
1465	A modular supervised algorithm for vessel segmentation in red-free retinal images. **2008**, 38, 913-22		37
1464	A comparison between two robust techniques for segmentation of blood vessels. **2008**, 38, 931-40		4
1463	Identification of different stages of diabetic retinopathy using retinal optical images. **2008**, 178, 106-121		122
1462	Improved detection of the central reflex in retinal vessels using a generalized dual-gaussian model and robust hypothesis testing. **2008**, 12, 406-10		29
1461	A sorting system for hierarchical grading of diabetic fundus images: a preliminary study. **2008**, 12, 118-30		32
1460	Optic disc detection from normalized digital fundus images by means of a vessels' direction matched filter. *IEEE Transactions on Medical Imaging*, **2008**, 27, 11-8	11.7	276
1459	A novel method for the automatic grading of retinal vessel tortuosity. *IEEE Transactions on Medical Imaging*, **2008**, 27, 310-9	11.7	141
1458	A novel vessel segmentation algorithm for pathological retina images based on the divergence of vector fields. *IEEE Transactions on Medical Imaging*, **2008**, 27, 237-46	11.7	127
1457	Optimal wavelet transform for the detection of microaneurysms in retina photographs. *IEEE Transactions on Medical Imaging*, **2008**, 27, 1230-41	11.7	229
1456	Segmentation of Exudates and Optic Disk in Retinal Images. **2008**,		32
1455	A Novel Retinal Identification System. **2008**, 2008,		59
1454	Detection of blood vessels in the retina with multiscale Gabor filters. **2008**, 17, 023018		55

1453	Evaluation of a system for automatic detection of diabetic retinopathy from color fundus photographs in a large population of patients with diabetes. **2008**, 31, 193-8	190
1452	Tracking of Blood Vessels in Retinal Images Using Kalman Filter. **2008**,	13
1451	Extraction of exudates and blood vessels in digital fundus images. **2008**,	
1450	Colour Retinal Image Enhancement Based on Domain Knowledge. **2008**,	32
1449	Three-dimensional reconstruction of coronary arterial segments from edges in its three images taken at arbitrary views. **2008**,	
1448	Retinal vessel segmentation using histogram matching. **2008**,	
1447	Evaluation of retinal vessel segmentation methodologies based on combination of vessel centerlines and morphological processing. **2008**,	11
1446	Feature Extraction for Classification from Images: A Look at the Retina. **2008**,	1
1445	Unsupervised Segmentation of Retinal Blood Vessels Using a Single Parameter Vesselness Measure. **2008**,	12
1444	Novel X-ray imaging and segmentation of root structures. **2008**, 28, 46-51	
1443	Retinal image mosaic base on Genetic Algorithm and automated blood vessel extracting approach. **2008**,	3
1442	An Automatic Hybrid Method for Retinal Blood Vessel Extraction. **2008**, 18, 399-407	55
1441	Retinal image enhancement by index of fuzziness in multi-mode histogram. **2008**,	
1440	Retinal image enhancement by indices fuzziness. **2008**,	1
1439	Retinal vessel segmentation on SLO image. **2008**, 2008, 2258-61	9
1438	Retinal vessel segmentation using local relative entropy thresholding. **2008**,	2
1437	An enhanced segmentation of blood vessels in retinal images using contourlet. **2008**, 2008, 3530-3	6
1436	Retinal vessel segmentation using spatially weighted fuzzy c-means clustering and histogram matching. **2008**,	2

1435	Neutron Radiography for the Analysis of Plant-Soil Interactions. **2008**,		1
1434	Automated detection of proliferative retinopathy in clinical practice. **2008**, 2, 109-22		21
1433	. **2009**,		2
1432	Polar Run-Length Features in Segmentation of Retinal Blood Vessels. **2009**,		1
1431	Statistical-based linear vessel structure detection in medical images. **2009**,		2
1430	Phase congruency based retinal vessel segmentation. **2009**,		0
1429	A New Classification Mechanism for Retinal Images. **2009**,		0
1428	A modified matched filter with double-sided thresholding for screening proliferative diabetic retinopathy. **2009**, 13, 528-34		58
1427	An active contour model for segmenting and measuring retinal vessels. *IEEE Transactions on Medical Imaging*, **2009**, 28, 1488-97	11.7	285
1426	Detection of blood vessels in ophthalmoscope images using MF/ant (matched filter/ant colony) algorithm. **2009**, 96, 85-95		145
1425	Detection of Retinal Blood Vessels Based on Nonlinear Projections. **2009**, 55, 103-112		33
1424	Retinal Vessel Radius Estimation and a Vessel Center Line Segmentation Method Based on Ridge Descriptors. **2009**, 55, 91-102		5
1423	Automated retinal blood vessels segmentation based on simplified PCNN and fast 2D-Otsu algorithm. **2009**, 16, 640-646		41
1422	Augmentation of a nearest neighbour clustering algorithm with a partial supervision strategy for biomedical data classification. **2009**, 26, 8-21		0
1421	Algorithms for digital image processing in diabetic retinopathy. **2009**, 33, 608-22		152
1420	Separation of the retinal vascular graph in arteries and veins based upon structural knowledge. **2009**, 27, 864-875		75
1419	Neural Computing Based Abnormality Detection in Retinal Optical Images. **2009**,		4
1418	Blood Vessel Enhancement and Segmentation Using Wavelet Transform. **2009**,		19

1417	Medical image retrieval from distributed environment. **2009**,	3
1416	Automatic Segmentation of Blood Vessels in Colour Retinal Images using Spatial Gabor Filter and Multiscale Analysis. **2009**, 274-276	4
1415	Retinal Image Enhancement in Multi-mode Histogram. **2009**,	8
1414	Gabor wavelet based vessel segmentation in retinal images. **2009**,	5
1413	Retinal image blood vessel segmentation. **2009**,	6
1412	A Novel Approach for Blood Vessel Edge Detection in Retinal Images. **2009**,	1
1411	Vascular Tree Construction with Anatomical Realism for Retinal Images. **2009**,	0
1410	Extraction of tubular structures over an orientation domain. **2009**,	33
1409	Robust Pairwise Registration for Images of Indocyanine-Green Angiographic Sequences. **2009**,	0
1408	A Novel Retinal Blood Vessel Segmentation Method Based on Line Operator and Edge Detector. **2009**,	3
1407	Self Organizing neural network based pathology classification in retinal images. **2009**,	6
1406	A comparison study to evaluate retinal image enhancement techniques. **2009**,	3
1405	Geometrical and Topological Analysis of Vascular Branches from Fundus Retinal Images. **2009**,	
1404	Segmentation of Retinal Vasculature Using Wavelets and Supervised Classification. **2009**,	
1403	Detection of Fundus Lesions Using Classifier Selection. **2009**, E92-D, 1168-1176	
1402	Maximum likelihood estimation of vessel parameters from scale space analysis. **2010**, 28, 55-63	43
1401	Fourier cross-sectional profile for vessel detection on retinal images. **2010**, 34, 203-12	24
1400	Glaucoma risk index: automated glaucoma detection from color fundus images. **2010**, 14, 471-81	206

1399	Detection of the optic nerve head in fundus images of the retina with Gabor filters and phase portrait analysis. **2010**, 23, 438-53		50
1398	Measurement of retinal vascular tortuosity and its application to retinal pathologies. **2010**, 48, 87-95		41
1397	Unsupervised fuzzy based vessel segmentation in pathological digital fundus images. **2010**, 34, 849-58		83
1396	3-D B-spline Wavelet-Based Local Standard Deviation (BWLSD): Its Application to Edge Detection and Vascular Segmentation in Magnetic Resonance Angiography. **2010**, 87, 235-265		17
1395	Multimodal registration procedure for the initial spatial alignment of a retinal video sequence to a retinal composite image. **2010**, 57, 1991-2000		3
1394	Parallel multiscale feature extraction and region growing: application in retinal blood vessel detection. **2010**, 14, 500-6		109
1393	FABC: retinal vessel segmentation using AdaBoost. **2010**, 14, 1267-74		244
1392	Retinopathy online challenge: automatic detection of microaneurysms in digital color fundus photographs. *IEEE Transactions on Medical Imaging*, **2010**, 29, 185-95	11.7	301
1391	General retinal vessel segmentation using regularization-based multiconcavity modeling. *IEEE Transactions on Medical Imaging*, **2010**, 29, 1369-81	11.7	174
1390	Automatic model-based tracing algorithm for vessel segmentation and diameter estimation. **2010**, 100, 108-22		78
1389	Segmentation and tracking of cytoskeletal filaments using open active contours. **2010**, 67, 693-705		124
1388	Assessment of four neural network based classifiers to automatically detect red lesions in retinal images. **2010**, 32, 1085-93		40
1387	Retinal vessel extraction by matched filter with first-order derivative of Gaussian. **2010**, 40, 438-45		341
1386	Multi-scale retinal vessel segmentation using line tracking. **2010**, 34, 213-27		157
1385	Region quad-tree decomposition based edge detection for medical images. **2010**, 4, 50-7		5
1384	Three Dimension Reconstruction of Coronary Artery Tree Using Single-View Cineangiogram. **2010**, 6, 1485-1489		2
1383	Three-Dimension Coronary Artery Tree Curvature Confirmation. **2010**, 6, 1524-1530		2
1382	Retinal blood vessel segmentation based on fractal dimension in spatial-frequency domain. **2010**,		1

1381	Deformable registration of retinal fluorescein angiogram sequences using vasculature structures. **2010**, 2010, 4383-6	6
1380	An LDA-based Relative Hysteresis Classifier with Application to Segmentation of Retinal Vessels. **2010**,	
1379	Personal identification method for robot with whole-body sensing mechanism. **2010**,	5
1378	Retinal vessel tracking using bilateral filter based on Canny method. **2010**,	0
1377	DETECTION OF BLOOD VESSELS IN RETINAL IMAGES. **2010**, 10, 57-72	3
1376	Retinal Blood Vessels Segmentation Using the Radial Projection and Supervised Classification. **2010** ,	2
1375	Automated detection of diabetic retinopathy: barriers to translation into clinical practice. **2010**, 7, 287-96	43
1374	Retinal Fundus Image Registration via Vascular Structure Graph Matching. **2010**, 2010,	45
1373	2D Fast Vessel Visualization Using a Vessel Wall Mask Guiding Fine Vessel Detection. **2010**, 2010,	
1372	RETINAL VASCULAR TREE CONSTRUCTION WITH MULTIMODAL FLUORESCEIN ANGIOGRAM SEQUENCE. **2010**, 22, 101-110	1
1371	Retinal imaging and image analysis. **2010**, 3, 169-208	685
1370	Automatic detection of vessels in color fundus images. **2010**, 85, 103-109	2
1369	Retinal blood vessel segmentation via graph cut. **2010**,	10
1368	Statistical-Based Tracking Technique for Linear Structures Detection: Application to Vessel Segmentation in Medical Images. **2010**, 17, 555-558	20
1367	Detecci□ autom□tica de vasos en retinografías. **2010**, 85, 103-109	2
1366	Retinal Image Segmentation Based on Mumford-Shah Model and Gabor Wavelet Filter. **2010**,	3
1365	Review on finger vein authentication system by applying neural network. **2010**,	4
1364	A probabilistic based method for tracking vessels in retinal images. **2010**,	5

1363	. **2010**,	1
1362	A model-based edge detection method for medical images. **2010**,	
1361	A Fast Approach to Retinal Vessel Segmentation. **2010**,	
1360	Multi-scale approach for retinal vessel segmentation using medialness function. **2010**,	4
1359	Retinal images: Blood vessel segmentation by threshold probing. **2010**,	2
1358	. **2011**,	10
1357	A DSP-Based Finger Vein Authentication System. **2011**,	11
1356	Radon transform technique for linear structures detection: Application to vessel detection in fluorescein angiography fundus images. **2011**,	8
1355	Analysis of diabetic retinopathy vasculars image. **2011**,	
1354	. **2011**,	6
1353	Curvilinear Structure Enhancement and Detection in Geophysical Images. **2011**, 49, 2040-2048	22
1352	An automated vessel segmentation of retinal images using multiscale vesselness. **2011**,	5
1351	Tortuosity as an Indicator of the Severity of Diabetic Retinopathy. **2011**, 269-290	2
1350	Ilastik: Interactive learning and segmentation toolkit. **2011**,	509
1349	Retinal vasculature segmentation by morphological curvature, reconstruction and adapted hysteresis thresholding. **2011**,	4
1348	Automated localization of retinal features. **2011**, 50, 3064-75	12
1347	Automating the Diagnosis, Stratification, and Management of Diabetic Retinopathy Using Content-Based Image Retrieval in an Ocular Telehealth Network. **2011**, 417-453	
1346	VE-LLI-VO: vessel enhancement using local line integrals and variational optimization. **2011**, 20, 1912-24	10

1345	A new supervised method for blood vessel segmentation in retinal images by using gray-level and moment invariants-based features. *IEEE Transactions on Medical Imaging*, **2011**, 30, 146-58	11.7	575
1344	Detection of new vessels on the optic disc using retinal photographs. *IEEE Transactions on Medical Imaging*, **2011**, 30, 972-9	11.7	79
1343	Aligning scan acquisition circles in optical coherence tomography images of the retinal nerve fibre layer. *IEEE Transactions on Medical Imaging*, **2011**, 30, 1228-38	11.7	15
1342	Cerebral artery-vein separation using 0.1-Hz oscillation in dual-wavelength optical imaging. *IEEE Transactions on Medical Imaging*, **2011**, 30, 2030-43	11.7	7
1341	Automatic detection and characterisation of retinal vessel tree bifurcations and crossovers in eye fundus images. **2011**, 103, 28-38		51
1340	High speed detection of retinal blood vessels in fundus image using phase congruency. **2011**, 15, 1217-1230		38
1339	An automated blood vessel segmentation algorithm using histogram equalization and automatic threshold selection. **2011**, 24, 564-72		40
1338	Retina identification based on the pattern of blood vessels using fuzzy logic. **2011**, 2011,		13
1337	Online joint palmprint and palmvein verification. **2011**, 38, 2621-2631		88
1336	Segmentation of retinal blood vessels using the radial projection and semi-supervised approach. **2011**, 44, 2314-2324		258
1335	Topological vascular tree segmentation for retinal images using shortest path connection. **2011**,		3
1334	Vessel segmentation based on Sobel operator and fuzzy reasoning. **2011**,		1
1333	Retinal vessel extraction by combining radial symmetry transform and iterated graph cuts. **2011**, 2011, 3950-3		1
1332	Digital Image Processing for Ophthalmology: Detection of the Optic Nerve Head. **2011**, 6, 1-106		5
1331	Retinal blood vessel segmentation using gabor filter and top-hat transform. **2011**,		3
1330	A Level-Set Based Method for Vessel Navigation. **2011**, 474-476, 1345-1350		
1329	Image Processing Techniques for Glaucoma Detection. **2011**, 365-373		13
1328	Real-time personal identification based on haptic information. **2011**,		4

1327	Exploratory Dijkstra forest based automatic vessel segmentation: applications in video indirect ophthalmoscopy (VIO). **2012**, 3, 327-39	28
1326	Automated segmentation of retinal blood vessels in spectral domain optical coherence tomography scans. **2012**, 3, 1478-91	29
1325	Retinal vessel measurement using model fitting approach. **2012**,	
1324	Multiscale retinal vessel segmentation with precise width estimation. **2012**,	1
1323	Illumination correction of retinal images using Laplace interpolation. **2012**, 51, 8383-9	18
1322	Coronary artery center-line extraction using second order local features. **2012**, 2012, 940981	8
1321	Age-related decrease of the retinal vasculature area identified with a novel computer-aided analysis system. **2012**, 228, 229-37	6
1320	A novel method for vessel detection using Contourlet Transform. **2012**,	4
1319	Blood vessel segmentation methodologies in retinal images--a survey. **2012**, 108, 407-33	580
1318	An automatic tracking method for retinal vascular tree extraction. **2012**,	3
1317	Exudates, retinal and statistical features detection from diabetic retinopathy and normal fundus images: An automated comparative approach. **2012**,	3
1316	Loss of calibre information during vessel segmentation. **2012**,	1
1315	Retinal vessel segmentation using Gabor filter and artificial neural network. **2012**,	8
1314	Automatic refinement of vascular tracking in retinal images: False vessels detection. **2012**,	1
1313	Directional gradient based registration of retinal images. **2012**,	
1312	An Unsupervised Segmentation Method for Retinal Vessel Using Combined Filters. **2012**,	4
1311	Comparative analysis on supervised classification techniques for segmentation and detecting abnormal blood vessels in retinal images. **2012**,	2
1310	Retinal vessel segmentation using Morphological Angular Scale-Space. **2012**,	5

1309	Morphological Scale-Space based Vessel Segmentation of Retinal Image. **2012**,	4
1308	Optimized MFR & automated local entropy thresholding for retinal blood vessel extraction. **2012**,	7
1307	Detection of changes in color fundus images due to diabetic retinopathy. **2012**,	1
1306	Retinal vessel segmentation using a multi-scale medialness function. **2012**, 42, 50-60	26
1305	Optic disc localization in retinal images using histogram matching. **2012**, 2012,	55
1304	Blind retrospective shading correction using a multi-objective minimization criterion. **2012**, 36, 501-13	2
1303	Automated diagnosis of diabetic retinopathy and glaucoma using fundus and OCT images. **2012**, 11, 73	21
1302	An ensemble classification-based approach applied to retinal blood vessel segmentation. **2012**, 59, 2538-48	460
1301	Retinal vascular tree reconstruction with anatomical realism. **2012**, 59, 3337-47	12
1300	Structural performance evaluation of curvilinear structure detection algorithms with application to retinal vessel segmentation. **2012**, 33, 2048-2056	2
1299	An automated computational framework for retinal vascular network labeling and branching order analysis. **2012**, 84, 169-77	14
1298	A Review Paper of 3D Surface Reconstruction of Coronary Arteries from Cardiovascular Angiography. **2012**,	
1297	Retinal image analysis aimed at blood vessel tree segmentation and early detection of neural-layer deterioration. **2012**, 36, 431-41	20
1296	An approach to localize the retinal blood vessels using bit planes and centerline detection. **2012**, 108, 600-16	214
1295	Retinal vessel segmentation using Average of Synthetic Exact Filters and Hessian matrix. **2012**,	6
1294	Fundus image analysis for the detection of diabetic eye diseases-a review. **2012**,	4
1293	An automated blood vessel extraction algorithm in fundus images. **2012**,	1
1292	Retinal blood vessel segmentation using morphological structuring element and entropy thresholding. **2012**,	3

1291	Contrast independent detection of branching points in network-like structures. **2012**,		6
1290	Restoration of retinal images using anisotropic diffusion like algorithms. **2012**,		1
1289	Automated segmentation of blood vessels for detection of proliferative diabetic retinopathy. **2012**,		18
1288	A novel approach for the detection of new vessels in the retinal images for screening Diabetic Retinopathy. **2012**,		14
1287	Automatic Detection of Coronary Vessels Using Mutli-scale Texture Dictionaries. **2012**,		2
1286	Retinal scan recognition using wavelet energy entropy. **2012**,		2
1285	. **2012**,		5
1284	Bildverarbeitung f□die Medizin 2012. **2012**,		1
1283	Fast retinal vessel detection and measurement using wavelets and edge location refinement. **2012**, 7, e32435		201
1282	Vessel Extraction of Conjunctival Images Using LBPs and ANFIS. **2012**, 2012, 1-6		4
1281	Detection of neovascularization in diabetic retinopathy. **2012**, 25, 437-44		40
1280	Segmentation of retinal vessels with a hysteresis binary-classification paradigm. **2012**, 36, 325-35		14
1279	Sparse Representation Classifier for microaneurysm detection and retinal blood vessel extraction. **2012**, 200, 78-90		61
1278	Vessel segmentation and width estimation in retinal images using multiscale production of matched filter responses. **2012**, 39, 7600-7610		70
1277	A novel optic disc detection scheme on retinal images. **2012**, 39, 10600-10606		44
1276	Retinal vessel segmentation using a probabilistic tracking method. **2012**, 45, 1235-1244		97
1275	Contrast-independent curvilinear structure detection in biomedical images. **2012**, 21, 2572-81		32
1274	A function for quality evaluation of retinal vessel segmentations. *IEEE Transactions on Medical Imaging*, **2012**, 31, 231-9	11.7	46

1273	An automated approach for cerebral microvascularity labeling in microscopy images. **2012**, 75, 388-96	2
1272	Algorithms for the automated detection of diabetic retinopathy using digital fundus images: a review. **2012**, 36, 145-57	165
1271	Retinal Vascular Image Segmentation Using Genetic Algorithm Plus FCM Clustering. **2013**,	8
1270	Enhancement of retinal blood vessel segmentation and classification. **2013**,	0
1269	Retinal image analysis aimed at extraction of vascular structure using linear discriminant classifier. **2013**,	10
1268	Retinal blood vessel segmentation using curvelet transform and morphological reconstruction. **2013**,	10
1267	Retinal vessel segmentation by improved matched filtering: evaluation on a new high-resolution fundus image database. **2013**, 7, 373-383	220
1266	Unbiased extraction of lines with parabolic and Gaussian profiles. **2013**, 117, 97-112	42
1265	Multilayered thresholding-based blood vessel segmentation for screening of diabetic retinopathy. **2013**, 29, 165-173	87
1264	An Effective Approach: Image Quality Enhancement for Microaneurysms Detection of Non-dilated Retinal Fundus Image. **2013**, 10, 731-737	18
1263	Detection of neovascularization in retinal images using multivariate m-Mediods based classifier. **2013**, 37, 346-57	44
1262	Application of morphological bit planes in retinal blood vessel extraction. **2013**, 26, 274-86	56
1261	Retinal vessel segmentation using multiwavelet kernels and multiscale hierarchical decomposition. **2013**, 46, 2117-2133	98
1260	Automatic vessel network features quantification using local vessel pattern operator. **2013**, 43, 587-93	14
1259	Computer-aided diagnosis of diabetic retinopathy: a review. **2013**, 43, 2136-55	245
1258	A robust hair segmentation and removal approach for clinical images of skin lesions. **2013**, 2013, 3315-8	18
1257	Visualization of palm veins in NIR images, application in clinical injection and identification. **2013**,	0
1256	A New Method for Online Retinal Optic-Disc Detection Based on Cascade Classifiers. **2013**,	4

1255	Fast marching over the 2D Gabor magnitude domain for tongue body segmentation. **2013**, 2013,	2
1254	A new blood vessel extraction technique using edge enhancement and object classification. **2013**, 26, 1107-15	16
1253	Comparison of automatic blood vessel segmentation methods in retinal images. **2013**,	5
1252	Retinal vascular feature analysis using color fundus imaging. **2013**,	
1251	. **2013**,	10
1250	A novel retinal vessel segmentation based on local adaptive histogram equalization. **2013**,	7
1249	A novel method for vessel skeleton extraction. **2013**,	1
1248	. **2013**,	7
1247	A template matching technique for artifacts detection in retinal images. **2013**,	4
1246	Validating retinal fundus image analysis algorithms: issues and a proposal. **2013**, 54, 3546-59	110
1245	A retinal vessel tracking method based on Bayesian theory. **2013**,	1
1244	Directional Histogram Ratio at Random Probes: A Local Thresholding Criterion for Capillary Images. **2013**, 46, 1933-1948	5
1243	Image-based mapping of surface fissures for the investigation of landslide dynamics. **2013**, 186, 12-27	107
1242	An effective retinal blood vessel segmentation method using multi-scale line detection. **2013**, 46, 703-715	299
1241	Line filtering for surgical tool localization in 3D ultrasound images. **2013**, 43, 2036-45	29
1240	Multi-elitist immune clonal quantum clustering algorithm. **2013**, 101, 275-289	16
1239	Automatic detection of vascular bifurcations in segmented retinal images using trainable COSFIRE filters. **2013**, 34, 922-933	57
1238	Retinal blood vessel segmentation using an Extreme Learning Machine approach. **2013**,	14

1237	Integrating adaptive neuro-fuzzy inference system and local binary pattern operator for robust retinal blood vessels segmentation. **2013**, 22, 163-174	12
1236	Automated analysis of diabetic retinopathy images: principles, recent developments, and emerging trends. **2013**, 13, 453-9	21
1235	Image Processing. **2013**, 151-176	2
1234	Automatic wavelet-based retinal blood vessels segmentation and vessel diameter estimation. **2013**, 8, 71-80	63
1233	Finger Vein Identification Based on Minutiae Feature Extraction with Spurious Minutiae Removal. **2013**,	3
1232	Gradient features and optimal thresholding for retinal blood vessel segmentation. **2013**,	3
1231	Diabetic retinopathy image database(DRiDB): A new database for diabetic retinopathy screening programs research. **2013**,	19
1230	. **2013**,	7
1229	Preprocessing of color retinal fundus images. **2013**,	7
1228	Coronary Artery Segmentation in Angiograms with Pattern Recognition Techniques -- A Survey. **2013**,	3
1227	Hardware acceleration of retinal blood vasculature segmentation. **2013**,	4
1226	Contourlet transform-based sharpening enhancement of retinal images and vessel extraction application. **2013**, 58, 87-96	6
1225	Robust vessel segmentation in fundus images. **2013**, 2013, 154860	230
1224	Retinal identification based on an Improved Circular Gabor Filter and Scale Invariant Feature Transform. **2013**, 13, 9248-66	30
1223	Real-Time Non-invasive Imaging of Subcutaneous Blood Vessels. **2013**, 1-10	
1222	Advanced Image Analysis for Automated Mapping of Landslide Surface Fissures. **2013**, 357-363	1
1221	Feature point validation for improved retina recognition. **2013**,	3
1220	Multifractal analysis of microvasculature in health and disease. **2013**, 2013, 2336-9	1

1219	Learning Separable Filters. **2013**,	89
1218	Segmentation and registration on near-infrared hand vein images for injection and personal identification. **2013**,	0
1217	Segmentation of retinal vasculature using phase congruency and hierarchical clustering. **2013**,	6
1216	A NEW EYENET MODEL FOR DIAGNOSIS OF DIABETIC RETINOPATHY. **2013**, 27, 924-940	4
1215	Finger Vein Verification Based on Neighbor Pattern Coding. **2013**, E96.D, 1227-1229	9
1214	Bayesian method with spatial constraint for retinal vessel segmentation. **2013**, 2013, 401413	19
1213	Automatic segmentation and measurement of vasculature in retinal fundus images using probabilistic formulation. **2013**, 2013, 260410	38
1212	Constructing benchmark databases and protocols for medical image analysis: diabetic retinopathy. **2013**, 2013, 368514	17
1211	Extraction of Blood Vessels in Retinal Images Using Four Different Techniques. **2013**, 2013, 408120	14
1210	Accurate image analysis of the retina using hessian matrix and binarisation of thresholded entropy with application of texture mapping. **2014**, 9, e95943	37
1209	Vessel labeling in combined confocal scanning laser ophthalmoscopy and optical coherence tomography images: criteria for blood vessel discrimination. **2014**, 9, e102034	10
1208	Palm vein verification using multiple features and locality preserving projections. **2014**, 2014, 246083	7
1207	Automated classification of coronary artery disease using discrete wavelet transform and back propagation neural network. **2014**, 9, 440-451	
1206	A New Heuristic Function of Ant Colony System for Retinal Vessel Segmentation. **2014**, 1, 15-30	25
1205	Machine learning identification of diabetic retinopathy from fundus images. **2014**,	13
1204	Image segmentation blood vessel of retinal using conventional filters, Gabor Transform and skeletonization. **2014**,	3
1203	Segmentation of retinal blood vessels based on divergence and bot-hat transform. **2014**,	3
1202	Neural Network Based Method for the Diagnosis of Diabetic Retinopathy. **2014**,	3

1201	Comparative performance of texton based vascular tree segmentation in retinal images. **2014**,	2
1200	Fast normalized cross-correlation based retinal recognition. **2014**,	1
1199	Analysis of three-dimensional vasculature using multifractal theory. **2014**,	0
1198	A scalable hardware architecture for retinal blood vessel detection in high resolution fundus images. **2014**,	1
1197	Extraction of Retinal Blood Vessel Using Curvelet Transform and Fuzzy C-Means. **2014**,	4
1196	Retinal blood vessel segmentation using bee colony optimisation and pattern search. **2014**,	22
1195	Tracking the major temporal arcade in retinal fundus images. **2014**,	1
1194	A survey on computer aided diagnosis for ocular diseases. **2014**, 14, 80	50
1193	Segmentation and classification of features in retinal images. **2014**,	
1192	Validation of a Computer Aided Segmentation System for Retinography. **2014**, 269-272	
1191	Supervised segmentation of vasculature in retinal images using neural networks. **2014**,	11
1190	Retinal Vessel Segmentation Using Local Entropy Thresholding. **2014**, 1-8	3
1189	Structure-based level set method for automatic retinal vasculature segmentation. **2014**, 2014,	9
1188	Retinal blood vessels extraction using probabilistic modelling. **2014**, 2, 2	21
1187	Recovering root system traits using image analysis exemplified by two-dimensional neutron radiography images of lupine. **2014**, 164, 24-35	72
1186	Blood Vessel Segmentation in Pathological Retinal Image. **2014**,	7
1185	Automatic detection of red lesions in digital color retinal images. **2014**,	4
1184	Tracing of retinal blood vessels through edge information. **2014**,	2

1183	Automated detection of optic disc and blood vessel in retinal image using morphological, edge detection and feature extraction technique. **2014**,	7
1182	A new morphology based approach for blood vessel segmentation in retinal images. **2014**,	12
1181	Retinal vessel enhancement based on multi-scale top-hat transformation and histogram fitting stretching. **2014**, 58, 56-62	47
1180	Retinal vessel extraction by means of motion contrast, matched filter and combined corner-edge detector. **2014**, 318, 17-25	3
1179	Delineation of blood vessels in pediatric retinal images using decision trees-based ensemble classification. **2014**, 9, 795-811	42
1178	Two-dimensional multi-pixel anisotropic Gaussian filter for edge-line segment (ELS) detection. **2014**, 32, 37-53	12
1177	Tracing retinal vessel trees by transductive inference. **2014**, 15, 20	14
1176	The bane of skew. **2014**, 97, 5-32	4
1175	Automatic retinal vessel extraction based on directional mathematical morphology and fuzzy classification. **2014**, 47, 164-171	55
1174	General rotation-invariant local binary patterns operator with application to blood vessel detection in retinal images. **2014**, 17, 69-81	8
1173	Computerized screening of diabetic retinopathy employing blood vessel segmentation in retinal images. **2014**, 34, 117-124	73
1172	Wireless Body Area Sensor Network Authentication Using Voronoi Diagram of Retinal Vascular Pattern. **2014**, 76, 579-589	3
1171	Vessel segmentation in retinal images with a multiple kernel learning based method. **2014**,	0
1170	Discriminative vessel segmentation in retinal images by fusing context-aware hybrid features. **2014**, 25, 1779-1792	62
1169	Automated identification of retinal vessels using a multiscale directional contrast quantification (MDCQ) strategy. **2014**, 41, 092702	6
1168	Retinal vessel segmentation based on possibilistic fuzzy c-means clustering optimised with cuckoo search. **2014**,	26
1167	Unsupervised recognition of retinal vascular junction points. **2014**, 2014, 150-3	2
1166	Computer-aided diagnosis software for hypertensive risk determination through fundus image processing. **2014**, 18, 1757-63	6

1165	Improved low-contrast retinal recognition using compression-based joint wavelet transform correlator. **2014**, 23, 43-49	
1164	Blood vessel segmentation from retinal images based on enhencement methods. **2014**,	3
1163	Blood vessel extraction using morphological operation for diabetic retinopathy. **2014**,	10
1162	Dissimilarity criteria and their comparison for quantitative evaluation of image segmentation: application to human retina vessels. **2014**, 25, 1953-1966	8
1161	Hausdorff symmetry operator towards retinal blood vessel segmentation. **2014**,	4
1160	Retinal vessel segmentation using non-subsampled contourlet transform and multi-scale line detection. **2014**,	3
1159	Retinal blood vessel segmentation with neural network by using gray-level co-occurrence matrix-based features. **2014**, 38, 85	34
1158	An improved retinal vessel segmentation method based on high level features for pathological images. **2014**, 38, 108	11
1157	Retinal vessel detection and measurement for computer-aided medical diagnosis. **2014**, 27, 120-32	12
1156	Segmentation of the blood vessels and optic disk in retinal images. **2014**, 18, 1874-86	127
1155	Feature Component-Based Extreme Learning Machines for Finger Vein Recognition. **2014**, 6, 446-461	29
1154	Blood Vessel Segmentation of Fundus Images by Major Vessel Extraction and Subimage Classification. **2015**, 19, 1118-28	125
1153	Automated retinal blood vessels extraction using Optimized Gabor filter. **2014**,	3
1152	Retinal vessels segmentation based on level set and region growing. **2014**, 47, 2437-2446	154
1151	Experimental verifications of noise suppression in retinal recognition by using compression-based joint transform correlator. **2014**, 315, 188-192	2
1150	A high performance hardware architecture for portable, low-power retinal vessel segmentation. **2014**, 47, 377-386	21
1149	Digital Image Processing for Ophthalmology: Detection and Modeling of Retinal Vascular Architecture. **2014**, 9, 1-185	0
1148	A retinal vessel boundary tracking method based on Bayesian theory and multi-scale line detection. **2014**, 38, 517-25	39

1147	Retinal vessel segmentation employing ANN technique by Gabor and moment invariants-based features. **2014**, 22, 94-100	43
1146	Retinal vessel segmentation using a finite element based binary level set method. **2014**, 8, 459-473	4
1145	Ensemble Classification Applied to Retinal Blood Vessel Segmentation. **2014**, 23-48	
1144	Automated Glaucoma Identification Using Retinal Fundus Images: A Hybrid Texture Feature Extraction Paradigm. **2014**, 25-38	7
1143	Ultrasound Biomicroscopic Imaging of the Anterior Chamber Angle. **2014**, 17-24	3
1142	Learning to Boost Filamentary Structure Segmentation. **2015**,	20
1141	Vessel extraction in retinal images using morphological filters. **2015**,	2
1140	Effective Retinal Blood Vessel Detection Using Only Directional Information. **2015**,	
1139	Retinal Vessel Segmentation: A Comparative Study of Fuzzy C-Means and Sum Entropy Information on Phase Congruency. **2015**, 12, 133	13
1138	SURF Descriptor and Pattern Recognition Techniques in Automatic Identification of Pathological Retinas. **2015**,	3
1137	A framework for retinal vasculature segmentation based on matched filters. **2015**, 14, 94	10
1136	Global vessel symmetry for optic disc detection in retinal images. **2015**,	4
1135	Retinal vasculature classification using novel multifractal features. **2015**, 60, 8365-79	12
1134	A New Approach to Segment Both Main and Peripheral Retinal Vessels Based on Gray-Voting and Gaussian Mixture Model. **2015**, 10, e0127748	36
1133	Applications of Neutron Imaging in Soil□Water□Root Systems. **2015**, 113-136	5
1132	Optic Disc and Optic Cup Segmentation Methodologies for Glaucoma Image Detection: A Survey. **2015**, 2015, 180972	97
1131	Adaptive thresholding technique for retinal vessel segmentation based on GLCM-energy information. **2015**, 2015, 597475	33
1130	Segmentation of Retinal Blood Vessels Based on Cake Filter. **2015**, 2015, 137024	8

1129	Automatic extraction of blood vessels in the retinal vascular tree using multiscale medialness. **2015**, 2015, 519024	10
1128	Removal of False Blood Vessels Using Shape Based Features and Image Inpainting. **2015**, 2015, 1-13	3
1127	Comparative study of retinal vessel segmentation based on global thresholding techniques. **2015**, 2015, 895267	15
1126	A parallelized 4D reconstruction algorithm for vascular structures and motions based on energy optimization. **2015**, 31, 1431-1446	10
1125	Orthogonal moments for determining correspondence between vessel bifurcations for retinal image registration. **2015**, 119, 121-41	6
1124	A level set method for retina image vessel segmentation based on the local cluster value via bias correction. **2015**,	7
1123	Clustering of tree-structured data. **2015**,	2
1122	Vessel segmentation of retinal image based on pixel strength and multi-agent. **2015**,	
1121	Detection of diabetic retinopathy and age-related macular degeneration from fundus images through local binary patterns and random forests. **2015**,	4
1120	Multiscale Blood Vessel Delineation Using B-COSFIRE Filters. **2015**, 300-312	12
1119	Three-Dimensional Reconstruction of Blood Vessels of the Human Retina by Fractal Interpolation. **2015**, 6, 0310031-310035	2
1118	Segmentation of tumor vessels based on parallel double snakes including region information. **2015**,	
1117	Automated tracking and analysis of axonal transport using combined filtering methods. **2015**, 9, 194-201	
1116	Retinal vessel extraction using Lattice Neural Networks with Dendritic Processing. **2015**, 58, 20-30	82
1115	Fringe noise removal of retinal fundus images using trimming regions. **2015**, 55-65	
1114	Iterative Vessel Segmentation of Fundus Images. **2015**, 62, 1738-49	170
1113	Automatic segmentation of vessels from angiogram sequences using adaptive feature transformation. **2015**, 62, 239-53	13
1112	Retinal blood vessel localization approach based on bee colony swarm optimization, fuzzy c-means and pattern search. **2015**, 31, 186-196	26

1111	Noise-robust low-contrast retinal recognition using compression-based joint wavelet transform correlator. **2015**, 74, 97-102	3
1110	A survey on blood vessel segmentation methods in retinal images. **2015**,	15
1109	Vessel extraction from non-fluorescein fundus images using orientation-aware detector. **2015**, 26, 232-42	56
1108	Retinal vessel profiling based on four piecewise Gaussian model. **2015**,	1
1107	Segmentation of retinal vessels by means of directional response vector similarity and region growing. **2015**, 66, 209-21	39
1106	Multiscale analysis of tortuosity in retinal images using wavelets and fractal methods. **2015**, 68, 132-138	5
1105	Automatic segmentation of blood vessels from retinal fundus images through image processing and data mining techniques. **2015**, 40, 1715-1736	3
1104	. **2015**,	1
1103	Segmentation of retinal blood vessels through Gabor features and ANFIS classifier. **2015**,	1
1102	A robust algorithm for segmentation of blood vessels in the presence of lesions in retinal fundus images. **2015**,	4
1101	Automatic diabetic retinopathy detection using Gabor filter with local entropy thresholding. **2015**,	4
1100	Improved multiscale matched filter for retina vessel segmentation using PSO algorithm. **2015**, 16, 253-260	40
1099	Hybrid Features and Mediods Classification based Robust Segmentation of Blood Vessels. **2015**, 39, 128	18
1098	Retinal blood vessel segmentation using graph cut analysis. **2015**,	8
1097	Robust and Fast Vessel Segmentation via Gaussian Derivatives in Orientation Scores. **2015**, 537-547	15
1096	A self-adaptive matched filter for retinal blood vessel detection. **2015**, 26, 55-68	49
1095	Retinal image registration using topological vascular tree segmentation and bifurcation structures. **2015**, 16, 22-31	32
1094	Connected image processing with multivariate attributes: An unsupervised Markovian classification approach. **2015**, 133, 1-14	14

1093	Segmentation and quantification of blood vessels for OCT-based micro-angiograms using hybrid shape/intensity compounding. **2015**, 97, 37-46	35
1092	Hierarchical retinal blood vessel segmentation based on feature and ensemble learning. **2015**, 149, 708-717	234
1091	Online personal verification by palmvein image through palmprint-like and palmvein information. **2015**, 147, 364-371	5
1090	Trainable COSFIRE filters for vessel delineation with application to retinal images. **2015**, 19, 46-57	420
1089	Ridge-based method for finding curvilinear structures from noisy data. **2015**, 82, 89-109	4
1088	Fast retinal vessel analysis. **2016**, 11, 413-422	31
1087	A Review on Recent Developments for Detection of Diabetic Retinopathy. **2016**, 2016, 6838976	38
1086	Retinal Fundus Image Enhancement Using the Normalized Convolution and Noise Removing. **2016**, 2016, 5075612	32
1085	An Automatic Cognitive Graph-Based Segmentation for Detection of Blood Vessels in Retinal Images. **2016**, 2016, 1-15	6
1084	Retinal image vasculature analysis software (RIVAS). **2016**, 323-345	1
1083	A Morphological Hessian Based Approach for Retinal Blood Vessels Segmentation and Denoising Using Region Based Otsu Thresholding. **2016**, 11, e0158996	45
1082	Segmentation of Retinal Blood Vessels Based on Ultimate Elongation Opening. **2016**, 727-733	1
1081	Video-based 3D reconstruction, laparoscope localization and deformation recovery for abdominal minimally invasive surgery: a survey. **2016**, 12, 158-78	37
1080	Automatic differentiation of color fundus images containing drusen or exudates using a contextual spatial pyramid approach. **2016**, 7, 709-25	6
1079	Retinal vessel segmentation via deep learning network and fully-connected conditional random fields. **2016**,	122
1078	Hybrid system for automatic classification of Diabetic Retinopathy using fundus images. **2016**,	6
1077	Aid to the medical diagnosis by retinal analysis. **2016**,	
1076	Comparison of algorithms for segmentation of blood vessels in fundus images. **2016**,	3

1075	. **2016**,	5
1074	Retinal vessel segmentation under pathological conditions using supervised machine learning. **2016**,	2
1073	. **2016**,	4
1072	Retinal vessel segmentation based on adaptive difference of Gauss filter. **2016**,	1
1071	A new approach of detection and segmentation of blood vessels for the classification of healthy and diseased retinal images. **2016**,	4
1070	A novel method to remove bright artifacts for enhancing lesion detection in retinal images. **2016**,	1
1069	Automatic blood vessel extraction technique using phase stretch transform in retinal images. **2016**,	2
1068	Automated blood vessel segmentation of fundus images using region features of vessels. **2016**,	3
1067	Automated blood vessel segmentation based on de-noising auto-encoder and neural network. **2016**,	6
1066	Supervised vessel delineation in retinal fundus images with the automatic selection of B-COSFIRE filters. **2016**, 27, 1137-1149	61
1065	Automatic Retinal Vessel Extraction Algorithm. **2016**,	19
1064	Role of Image Contrast Enhancement Technique for Ophthalmologist as Diagnostic Tool for Diabetic Retinopathy. **2016**,	22
1063	SAHF: Unsupervised Texture-Based Multiscale with Multicolor Method for Retinal Vessel Delineation. **2016**, 639-648	0
1062	. **2016**,	1
1061	Automated extraction of retinal vasculature. **2016**, 43, 2311	13
1060	Automatic detection and evaluation of solar cell micro-cracks in electroluminescence images using matched filters. **2016**,	14
1059	Blood vessel segmentation in fundus images and detection of Glaucoma. **2016**,	7
1058	Retinal Vessel Segmentation Using Parallel Grayscale Skeletonization Algorithm and Mathematical Morphology. **2016**,	8

1057	Automated detection of exudates using histogram analysis for Digital Retinal Images. **2016**,		2
1056	Automatic retinal vessel extraction algorithm based on contrast-sensitive schemes. **2016**,		17
1055	A novel benchmark model for intelligent annotation of spectral-domain optical coherence tomography scans using the example of cyst annotation. **2016**, 130, 93-105		8
1054	Accelerating Convolutional Sparse Coding for Curvilinear Structures Segmentation by Refining SCIRD-TS Filter Banks. *IEEE Transactions on Medical Imaging*, **2016**, 35, 2381-2392	11.7	30
1053	An Empirical Study Into Annotator Agreement, Ground Truth Estimation, and Algorithm Evaluation. **2016**, 25, 2557-2572		35
1052	A Combined Preprocessing Method for Retinal Vessel Detection Towards Proliferative Diabetic Retinopathy Screening. **2016**, 106-116		2
1051	Vessel Enhancement and Segmentation of 4D CT Lung Image Using Stick Tensor Voting. **2016**, 17, 1		0
1050	An Algorithm for Retinal Feature Extraction Using Hybrid Approach. **2016**, 79, 61-68		13
1049	Automatic Detection of Blood Vessel in Retinal Images. **2016**,		12
1048	Automated Detection System for Diabetic Retinopathy Using Two Field Fundus Photography. **2016**, 93, 486-494		24
1047	A review on automatic analysis techniques for color fundus photographs. **2016**, 14, 371-384		32
1046	AG-MIC: Azure-Based Generalized Flow for Medical Image Classification. **2016**, 4, 5243-5257		8
1045	Automated retina identification based on multiscale elastic registration. **2016**, 79, 130-143		10
1044	Robust Retinal Vessel Segmentation via Locally Adaptive Derivative Frames in Orientation Scores. *IEEE Transactions on Medical Imaging*, **2016**, 35, 2631-2644	11.7	188
1043	Effective optic disc detection method based on swarm intelligence techniques and novel pre-processing steps. **2016**, 49, 146-163		18
1042	Monitoring of retinal vessels for diabetic patients in home care assistance. **2016**,		0
1041	A Faster, Unbiased Path Opening by Upper Skeletonization and Weighted Adjacency Graphs. **2016**, 25, 5589-5600		4
1040	A survey on curvilinear object segmentation in multiple applications. **2016**, 60, 949-970		27

1039	Automated blood vessel segmentation in fundus image based on integral channel features and random forests. **2016**,	5
1038	Retinal blood vessel segmentation using matched filter and Laplacian of Gaussian. **2016**,	17
1037	DeepVessel: Retinal Vessel Segmentation via Deep Learning and Conditional Random Field. **2016**, 132-139	156
1036	An Automated Approach for Localizing Retinal Blood Vessels in Confocal Scanning Laser Ophthalmoscopy Fundus Images. **2016**, 36, 485-494	2
1035	Deep neural ensemble for retinal vessel segmentation in fundus images towards achieving label-free angiography. **2016**, 2016, 1340-1343	36
1034	Two-dimensional anisotropic Gaussian-Laplace filter design for visibility distance estimation under foggy weather. **2016**,	
1033	Smartphone-Based Accurate Analysis of Retinal Vasculature towards Point-of-Care Diagnostics. **2016**, 6, 34603	27
1032	Classification of large-scale fundus image data sets: a cloud-computing framework. **2016**, 2016, 3256-3259	5
1031	Automated detection of neovascularization for proliferative diabetic retinopathy screening. **2016**, 2016, 1300-1303	11
1030	Comparison of blood vessel detection techniques in low quality and pathological retinal images. **2016**,	
1029	Optic disc detection using histogram based template matching. **2016**,	1
1028	Optic disc detection using template matching based on color plane histograms. **2016**,	
1027	Automated detection of AMD using wavelet transform based features. **2016**,	
1026	Retinal blood vessel extraction using tunable bandpass filter and fuzzy conditional entropy. **2016**, 133, 111-132	19
1025	A new supervised retinal vessel segmentation method based on robust hybrid features. **2016**, 30, 1-12	83
1024	The detections of retinopathy symptoms and tractional retinal detachment. **2016**, 8, 168781401562433	1
1023	Fuzzy-Logic Based Detection and Characterization of Junctions and Terminations in Fluorescence Microscopy Images of Neurons. **2016**, 14, 201-19	18
1022	Leveraging Multiscale Hessian-Based Enhancement With a Novel Exudate Inpainting Technique for Retinal Vessel Segmentation. **2016**, 20, 1129-38	75

1021	A Graph-Theoretical Approach for Tracing Filamentary Structures in Neuronal and Retinal Images. *IEEE Transactions on Medical Imaging*, **2016**, 35, 257-72	11.7	55
1020	Blood vessel extraction and optic disc removal using curvelet transform and kernel fuzzy c-means. **2016**, 70, 174-189		28
1019	An Overview of Retinal Blood Vessels Segmentation. **2016**, 63-71		2
1018	New Binary Hausdorff Symmetry measure based seeded region growing for retinal vessel segmentation. **2016**, 36, 119-129		29
1017	Segmenting Retinal Blood Vessels With Deep Neural Networks. *IEEE Transactions on Medical Imaging*, **2016**, 35, 2369-2380	11.7	507
1016	Automatic screening and classification of diabetic retinopathy and maculopathy using fuzzy image processing. **2016**, 3, 249-267		41
1015	Clustering Tree-Structured Data on Manifold. **2016**, 38, 1956-68		7
1014	High-Time-Resolution Nuclear Magnetic Resonance With Nitrogen-Vacancy Centers. **2016**, 7, 1-5		10
1013	Connected Filtering on Tree-Based Shape-Spaces. **2016**, 38, 1126-40		47
1012	Retinal blood vessels segmentation by using Gumbel probability distribution function based matched filter. **2016**, 129, 40-50		79
1011	Rhizosphere shape of lentil and maize: Spatial distribution of enzyme activities. **2016**, 96, 229-237		92
1010	A self-calibrating approach for the segmentation of retinal vessels by template matching and contour reconstruction. **2016**, 29, 24-46		31
1009	Diabetic retinopathy assessment: Towards an automated system. **2016**, 24, 72-82		25
1008	Robust Optimization-Based Coronary Artery Labeling From X-Ray Angiograms. **2016**, 20, 1608-1620		9
1007	Retinal Blood Vessels Segmentation Based on Bio-Inspired Algorithm. **2016**, 181-215		2
1006	A Cross-Modality Learning Approach for Vessel Segmentation in Retinal Images. *IEEE Transactions on Medical Imaging*, **2016**, 35, 109-18	11.7	332
1005	Severe: Segmenting vessels in retina images. **2016**, 82, 162-169		21
1004	A new approach to optic disc detection in human retinal images using the firefly algorithm. **2016**, 54, 453-61		36

1003	Morphological region-based initial contour algorithm for level set methods in image segmentation. **2017**, 76, 2185-2201	23
1002	A Discriminatively Trained Fully Connected Conditional Random Field Model for Blood Vessel Segmentation in Fundus Images. **2017**, 64, 16-27	245
1001	Retinal Disease Screening Through Local Binary Patterns. **2017**, 21, 184-192	42
1000	Localizing Microaneurysms in Fundus Images Through Singular Spectrum Analysis. **2017**, 64, 990-1002	49
999	Accurate vessel segmentation using maximum entropy incorporating line detection and phase-preserving denoising. **2017**, 155, 162-172	32
998	A generalized method for the detection of vascular structure in pathological retinal images. **2017**, 37, 184-200	22
997	Automatic parameters selection of Gabor filters with the imperialism competitive algorithm with application to retinal vessel segmentation. **2017**, 37, 246-254	22
996	Effect of two different preprocessing steps in detection of optic nerve head in fundus images. **2017** ,	2
995	Structured Learning for 3-D Perivascular Space Segmentation Using Vascular Features. **2017**, 64, 2803-2812	16
994	Multiscale Segmentation via Bregman Distances and Nonlinear Spectral Analysis. **2017**, 10, 111-146	23
993	Segmentation and feature extraction of retinal vascular morphology. **2017**,	
992	Use of Gabor filters and deep networks in the segmentation of retinal vessel morphology. **2017**,	4
991	Selective Search and Intensity Context Based Retina Vessel Image Segmentation. **2017**, 41, 47	6
990	An unsupervised coarse-to-fine algorithm for blood vessel segmentation in fundus images. **2017**, 78, 182-192	62
989	DR HAGIS-a fundus image database for the automatic extraction of retinal surface vessels from diabetic patients. **2017**, 4, 014503	27
988	Fast, accurate and robust retinal vessel segmentation system. **2017**, 37, 412-421	46
987	Automatic diabetic retinopathy diagnosis using adjustable ophthalmoscope and multi-scale line operator. **2017**, 41, 490-503	5
986	Retinal vessel delineation using a brain-inspired wavelet transform and random forest. **2017**, 69, 107-123	72

985	Automatic segmentation of blood vessels in retinal image using morphological filters. **2017**,	1
984	Blood vessel segmentation in color fundus images based on regional and Hessian features. **2017**, 255, 1525-1533	19
983	Localization of optic disc and fovea in retinal images using intensity based line scanning analysis. **2017**, 87, 382-396	26
982	Retinal network characterization through fundus image processing: Significant point identification on vessel centerline. **2017**, 59, 50-64	5
981	Performance analysis of descriptive statistical features in retinal vessel segmentation via fuzzy logic, ANN, SVM, and classifier fusion. **2017**, 118, 165-176	63
980	Enhancing retinal vessel segmentation by color fusion. **2017**,	2
979	A Vessel Keypoint Detector for junction classification. **2017**,	5
978	Blood vessels extraction using Fuzzy Mathematical Morphology. **2017**,	0
977	Computerised approaches for the detection of diabetic retinopathy using retinal fundus images: a survey. **2017**, 20, 927-961	30
976	Multi-level deep supervised networks for retinal vessel segmentation. **2017**, 12, 2181-2193	84
975	Robust and accurate optic disk localization using vessel symmetry line measure in fundus images. **2017**, 37, 466-476	17
974	Digital tool for detecting diabetic retinopathy in retinography image using gabor transform. **2017**, 792, 012083	3
973	Detection of neovascularization in retinal images using mutual information maximization. **2017**, 62, 194-208	14
972	Assessment of sparse-based inpainting for retinal vessel removal. **2017**, 59, 73-82	7
971	A review of feature-based retinal image analysis. **2017**, 12, 207-220	14
970	Recent Advancements in Retinal Vessel Segmentation. **2017**, 41, 70	56
969	Neovascularization Detection on Retinal Images. **2017**, 301-313	
968	Proliferative diabetic retinopathy characterization based on fractal features: Evaluation on a publicly available dataset. **2017**, 44, 6425-6434	14

967	Vascular tree tracking and bifurcation points detection in retinal images using a hierarchical probabilistic model. **2017**, 151, 139-149		10
966	Detection of Curved Lines with B-COSFIRE Filters: A Case Study on Crack Delineation. **2017**, 108-120		10
965	Image Super Resolution Using Generative Adversarial Networks and Local Saliency Maps for Retinal Image Analysis. **2017**, 382-390		32
964	Optic Disc Detection via Deep Learning in Fundus Images. **2017**, 134-141		7
963	Segmentation of Retinal Blood Vessels Using Dictionary Learning Techniques. **2017**, 83-91		2
962	Robust Hidden Markov Model based intelligent blood vessel detection of fundus images. **2017**, 151, 193-201		10
961	General-purpose curvilinear object detection with fuzzy mathematical morphology. **2017**, 60, 655-669		5
960	Vessel segmentation in angiography images with multi-scale filters. **2017**,		
959	Delineation of line patterns in images using B-COSFIRE filters. **2017**,		8
958	In vivo classification of inflammation in blood vessels with convolutional neural networks. **2017**,		1
957	Ensemble of steerable local neighbourhood grey-level information for binarization. **2017**, 98, 8-15		2
956	Vessel extraction in retinal images using automatic thresholding and Gabor Wavelet. **2017**, 2017, 365-368		3
955	A Simple Convolutional Transfer Neural Networks in Vision Tasks. **2017**, 385-392		
954	Segmentation of retinal blood vessels using artificial neural networks for early detection of diabetic retinopathy. **2017**,		5
953	Automatic segmentation of retinal vasculature. **2017**,		5
952	Improving dense conditional random field for retinal vessel segmentation by discriminative feature learning and thin-vessel enhancement. **2017**, 148, 13-25		45
951	Segment 2D and 3D Filaments by Learning Structured and Contextual Features. *IEEE Transactions on Medical Imaging*, **2017**, 36, 596-606	11.7	28
950	Vessel segmentation and microaneurysm detection using discriminative dictionary learning and sparse representation. **2017**, 139, 93-108		52

949	Vascular tree extraction for photoacoustic microscopy and imaging of cat primary visual cortex. **2017**, 10, 780-791	12
948	Local characterization of neovascularization and identification of proliferative diabetic retinopathy in retinal fundus images. **2017**, 55, 124-132	27
947	Analysis of Finger Vein Feature Extraction Using Cross-Sectional Profile Approach. **2017**, 609-616	
946	Optimized clinical segmentation of retinal blood vessels by using combination of adaptive filtering, fuzzy entropy and skeletonization. **2017**, 52, 937-951	35
945	Performance comparison of publicly available retinal blood vessel segmentation methods. **2017**, 55, 2-12	19
944	Segmentation of retinal blood vessels using Gabor wavelet and morphological reconstruction. **2017** ,	3
943	. **2017**,	2
942	Deep tessellated retinal image detection using Convolutional Neural Networks. **2017**, 2017, 676-680	6
941	A new two-dimensional matched filter based on the modified Chebyshev type I function for retinal vessels detection. **2017**, 2017, 369-372	6
940	Review on finger vein feature extraction methods. **2017**,	4
939	Blood Vessel Segmentation Using Hybrid Median Filtering and Morphological Transformation. **2017** ,	3
938	A Comparative Analysis of Application of Niblack and Sauvola Binarization to Retinal Vessel Segmentation. **2017**,	2
937	. **2017**,	4
936	Blood vessels segmentation using thresholding approach for fundus image analysis. **2017**,	2
935	Inertial graphic gravitational random walk for network structure image segmentation. **2017**,	
934	Automatic Detection of Coronary Artery Stenosis Using Bayesian Classification and Gaussian Filters Based on Differential Evolution. **2017**, 369-390	0
933	A Retinal Vessel Detection Approach Based on Shearlet Transform and Indeterminacy Filtering on Fundus Images. **2017**, 9, 235	27
932	Novel Computerized Method for Measurement of Retinal Vessel Diameters. **2017**, 5,	8

931	Morphological operation detection of retinal image segmentation. **2017**,	2
930	Retinal Image Denoising via Bilateral Filter with a Spatial Kernel of Optimally Oriented Line Spread Function. **2017**, 2017, 1769834	11
929	Robust Retinal Blood Vessel Segmentation Based on Reinforcement Local Descriptions. **2017**, 2017, 2028946	9
928	Blood Vessel Extraction in Color Retinal Fundus Images with Enhancement Filtering and Unsupervised Classification. **2017**, 2017, 4897258	17
927	A new approach to two-dimensional filter for segmenting retinal vascular network from fundus images of premature born. **2017**,	0
926	Retina Image Vessel Segmentation Using a Hybrid CGLI Level Set Method. **2017**, 2017, 1263056	9
925	Sensitivity and specificity of automated analysis of single-field non-mydriatic fundus photographs by Bosch DR Algorithm-Comparison with mydriatic fundus photography (ETDRS) for screening in undiagnosed diabetic retinopathy. **2017**, 12, e0189854	27
924	A Curvature Based Approach for the Automated Screening of Retinopathy of Prematurity in Preterm Infants. **2017**,	
923	Modelization using the B-spline method of blood vessel curve for the human retina. **2017**,	
922	Multi-scale morphological analysis for retinal vessel detection in wide-field fluorescein angiography. **2017**,	7
921	Automated extraction and analysis of retinal blood vessels with Multi Scale Matched Filter. **2017**,	3
920	Comparing Different Preprocessing Methods in Automated Segmentation of Retinal Vasculature. **2017**,	2
919	Automated Optic Nerve Head Detection Based on Different Retinal Vasculature Segmentation Methods and Mathematical Morphology. **2017**,	2
918	Automated Fovea Detection Based on Unsupervised Retinal Vessel Segmentation Method. **2017**,	3
917	Laser stripe extraction method in industrial environments utilizing self-adaptive convolution technique. **2017**, 56, 2653-2660	23
916	Retinal image segmentation using double-scale non-linear thresholding on vessel support regions. **2017**, 2, 109-115	5
915	Retinal Vessel Segmentation via Structure Tensor Coloring and Anisotropy Enhancement. **2017**, 9, 276	8
914	GPU-based segmentation of retinal blood vessels. **2018**, 14, 773-782	12

913	Identifying Medical Diagnoses and Treatable Diseases by Image-Based Deep Learning. **2018**, 172, 1122-1131.e9	1563
912	Effectiveness of Region Growing Based Segmentation Technique for Various Medical Images - A Study. **2018**, 234-259	4
911	Fractal dimension and lacunarity analysis of retinal microvascular morphology in hypertension and diabetes. **2018**, 118, 36-43	32
910	Multi-channel multi-scale fully convolutional network for 3D perivascular spaces segmentation in 7T MR images. **2018**, 46, 106-117	58
909	Joint Segment-Level and Pixel-Wise Losses for Deep Learning Based Retinal Vessel Segmentation. **2018**, 65, 1912-1923	177
908	Macula segmentation and fovea localization employing image processing and heuristic based clustering for automated retinal screening. **2018**, 160, 153-163	14
907	Retinal vessel extraction using dynamic multi-scale matched filtering and dynamic threshold processing based on histogram fitting. **2018**, 29, 655-666	5
906	Eye gaze based optic disc detection system. **2018**, 34, 1713-1722	2
905	Impact of ICA-Based Image Enhancement Technique on Retinal Blood Vessels Segmentation. **2018**, 6, 3524-3538	61
904	Automated Quality Assessment of Fundus Images via Analysis of Illumination, Naturalness and Structure. **2018**, 6, 806-817	16
903	A novel active contour model for medical images via the Hessian matrix and eigenvalues. **2018**, 75, 3081-3104	15
902	Blood vessel segmentation algorithms - Review of methods, datasets and evaluation metrics. **2018**, 158, 71-91	208
901	Retinal blood vessel segmentation for macula detachment surgery monitoring instruments. **2018**, 46, 1166-1180	4
900	Retinal vessel segmentation using neural network. **2018**, 12, 669-678	34
899	Detection of Curvilinear Structure in Images by a Multi-Centered Hough Forest Method. **2018**, 6, 22684-22694	1
898	Retracted: Robust Retinal Vessel Segmentation using Vessel's Location Map and Frangi Enhancement Filter. **2018**, 12, 494-501	17
897	Manually segmented vascular networks from images of retina with proliferative diabetic and hypertensive retinopathy. **2018**, 18, 470-473	4
896	Robust retinal blood vessel segmentation using line detectors with multiple masks. **2018**, 12, 389-399	39

895	Flexible architectures for retinal blood vessel segmentation in high-resolution fundus images. **2018**, 15, 31-42		4
894	Noise-estimation-based anisotropic diffusion approach for retinal blood vessel segmentation. **2018**, 29, 159-180		12
893	Progressive Minimal Path Method for Segmentation of 2D and 3D Line Structures. **2018**, 40, 696-709		7
892	Automatic Detection of Retinal Lesions for Screening of Diabetic Retinopathy. **2018**, 65, 608-618		65
891	Using direction and score information for retina based person verification. **2018**, 94, 1-10		5
890	A generalized method for the segmentation of exudates from pathological retinal fundus images. **2018**, 38, 27-53		51
889	Semi-automated Method for the Glaucoma Monitoring. **2018**, 227-246		2
888	Increasing the Segmentation of Retinal Blood Vessels in Shearlet Domain. **2018**, 357-361		1
887	A Review of Retinal Vessel Segmentation and Artery/Vein Classification. **2018**, 727-737		1
886	A Skeletal Similarity Metric for Quality Evaluation of Retinal Vessel Segmentation. *IEEE Transactions on Medical Imaging*, **2018**, 37, 1045-1057	11.7	23
885	Computer Aided Diagnosis in Ophthalmology: Deep Learning Applications. **2018**, 263-293		3
884	Transduction on Directed Graphs via Absorbing Random Walks. **2018**, 40, 1770-1784		12
883	Optimizing the trainable B-COSFIRE filter for retinal blood vessel segmentation. **2018**, 6, e5855		8
882	Curvilinear Structure Enhancement by Multiscale Top-Hat Tensor in 2D/3D Images. **2018**,		0
881	Differential Thresholding of SIFT-based Blood Vessel Segmentation in Retinal Fundus Image. **2018**,		0
880	Retinal Disease Screening through Statistical Texture Analysis and Local Binary Patterns using Machine Vision. **2018**,		
879	Improved Vessel Segmentation Using Curvelet Transform and Line Operators. **2018**,		7
878	Strided U-Net Model: Retinal Vessels Segmentation using Dice Loss. **2018**,		21

877	A Coarse-to-Fine Fully Convolutional Neural Network for Fundus Vessel Segmentation. **2018**, 10, 607	15
876	Hyperspectral Image Segmentation of Retinal Vasculature, Optic Disc and Macula. **2018**,	1
875	Weighted Res-UNet for High-Quality Retina Vessel Segmentation. **2018**,	99
874	Extraction of Blood Vessels in Retina. **2018**, 11, 122-136	1
873	Deep Learning based Fetal Middle Cerebral Artery Segmentation in Large-scale Ultrasound Images. **2018**,	2
872	Multi-Population Differential Evolution for Retinal Blood Vessel Segmentation. **2018**,	0
871	Retinal Blood Vessel Segmentation in Fundus Images using Improved Graph Cut Method. **2018**,	0
870	Quantification of Longitudinal Changes in Retinal Vasculature from Wide-Field Fluorescein Angiography via a Novel Registration and Change Detection Approach. **2018**,	2
869	. **2018**,	8
868	Automatic Screening of Retinal Structrue using Adaptive Fuzzy Thresholding. **2018**,	
867	Diabetic Retinopathy: Present and Past. **2018**, 132, 1432-1440	17
866	Automatic Cataract Classification Based on Multi-feature Fusion and SVM. **2018**,	5
865	. **2018**, 6, 61973-61982	11
864	Sensitivity of Cross-Trained Deep CNNs for Retinal Vessel Extraction. **2018**, 2018, 2736-2739	4
863	Gradation of diabetic retinopathy on reconstructed image using compressed sensing. **2018**, 12, 1956-1963	8
862	BAT algorithm inspired retinal blood vessel segmentation. **2018**, 12, 2075-2083	13
861	Segmenting Retinal Vessels with a Multi-scale Modified Dolph-Chebyshev Type I Function Matched Filter. **2018**,	
860	Employing Image Processing Techniques and Artificial Intelligence for Automated Eye Diagnosis Using Digital Eye Fundus Images. **2018**, 39, 40-56	9

859	Automatic Detection of Optic Disc in Retina Image Using CNN and CRF. **2018**,	0
858	DISCERN: Generative Framework for Vessel Segmentation using Convolutional Neural Network and Visual Codebook. **2018**, 2018, 5934-5937	11
857	A Survey for Diabetic Retinopathy. **2018**,	
856	Retinal Vessel Detection in Wide-Field Fluorescein Angiography with Deep Neural Networks: A Novel Training Data Generation Approach. **2018**,	7
855	Retinal Vessel Segmentation Using Morphological Top Hat Approach On Diabetic Retinopathy Images. **2018**,	3
854	Accurate liver vessel segmentation via active contour model with dense vessel candidates. **2018**, 166, 61-75	10
853	Multi-Label Classification Scheme Based on Local Regression for Retinal Vessel Segmentation. **2018** ,	3
852	Low Complexity Convolutional Neural Network for Vessel Segmentation in Portable Retinal Diagnostic Devices. **2018**,	15
851	Retinal Vessel Segmentation via Multiscaled Deep-Guidance. **2018**, 158-168	3
850	Multi-Stage Suture Detection for Robot Assisted Anastomosis Based on Deep Learning. **2018**,	4
849	Fundus image classification methods for the detection of glaucoma: A review. **2018**, 81, 1105-1121	38
848	Deep Supervision with Additional Labels for Retinal Vessel Segmentation Task. **2018**, 83-91	49
847	A Modified Dolph-Chebyshev Type II Function Matched Filter for Retinal Vessels Segmentation. **2018**, 10, 257	4
846	Automatic detection and segmentation of optic disc and fovea in retinal images. **2018**, 12, 2100-2110	18
845	Multiscale Approach of Retinal Blood Vessels Segmentation Based on Vessels Segmentation with Different Scales. **2018**,	
844	Dempster-Shafer Fusion for Effective Retinal Vessels Diameter Measurement. **2018**, 149-160	6
843	VEA: Vessel Extraction Algorithm by Active Contour Model and a Novel Wavelet Analyzer for Diabetic Retinopathy Detection. **2018**, 18, 1850008	14
842	A Multi-Anatomical Retinal Structure Segmentation System for Automatic Eye Screening Using Morphological Adaptive Fuzzy Thresholding. **2018**, 6, 3800123	11

841	Retinal blood vessels extraction from fundus images using an automated method. **2018**,	1
840	Vessel Recognition of Retinal Fundus Images Based on Fully Convolutional Network. **2018**,	7
839	. **2018**,	5
838	Automatic retinal vessel segmentation using multi-scale superpixel chain tracking. **2018**, 81, 26-42	20
837	Retinal Vessels Segmentation Techniques and Algorithms: A Survey. **2018**, 8, 155	46
836	Synthesizing retinal and neuronal images with generative adversarial nets. **2018**, 49, 14-26	92
835	Retinal blood vessels segmentation based on multi-classifier fusion. **2018**,	0
834	A retinal vessel detection approach using convolution neural network with reinforcement sample learning strategy. **2018**, 125, 586-591	42
833	Retinal vessel segmentation of color fundus images using multiscale convolutional neural network with an improved cross-entropy loss function. **2018**, 309, 179-191	151
832	Automated fuzzy optic disc detection algorithm using branching of vessels and color properties in fundus images. **2018**, 38, 850-867	6
831	Retinal blood vessel segmentation using the elite-guided multi-objective artificial bee colony algorithm. **2018**, 12, 2163-2171	16
830	Blood vessel segmentation in retinal fundus images using Gabor filters, fractional derivatives, and Expectation Maximization. **2018**, 339, 568-587	38
829	A visual attention guided unsupervised feature learning for robust vessel delineation in retinal images. **2018**, 44, 110-126	13
828	. **2018**,	36
827	A robust technique based on VLM and Frangi filter for retinal vessel extraction and denoising. **2018** , 13, e0192203	20
826	A Novel Unsupervised Framework for Retinal Vasculature Segmentation. **2018**, 490-497	1
825	Retinal vessel segmentation based on Fully Convolutional Neural Networks. **2018**, 112, 229-242	123
824	Binary Filter for Fast Vessel Pattern Extraction. **2019**, 49, 979-993	2

823	Automatic Retinal Vessel Segmentation via Deeply Supervised and Smoothly Regularized Network. **2019**, 7, 57717-57724		24
822	Supervised Segmentation of Un-Annotated Retinal Fundus Images by Synthesis. *IEEE Transactions on Medical Imaging*, **2019**, 38, 46-56	11.7	45
821	Retinal Vessel Segmentation Using Minimum Spanning Superpixel Tree Detector. **2019**, 49, 2707-2719		26
820	MBO-SVM-based exudate classification in fundus retinal images of diabetic patients. **2019**, 7, 195-206		2
819	Deep learning based computer-aided diagnosis systems for diabetic retinopathy: A survey. **2019**, 99, 101701		77
818	Multiloss Function Based Deep Convolutional Neural Network for Segmentation of Retinal Vasculature into Arterioles and Venules. **2019**, 2019, 4747230		7
817	Blood vessel segmentation of retinal image using Clifford matched filter and Clifford convolution. **2019**, 78, 34839-34865		11
816	Comparative Analysis of Vessel Segmentation Techniques in Retinal Images. **2019**, 7, 114862-114887		37
815	Retinal image assessment using bi-level adaptive morphological component analysis. **2019**, 99, 101702		4
814	A Novel Grading Method of Cataract Based on AWM. **2019**,		2
813	Uncertainty-Aware Artery/Vein Classification on Retinal Images. **2019**,		13
812	A hybrid method for blood vessel segmentation in images. **2019**, 39, 814-824		7
811	Robust Inhibition-Augmented Operator for Delineation of Curvilinear Structures. **2019**, 28, 5852-5866		19
810	Going Deep in Medical Image Analysis: Concepts, Methods, Challenges, and Future Directions. **2019**, 7, 99540-99572		79
809	Recognition of Diabetic Retinopathy Basedon Transfer Learning. **2019**,		7
808	Blood vessel detection based on fractional Hessian matrix with non-singular Mittag□effler Gaussian kernel. **2019**, 54, 101584		18
807	Robust intensity variation and inverse surface adaptive thresholding techniques for detection of optic disc and exudates in retinal fundus images. **2019**, 39, 753-764		2
806	Multi-proportion channel ensemble model for retinal vessel segmentation. **2019**, 111, 103352		13

805	Network-based features for retinal fundus vessel structure analysis. **2019**, 14, e0220132	3
804	Multilevel and Multiscale Deep Neural Network for Retinal Blood Vessel Segmentation. **2019**, 11, 946	21
803	Scale-space approximated convolutional neural networks for retinal vessel segmentation. **2019**, 178, 237-246	27
802	Local Phase U-net for Fundus Image Segmentation. **2019**,	3
801	A novel on 2 D Modeling for Width Measurement from Retinal Vessel. **2019**,	0
800	Self-Supervised Deep Learning for Retinal Vessel Segmentation Using Automatically Generated Labels from Multimodal Data. **2019**,	6
799	. **2019**, 7, 143402-143411	18
798	Automatic Retinal Blood Vessel Segmentation Based on Fully Convolutional Neural Networks. **2019**, 11, 1112	26
797	Residual U-Net for Retinal Vessel Segmentation. **2019**,	23
796	Design of Optimal Adaptive Filters for Two-Dimensional Filamentary Structures Segmentation. **2019**, 26, 1511-1515	3
795	Retinal vessel segmentation using enhanced fuzzy min-max neural network. **2019**, 78, 35053-35073	1
794	Multi-Scale Regularized Deep Network for Retinal Vessel Segmentation. **2019**,	1
793	Aiding the Diagnosis of Diabetic and Hypertensive Retinopathy Using Artificial Intelligence-Based Semantic Segmentation. **2019**, 8,	30
792	Deep vessel segmentation by learning graphical connectivity. **2019**, 58, 101556	63
791	Fractal characterization of retinal microvascular network morphology during diabetic retinopathy progression. **2019**, 26, e12531	11
790	An Effective Detection Mechanism for Localizing Macular Region and Grading Maculopathy. **2019**, 43, 53	2
789	2D and 3D Vascular Structures Enhancement via Multiscale Fractional Anisotropy Tensor. **2019**, 365-374	4
788	A fully automated pipeline of extracting biomarkers to quantify vascular changes in retina-related diseases. **2019**, 7, 616-631	1

787	. **2019**, 7, 22002-22010	10
786	An improved vessel extraction scheme from retinal fundus images. **2019**, 78, 25221-25239	11
785	Blood Vessel Analysis on High Resolution Fundus Retinal Images. **2019**, 302-311	
784	Fundus image quality assessment: survey, challenges, and future scope. **2019**, 13, 1211-1224	21
783	Topological data analysis of high resolution diabetic retinopathy images. **2019**, 14, e0217413	12
782	Soil zymography: Simple and reliable? Review of current knowledge and optimization of the method. **2019**, 11, 100161	27
781	Diagnostic assessment of deep learning algorithms for diabetic retinopathy screening. **2019**, 501, 511-522	78
780	Discriminative dictionary learning for retinal vessel segmentation using fusion of multiple features. **2019**, 13, 1529-1537	10
779	Retinal vessel segmentation by a divide-and-conquer funnel-structured classification framework. **2019**, 165, 104-114	9
778	Computer-aided diagnosis of cataract using deep transfer learning. **2019**, 53, 101533	36
777	Retinal Blood Vessel Extraction From Fundus Images Using Improved Otsu Method. **2019**, 10, 21-43	
776	Distinguising Proof of Diabetic Retinopathy Detection by Hybrid Approaches in Two Dimensional Retinal Fundus Images. **2019**, 43, 173	4
775	DUNet: A deformable network for retinal vessel segmentation. **2019**, 178, 149-162	243
774	Image Processing, Textural Feature Extraction and Transfer Learning based detection of Diabetic Retinopathy. **2019**,	2
773	Detection of hypertensive retinopathy using principal component analysis (PCA) and backpropagation neural network methods. **2019**,	0
772	Robust Retinal Image Enhancement via Dual-Tree Complex Wavelet Transform and Morphology-Based Method. **2019**, 7, 47303-47316	23
771	Detecting the Optical Disc in Digital Fundus linage with Automated and Efficient Method. **2019**,	
770	Multi-scale Deep Convolutional Neural Network for Stroke Lesions Segmentation on CT Images. **2019**, 283-291	3

769	A New Hybrid Algorithm for Retinal Vessels Segmentation on Fundus Images. **2019**, 7, 41885-41896		32
768	Extraction of Blood Vessels in Fundus Images of Retina through Hybrid Segmentation Approach. **2019**, 7, 169		15
767	Reconstruction of coronary circulation networks: A review of methods. **2019**, 26, e12542		5
766	De-noising of photoacoustic sensing and imaging based on combined empirical mode decomposition and independent component analysis. **2019**, 12, e201900042		6
765	Segmenting retinal vessels with revised top-bottom-hat transformation and flattening of minimum circumscribed ellipse. **2019**, 57, 1481-1496		10
764	PixelBNN: Augmenting the PixelCNN with Batch Normalization and the Presentation of a Fast Architecture for Retinal Vessel Segmentation. **2019**, 5,		22
763	Retinal Image Synthesis and Semi-Supervised Learning for Glaucoma Assessment. *IEEE Transactions on Medical Imaging*, **2019**, 38, 2211-2218	11.7	60
762	Analysis of hybrid statistical textural and intensity features to discriminate retinal abnormalities through classifiers. **2019**, 233, 506-514		2
761	Dense U-net Based on Patch-Based Learning for Retinal Vessel Segmentation. **2019**, 21,		60
760	BTS-DSN: Deeply supervised neural network with short connections for retinal vessel segmentation. **2019**, 126, 105-113		69
759	Automatic Lesions Detection and Classification of Diabetic Retinopathy Using Fuzzy Logic. **2019**,		3
758	Hybrid Nature Inspired SMO-GBM Classifier for Exudate Classification on Fundus Retinal Images. **2019**, 40, 69-77		5
757	Retinal blood vessel extraction employing effective image features and combination of supervised and unsupervised machine learning methods. **2019**, 95, 1-15		18
756	Histogram equalization techniques for enhancement of low radiance retinal images for early detection of diabetic retinopathy. **2019**, 22, 736-745		12
755	An Extensive Review on Various Fundus Databases Use for Development of Computer-Aided Diabetic Retinopathy Screening Tool. **2019**, 407-418		1
754	. **2019**,		
753	Conditional Patch-based Generative Adversarial Network for Retinal Vessel Segmentation. **2019**,		4
752	Blood Vessel Detection Using Modified Multiscale MF-FDOG Filters for Diabetic Retinopathy. **2019**,		1

751 Automatic Cataract Detection in Fundus Retinal Images using Singular Value Decomposition. **2019**, 1

750 Suitable Embedding to Find Similarity Between Left and Right Retinas of a Person. **2019**, 1

749 Deep Supervision Adversarial Learning Network for Retinal Vessel Segmentation. **2019**, 4

748 A Brief Review on Vessel Extraction and Tracking Methods. **2019**,

747 Thin Vessel Detection and Thick Vessel Edge Enhancement to Boost Performance of Retinal Vessel Extraction Methods. **2019**, 163, 618-638 4

746 Selecting Parameters for Image Processing Algorithms: A Case Study Using Retinal Image Segmentation. **2019**,

745 Automatic Retinal Vascular Network Detection using Multi-Thresholding Approach based on Otsu. **2019**,

744 . **2019**,

743 Context-Aware Spatio-Recurrent Curvilinear Structure Segmentation. **2019**, 6

742 Retinal image preprocessing, enhancement, and registration. **2019**, 59-77 2

741 Retinal vascular analysis: Segmentation, tracing, and beyond. **2019**, 95-120 1

740 Drusen and macular degeneration. **2019**, 245-272 3

739 Vascular biomarkers for diabetes and diabetic retinopathy screening. **2019**, 319-352 0

738 Artificial intelligence and deep learning in retinal image analysis. **2019**, 379-404 3

737 Technical and clinical challenges of A.I. in retinal image analysis. **2019**, 445-466 3

736 Averse Deep Semantic Segmentation. **2019**, 2019, 44-47 0

735 . **2019**, 7, 158183-158197 25

734 Retinal vessel segmentation approach based on corrected morphological transformation and fractal dimension. **2019**, 13, 2538-2547 8

733	SDCA: a novel stack deep convolutional autoencoder an application on retinal image denoising. **2019**, 13, 2778-2789	6
732	SD-Unet: A Structured Dropout U-Net for Retinal Vessel Segmentation. **2019**,	20
731	Unsupervised Method for Retinal Vessel Segmentation Based on Gabor Wavelet and Multiscale Line Detector. **2019**, 7, 167221-167228	15
730	A Multi-Scale Directional Line Detector for Retinal Vessel Segmentation. **2019**, 19,	20
729	Retinal Vasculature Segmentation and Analysis using Heuristic approach. **2019**,	
728	A Novel Retinal Vessel Segmentation Method Using Connected Domain Merging and Improved Graph Cut. **2019**,	
727	A Hierarchical Image Matting Model for Blood Vessel Segmentation in Fundus Images. **2018**,	39
726	Methods to label, image, and analyze the complex structural architectures of microvascular networks. **2019**, 26, e12520	23
725	. **2019**, 7, 3360-3370	53
724	Robust retinal blood vessel segmentation using hybrid active contour model. **2019**, 13, 440-450	24
723	Computer-Assisted Diagnosis for Diabetic Retinopathy Based on Fundus Images Using Deep Convolutional Neural Network. **2019**, 2019, 1-14	32
722	Automated techniques for blood vessels segmentation through fundus retinal images: A review. **2019**, 82, 153-170	29
721	A Three-Stage Deep Learning Model for Accurate Retinal Vessel Segmentation. **2019**, 23, 1427-1436	114
720	Retinal Blood Vessel Segmentation by Using Matched Filtering and Fuzzy C-means Clustering with Integrated Level Set Method for Diabetic Retinopathy Assessment. **2019**, 39, 713-731	30
719	Development of an artificial intelligence system to classify pathology and clinical features on retinal fundus images. **2019**, 47, 484-489	15
718	A recursive Bayesian approach to describe retinal vasculature geometry. **2019**, 87, 157-169	8
717	The multiscale bowler-hat transform for blood vessel enhancement in retinal images. **2019**, 88, 739-750	27
716	Deep Learning in Cardiology. **2019**, 12, 168-193	58

715	Classification of Normal and Abnormal Retinal Images by Using Feature-Based Machine Learning Approach. **2019**, 387-396	4
714	Blood vessel segmentation from fundus image by a cascade classification framework. **2019**, 88, 331-341	57
713	A review of retinal blood vessels extraction techniques: challenges, taxonomy, and future trends. **2019**, 22, 767-802	33
712	Towards Accurate Segmentation of Retinal Vessels and the Optic Disc in Fundoscopic Images with Generative Adversarial Networks. **2019**, 32, 499-512	64
711	A framework for retinal vessel segmentation from fundus images using hybrid feature set and hierarchical classification. **2019**, 13, 379-387	20
710	A machine learning approach to medical image classification: Detecting age-related macular degeneration in fundus images. **2019**, 75, 218-229	32
709	Boosting sensitivity of a retinal vessel segmentation algorithm. **2019**, 22, 583-599	18
708	Extraction of Retinal Blood Vessels by Using an Extended Matched Filter Based on Second Derivative of Gaussian. **2019**, 89, 269-277	9
707	A real-time fuzzy morphological algorithm for retinal vessel segmentation. **2019**, 16, 2337-2350	11
706	Morphological operations with iterative rotation of structuring elements for segmentation of retinal vessel structures. **2019**, 30, 373-389	14
705	Dilated Deep Neural Network for Segmentation of Retinal Blood Vessels in Fundus Images. **2020**, 44, 505-518	16
704	Retinal image quality assessment for diabetic retinopathy screening: A survey. **2020**, 79, 16173-16199	7
703	The multiscale top-hat tensor enables specific enhancement of curvilinear structures in 2D and 3D images. **2020**, 173, 3-15	2
702	A framework for hierarchical division of retinal vascular networks. **2020**, 392, 221-232	7
701	Even faster retinal vessel segmentation via accelerated singular value decomposition. **2020**, 32, 1893-1902	2
700	Improving retinal vessel segmentation with joint local loss by matting. **2020**, 98, 107068	19
699	DVAE: Deep Variational Auto-Encoders for Denoising Retinal Fundus Image. **2020**, 257-273	3
698	Segmentation of sonar imagery using convolutional neural networks and Markov random field. **2020**, 31, 21-47	5

697	Instance-Based Learning for Blood Vessel Segmentation in Retinal Images. **2020**, 111-118		
696	Parallel Architecture of Fully Convolved Neural Network for Retinal Vessel Segmentation. **2020**, 33, 168-180		9
695	Robotic Retinal Surgery. **2020**, 627-672		8
694	DCCMED-Net: Densely connected and concatenated multi Encoder-Decoder CNNs for retinal vessel extraction from fundus images. **2020**, 134, 109426		25
693	U-COSFIRE filters for vessel tortuosity quantification with application to automated diagnosis of retinopathy of prematurity. **2020**, 32, 12453-12468		6
692	Application of deep learning for retinal image analysis: A review. **2020**, 35, 100203		54
691	Portable smart healthcare solution to eye examination for diabetic retinopathy detection at an earlier stage. **2020**, 305-322		
690	Dense Dilated Network With Probability Regularized Walk for Vessel Detection. *IEEE Transactions on Medical Imaging*, **2020**, 39, 1392-1403	11.7	31
689	Active contours with local and global energy based-on fuzzy clustering and maximum a posterior probability for retinal vessel detection. **2020**, 32, e5599		3
688	Ophthalmic diagnosis using deep learning with fundus images - A critical review. **2020**, 102, 101758		54
687	A new robust method for blood vessel segmentation in retinal fundus images based on weighted line detector and hidden Markov model. **2020**, 187, 105231		21
686	An unsupervised approach to improve contrast and segmentation of blood vessels in retinal images using CLAHE, 2D Gabor wavelet, and morphological operations. **2020**, 36, 67-75		4
685	Convexity shape constraints for retinal blood vessel segmentation and foveal avascular zone detection. **2020**, 127, 104049		2
684	Multiple Lesions Detection of Fundus Images Based on Convolution Neural Network Algorithm With Improved SFLA. **2020**, 8, 97618-97631		4
683	Fundus Image Segmentation Based on Improved Generative Adversarial Network for Retinal Vessel Analysis. **2020**,		4
682	A Novel Deep Learning Pipeline for Retinal Vessel Detection In Fluorescein Angiography. **2020**,		16
681	. **2020**, 8, 131257-131272		17
680	The Comparison of Retinal Vessel Segmentation Methods in Fundus Images. **2020**, 1574, 012160		2

679	Enhancing vessel visibility in fundus images to aid the diagnosis of retinopathy of prematurity. **2020**, 26, 2722-2736		3
678	The SUSTech-SYSU dataset for automated exudate detection and diabetic retinopathy grading. **2020**, 7, 409		4
677	Rbvs-Net: A Robust Convolutional Neural Network For Retinal Blood Vessel Segmentation. **2020**,		0
676	Wavelet based Fine-to-Coarse Retinal Blood Vessel Extraction using U-net Model. **2020**,		0
675	Representations, Metrics and Statistics for Shape Analysis of Elastic Graphs. **2020**,		3
674	M-GAN: Retinal Blood Vessel Segmentation by Balancing Losses Through Stacked Deep Fully Convolutional Networks. **2020**, 8, 146308-146322		28
673	DoFE: Domain-Oriented Feature Embedding for Generalizable Fundus Image Segmentation on Unseen Datasets. *IEEE Transactions on Medical Imaging*, **2020**, 39, 4237-4248	11.7	16
672	Diabetic retinopathy detection through deep learning techniques: A review. **2020**, 20, 100377		56
671	Machine Learning Techniques for Ophthalmic Data Processing: A Review. **2020**, 24, 3338-3350		7
670	Reconstruction of Three-Dimensional Blood Vessel Model Using Fractal Interpolation. **2020**,		
669	Exploiting Residual Edge Information in Deep Fully Convolutional Neural Networks For Retinal Vessel Segmentation. **2020**,		5
668	Shallow Vessel Segmentation Network for Automatic Retinal Vessel Segmentation. **2020**,		4
667	Noninvasive temporal detection of early retinal vascular changes during diabetes. **2020**, 10, 17370		5
666	Evaluation of LBP Variants in Retinal Blood Vessels Segmentation Using Machine Learning. **2020**,		2
665	Weakly-Supervised Vessel Detection in Ultra-Widefield Fundus Photography via Iterative Multi-Modal Registration and Learning. *IEEE Transactions on Medical Imaging*, **2021**, 40, 2748-2758	11.7	8
664	ResWnet for Retinal Small Vessel Segmentation. **2020**, 8, 198265-198274		4
663	Drdnet: Diagnosis of Diabetic Retinopathy Using Capsule Network (Workshop Paper). **2020**,		2
662	Effects of Image Enhancement Techniques on CNNs Based Algorithms for Segmentation of Blood Vessels: A Review. **2020**,		0

661	Efficient BFCN for Automatic Retinal Vessel Segmentation. **2020**, 2020, 6439407	0
660	. **2020**,	0
659	MSCNN-AM: A Multi-Scale Convolutional Neural Network With Attention Mechanisms for Retinal Vessel Segmentation. **2020**, 8, 163926-163936	11
658	An Unsupervised Retinal Vessel Segmentation Using Hessian and Intensity Based Approach. **2020**, 8, 165056-165070	12
657	Dynamic Deep Networks for Retinal Vessel Segmentation. **2020**, 2,	9
656	Comparative Analysis of Pre-process Pipelines For Automatic Retinal Vessel Segmentation. **2020**,	
655	A Multi-Scale Feature Fusion Method Based on U-Net for Retinal Vessel Segmentation. **2020**, 22,	15
654	CNN Based Diabetic Retinopathy Status Prediction Using Fundus Images. **2020**,	2
653	Retinal Blood Vessel Extraction Based on Adaptive Segmentation Algorithm. **2020**,	0
652	Automated Grading of Diabetic Retinopathy using Local-Spatial Descriptors. **2020**,	2
651	Automatic Detection of Eye Cataract using Deep Convolution Neural Networks (DCNNs). **2020**,	6
650	Retinal vessel segmentation using simple SPCNN model and line connector. **2020**, 1	1
649	ELEMENT: Multi-Modal Retinal Vessel Segmentation Based on a Coupled Region Growing and Machine Learning Approach. **2020**, 24, 3507-3519	13
648	MRU-NET: A U-Shaped Network for Retinal Vessel Segmentation. **2020**, 10, 6823	1
647	Deep Learning Methods for Retinal Blood Vessel Segmentation: Evaluation on Images with Retinopathy of Prematurity. **2020**,	2
646	Written in Blood: Applying Shape Grammars to Retinal Vasculatures. **2020**, 9, 36	0
645	Retinal Vessel Segmentation by Deep Residual Learning with Wide Activation. **2020**, 2020, 8822407	4
644	An Unsupervised Retinal Vessel Extraction and Segmentation Method Based On a Tube Marked Point Process Model. **2020**,	1

643	A novel automatic retinal vessel extraction using maximum entropy based EM algorithm. **2020**, 79, 22337-22353	3
642	Enhanced Convolutional Neural Networks for Segmentation of Retinal Blood Vessel Image. **2020**,	4
641	CGAN-based Synthetic Medical Image Augmentation between Retinal Fundus Images and Vessel Segmented Images. **2020**,	2
640	Retinal vessel segmentation using multifractal characterization. **2020**, 94, 106439	12
639	CTF-Net: Retinal Vessel Segmentation via Deep Coarse-To-Fine Supervision Network. **2020**,	9
638	Investigations of Object Detection in Images/Videos Using Various Deep Learning Techniques and Embedded Platforms—A Comprehensive Review. **2020**, 10, 3280	33
637	Local descriptor for retinal fundus image registration. **2020**, 14, 144-153	3
636	Fréchet PDF based Matched Filter Approach for Retinal Blood Vessels Segmentation. **2020**, 194, 105490	12
635	. **2020**,	52
634	The Fourier-Argand Representation: An Optimal Basis of Steerable Patterns. **2020**,	2
633	A size-invariant convolutional network with dense connectivity applied to retinal vessel segmentation measured by a unique index. **2020**, 196, 105508	10
632	CPGAN: Conditional patch-based generative adversarial network for retinal vesselsegmentation. **2020**, 14, 1081-1090	6
631	Retinal Blood Vessel Segmentation Using Hybrid Features and Multi-Layer Perceptron Neural Networks. **2020**, 12, 894	15
630	Subpixel Localization of Isolated Edges and Streaks in Digital Images. **2020**, 6,	2
629	Ensemble Deep Learning for Diabetic Retinopathy Detection Using Optical Coherence Tomography Angiography. **2020**, 9, 20	29
628	Multi-Label Classification Scheme Based on Local Regression for Retinal Vessel Segmentation. **2021**, 18, 2586-2597	4
627	A supervised blood vessel segmentation technique for digital Fundus images using Zernike Moment based features. **2020**, 15, e0229831	26
626	Algorithms for Diagnosis of Diabetic Retinopathy and Diabetic Macula Edema- A Review. **2021**, 1307, 357-373	3

625	Learning the retinal anatomy from scarce annotated data using self-supervised multimodal reconstruction. **2020**, 91, 106210	8
624	A fractional filter based efficient algorithm for retinal blood vessel segmentation. **2020**, 59, 101883	18
623	NFN+: A novel network followed network for retinal vessel segmentation. **2020**, 126, 153-162	48
622	Generalized Convolutional Sparse Coding with Unknown Noise. **2020**,	3
621	The Blood Vasculature of the Retina Using Routine Segmentation. **2020**, 1-9	
620	Hard Attention Net for Automatic Retinal Vessel Segmentation. **2020**, 24, 3384-3396	35
619	A Data-Aware Deep Supervised Method for Retinal Vessel Segmentation. **2020**,	8
618	Self-supervised multimodal reconstruction of retinal images over paired datasets. **2020**, 161, 113674	10
617	Vascular Extraction by using matched filter on retinal image. **2020**, 1457, 012013	0
616	. **2020**, 8, 38210-38220	3
615	BSCN: bidirectional symmetric cascade network for retinal vessel segmentation. **2020**, 20, 20	5
614	A metaheuristic segmentation framework for detection of retinal disorders from fundus images using a hybrid ant colony optimization. **2020**, 24, 13347-13356	8
613	DENSE-INception U-net for medical image segmentation. **2020**, 192, 105395	63
612	An Instinctive Application of Spatially Weighted Possibilistic Clustering Methods for the Detection of Lesions in Diabetic Retinopathy Images in Multi-dimensional Kernel Space. **2020**, 113, 223-240	
611	Retinal Mosaicking with Vascular Bifurcations Detected on Vessel Mask by a Convolutional Network. **2020**, 2020, 7156408	3
610	Deep Retinal Image Segmentation with Regularization Under Geometric Priors. **2019**,	20
609	Vessel Structure Extraction using Constrained Minimal Path Propagation. **2020**, 105, 101846	2
608	Fundus retinal image analyses for screening and diagnosing diabetic retinopathy, macular edema, and glaucoma disorders. **2020**, 59-111	9

607	Anisotropic tubular minimal path model with fast marching front freezing scheme. **2020**, 104, 107349	
606	A novel approach for blood vessel segmentation with exudate detection in diabetic retinopathy. **2020**,	1
605	An Effective Retinal Blood Vessel Segmentation by Using Automatic Random Walks Based on Centerline Extraction. **2020**, 2020, 7352129	2
604	Multimodal Registration of Fundus Images With Fluorescein Angiography for Fine-Scale Vessel Segmentation. **2020**, 8, 63757-63769	2
603	FRNet: an end-to-end feature refinement neural network for medical image segmentation. **2021**, 37, 1101-1112	13
602	. **2021**, 17, 1958-1967	52
601	Retinal Blood Vessel Segmentation from Depigmented Diabetic Retinopathy Images. **2021**, 67, 263-280	4
600	Hierarchical severity grade classification of non-proliferative diabetic retinopathy. **2021**, 12, 2649-2670	13
599	BAT optimization based Retinal artery vein classification. **2021**, 25, 2821-2835	3
598	VSSC Net: Vessel Specific Skip chain Convolutional Network for blood vessel segmentation. **2021**, 198, 105769	22
597	A review of machine learning methods for retinal blood vessel segmentation and artery/vein classification. **2021**, 68, 101905	25
596	Multi-class multi-label ophthalmological disease detection using transfer learning based convolutional neural network. **2021**, 66, 102329	17
595	Diabetic retinopathy severity grading employing quadrant-based Inception-V3 convolution neural network architecture. **2021**, 31, 592-608	6
594	. **2021**, 40, 1864-1873	
593	Accurate Retinal Vessel Segmentation in Color Fundus Images via Fully Attention-Based Networks. **2021**, 25, 2071-2081	10
592	Fundus image lesion detection algorithm for diabetic retinopathy screening. **2021**, 12, 7407-7416	4
591	Signal and Image Processing Techniques for the Development of Intelligent Healthcare Systems. **2021**,	0
590	Computer-aided retinal vessel segmentation in retinal images: convolutional neural networks. **2021**, 80, 3505-3528	10

589	A novel methodology for vessel extraction from retinal fundus image and detection of neovascularization. **2021**, 80, 4093-4110		
588	Blood vessel segmentation and extraction using H-minima method based on image processing techniques. **2021**, 80, 2565-2582		4
587	A Global and Local Enhanced Residual U-Net for Accurate Retinal Vessel Segmentation. **2021**, 18, 852-862		18
586	Robust retinal blood vessel segmentation using convolutional neural network and support vector machine. **2021**, 12, 3559-3569		11
585	A Semi-supervised Generative Adversarial Network for Retinal Analysis from Fundus Images. **2021**, 351-362		1
584	U-Net based Multi-level Texture Suppression for Vessel Segmentation in Low Contrast Regions. **2021**,		1
583	BLU-GAN: Bi-directional ConvLSTM U-Net with Generative Adversarial Training for Retinal Vessel Segmentation. **2021**, 3-13		1
582	Automatic Staging for Retinopathy of Prematurity With Deep Feature Fusion and Ordinal Classification Strategy. *IEEE Transactions on Medical Imaging*, **2021**, 40, 1750-1762	11.7	3
581	Self-Paced Learning With Diversity for Medical Image Segmentation by Using the Query-by-Committee and Dynamic Clustering Techniques. **2021**, 9, 9834-9844		0
580	Novel Evaluation Metrics for Vascular Structure Segmentation. **2021**, 80-85		
579	D-GaussianNet: Adaptive Distorted Gaussian Matched Filter with Convolutional Neural Network for Retinal Vessel Segmentation. **2021**, 378-392		4
578	A viral load-based model for epidemic spread on spatial networks. **2021**, 18, 5635-5663		7
577	Deep Neural Architectures for Medical Image Semantic Segmentation: Review. **2021**, 9, 83002-83024		9
576	Unsupervised Learning of Local Discriminative Representation for Medical Images. **2021**, 373-385		0
575	Self-Supervised Vessel Enhancement Using Flow-Based Consistencies. **2021**, 12902, 242-251		3
574	Retinal Image Enhancement via a Multiscale Morphological Approach with OCCO Filter. **2021**, 177-186		1
573	A Scale Normalized Generalized LoG Detector Approach for Retinal Vessel Segmentation. **2021**, 9, 44442-44452		2
572	Robust Retinal Vessel Segmentation from a Data Augmentation Perspective. **2021**, 189-198		4

571	Validating Retinal Color Fundus Databases and Methods for Diabetic Retinopathy Screening. **2021**, 747-769		1
570	Multi-level Attention Network for Retinal Vessel Segmentation. **2021**, PP,		3
569	A semi-supervised approach for automatic detection and segmentation of optic disc from retinal fundus image. **2021**, 65-91		2
568	Residual Multiscale Full Convolutional Network (RM-FCN) for High Resolution Semantic Segmentation of Retinal Vasculature. **2021**, 324-333		4
567	A Benchmark of Ocular Disease Intelligent Recognition: One Shot for Multi-disease Detection. **2021** , 177-193		5
566	Improving Gravitational Wave Detection with 2D Convolutional Neural Networks. **2021**,		0
565	Diabetic Retinopathy Diagnosis From Fundus Images Using Stacked Generalization of Deep Models. **2021**, 9, 108276-108292		27
564	Blood Vessel Segmentation Using Differential Evolution Algorithm. **2021**, 151-167		2
563	Towards Automated Eye Diagnosis: An Improved Retinal Vessel Segmentation Framework Using Ensemble Block Matching 3D Filter. **2021**, 11,		8
562	Retinal vessel segmentation with constrained-based nonnegative matrix factorization and 3D modified attention U-Net. **2021**, 2021,		1
561	Modified pixel level snake using bottom hat transformation for evolution of retinal vasculature map. **2021**, 18, 5737-5757		1
560	Automated microaneurysms detection for early diagnosis of diabetic retinopathy: A Comprehensive review. **2021**, 1, 100013		6
559	Progressive Adversarial Semantic Segmentation. **2021**,		1
558	Contrast Enhancement of Fundus Images by Employing Modified PSO for Improving the Performance of Deep Learning Models. **2021**, 9, 47930-47945		14
557	Interleaved Deep Artifacts-Aware Attention Mechanism for Concrete Structural Defect Classification. **2021**, 30, 6957-6969		1
556	Genetic U-Net: Automatically Designed Deep Networks for Retinal Vessel Segmentation Using a Genetic Algorithm. *IEEE Transactions on Medical Imaging*, **2021**, PP,	11.7	3
555	Retinal Vessel Segmentation based on Convolutional Neural Network and Connection Domain Detection. **2021**, 187, 246-251		1
554	Transfer Learning Through Weighted Loss Function and Group Normalization for Vessel Segmentation from Retinal Images. **2021**,		0

553	PCANet: Pyramid Context-aware Network for Retinal Vessel Segmentation. **2021**,	1
552	SAT-Net: a side attention network for retinal image segmentation. **2021**, 51, 5146-5156	5
551	W□et: A Convolutional Neural Network for Retinal Vessel Segmentation. **2021**, 355-368	
550	Investigation of Bilateral Similarity in Central Retinal Blood Vessels. **2021**, 9, 63012-63028	1
549	Artificial Intelligence for Medical Diagnosis. **2021**, 1-21	
548	Relationships Between Retinal Vascular Characteristics and Renal Function in Patients With Type 2 Diabetes Mellitus. **2021**, 10, 20	1
547	A Novel IR Analyzer Based Property Extraction for Segmented Branch Retinal Artery Occlusion and GWO-CNN Based Classification □An Ophthalmic Outcome. 1-13	0
546	Multi-Scale and Multi-Branch Convolutional Neural Network for Retinal Image Segmentation. **2021**, 13, 365	4
545	A comprehensive analysis of morphological process dependent retinal blood vessel segmentation. **2021**,	2
544	Segmentation of retinal vasculature through composite features and supervised learning. **2021**,	0
543	Feature pyramid U-Net for retinal vessel segmentation. **2021**, 15, 1733-1744	0
542	Lightweight pyramid network with spatial attention mechanism for accurate retinal vessel segmentation. **2021**, 16, 673-682	2
541	Comprehensive review of retinal blood vessel segmentation and classification techniques: intelligent solutions for green computing in medical images, current challenges, open issues, and knowledge gaps in fundus medical images. **2021**, 10, 1	8
540	Encoding-decoding Network With Pyramid Self-attention Module For Retinal Vessel Segmentation. 1	1
539	Identification of Retinal Diseases using Blood Vessel Extraction. **2021**,	0
538	Ocular Inspection to Prevent Vision Impairment Caused by Diabetic Retinopathy. **2021**,	
537	Blood Vessel Segmentation in Retinal Images Using Neural Networks. **2021**,	
536	Retinal Image Analysis to Detect Neovascularization using Deep Segmentation. **2021**,	

535	Deep learning: step forward to high-resolution in vivo shortwave infrared imaging.	
534	Survey on recent developments in automatic detection of diabetic retinopathy. **2021**, 44, 420-440	8
533	Deep Learning-Based Diabetic Retinopathy Severity Grading System Employing Quadrant Ensemble Model. **2021**, 34, 440-457	7
532	Diameter Estimation of Fallopian Tubes Using Visual Sensing. **2021**, 11,	
531	Assessing fairness in performance evaluation of publicly available retinal blood vessel segmentation algorithms. **2021**, 45, 351-360	0
530	A comprehensive review on automated systems for severity grading of diabetic retinopathy and macular edema.	1
529	A survey on incorporating domain knowledge into deep learning for medical image analysis. **2021**, 69, 101985	37
528	Fundus Image Segmentation Using Step Time Signal Polynomial Fitting. **2021**,	1
527	Deep learning in photoacoustic imaging: a review. **2021**, 26,	14
526	Diabetic Retinopathy Detection Using Local Extrema Quantized Haralick Features with Long Short-Term Memory Network. **2021**, 2021, 6618666	2
525	An efficient retinal blood vessel segmentation in eye fundus images by using optimized top-hat and homomorphic filtering. **2021**, 201, 105949	17
524	A Comprehensive Review of Markov Random Field and Conditional Random Field Approaches in Pathology Image Analysis. 1	10
523	A FPGA Vein Imaging System Based on Matched Filter. **2021**,	
522	CSU-Net: A Context Spatial U-Net for Accurate Blood Vessel Segmentation in Fundus Images. **2021**, 25, 1128-1138	13
521	Objective-Dependent Uncertainty Driven Retinal Vessel Segmentation. **2021**,	2
520	Automatic Retinal Vessel Segmentation Based on an Improved U-Net Approach. **2021**, 2021, 1-15	4
519	Coarse-Level Perception and Fine-Level Refinement Guided Fully Convolutional Network for Retinal Vessel Segmentation. **2021**,	
518	Applications of deep learning in fundus images: A review. **2021**, 69, 101971	47

517	SCS-Net: A Scale and Context Sensitive Network for Retinal Vessel Segmentation. **2021**, 70, 102025	19
516	A refined equilibrium generative adversarial network for retinal vessel segmentation. **2021**, 437, 118-130	9
515	Performance comparison of artificial bee colony algorithm based approaches for retinal vessel segmentation. 792-807	
514	Deep learning: step forward to high-resolution in vivo shortwave infrared imaging. **2021**, 14, e202100102	2
513	Retinal Vessel Segmentation Based on Recurrent Convolutional Skip Connection U-Net. **2021**,	
512	Contextual information enhanced convolutional neural networks for retinal vessel segmentation in color fundus images. **2021**, 77, 103134	2
511	BSEResU-Net: An attention-based before-activation residual U-Net for retinal vessel segmentation. **2021**, 205, 106070	10
510	Automated Detection of Diabetic Retinopathy Images using Pre-trained Convolutional Neural Network. **2021**,	0
509	ANN Classification and Modified Otsu Labeling on Retinal Blood Vessels. **2021**, 16, 82-90	
508	Retinal vessel segmentation based on an improved deep forest. **2021**, 31, 1792	2
507	Encoder Enhanced Atrous (EEA) Unet architecture for Retinal Blood vessel segmentation. **2021**, 67, 84-95	13
506	A new deep learning method for blood vessel segmentation in retinal images based on convolutional kernels and modified U-Net model. **2021**, 205, 106081	12
505	Variation-Aware Federated Learning With Multi-Source Decentralized Medical Image Data. **2021**, 25, 2615-2628	10
504	Joint Extraction of Retinal Vessels and Centerlines Based on Deep Semantics and Multi-Scaled Cross-Task Aggregation. **2021**, 25, 2722-2732	2
503	Mix: A Potential Image Augmentation Method on Retinal Vessel Segmentation. **2021**,	
502	A novel retinal image segmentation using rSVM boosted convolutional neural network for exudates detection. **2021**, 68, 102785	3
501	Learning a reconnecting regularization term for blood vessel variational segmentation. **2021**,	
500	Rethinking pre-training on medical imaging. **2021**, 78, 103145	6

499	Localization of Ocular Vessels with Context Sensitive Semantic Segmentation. **2021**,	0
498	Retinal Image Segmentation Based on Multiple Features Method. **2021**,	
497	Leveraging Adversarial Training for Efficient Retinal Vessel Segmentation. **2021**,	1
496	Principled network extraction from images. **2021**, 8, 210025	2
495	MFI-Net: A multi-resolution fusion input network for retinal vessel segmentation. **2021**, 16, e0253056	1
494	Graph-Based Deep Learning for Medical Diagnosis and Analysis: Past, Present and Future. **2021**, 21,	10
493	Diabetic Retinopathy Diagnosis Through Computer-Aided Fundus Image Analysis: A Review. 1	2
492	Deep learning for diabetic retinopathy detection and classification based on fundus images: A review. **2021**, 135, 104599	21
491	Tiny Vessels Exploration in Retinal Image Using BFS Influenced Flood Filling. **2022**, 48-57	
490	Vessel enhancement using Multi-scale Space-Intensity domain Fusion Adaptive filtering. **2021**, 69, 102799	0
489	A hybrid deep segmentation network for fundus vessels via deep-learning framework. **2021**, 448, 168-178	13
488	A Multichannel Deep Neural Network for Retina Vessel Segmentation a Fusion Mechanism. **2021**, 9, 697915	2
487	Diagnostic assessment of deep learning for melanocytic lesions using whole-slide pathological images. **2021**, 14, 101161	2
486	A high resolution representation network with multi-path scale for retinal vessel segmentation. **2021**, 208, 106206	5
485	Gated Skip-Connection Network with Adaptive Upsampling for Retinal Vessel Segmentation. **2021**, 21,	0
484	. **2021**,	2
483	Retinal blood vessel segmentation using pixel-based feature vector. **2021**, 70, 103053	3
482	DF-Net: Deep fusion network for multi-source vessel segmentation. **2021**, 78, 199-199	0

481	Impact of Novel Image Preprocessing Techniques on Retinal Vessel Segmentation. **2021**, 10, 2297	0
480	Determining Top Fully Connected Layer's Hidden Neuron Count for Transfer Learning, Using Knowledge Distillation: a Case Study on Chest X-Ray Classification of Pneumonia and COVID-19. **2021**, 1	
479	Non-Invasive Process for Analyzing Retinal Blood Vessels Using Deep Learning Techniques. **2021**, 215-233	
478	MD-Net: A multi-scale dense network for retinal vessel segmentation. **2021**, 70, 102977	7
477	Interactive Blood Vessel Segmentation from Retinal Fundus Image Based on Canny Edge Detector. **2021**, 21,	1
476	HDC-Net: A hierarchical dilation convolutional network for retinal vessel segmentation. **2021**, 16, e0257013	0
475	TA-Net: Triple attention network for medical image segmentation. **2021**, 137, 104836	5
474	An automatic retinal vessel segmentation approach based on Convolutional Neural Networks. **2021**, 184, 115459	4
473	A nested U-shape network with multi-scale upsample attention for robust retinal vascular segmentation. **2021**, 120, 107998	3
472	Width-wise vessel bifurcation for improved retinal vessel segmentation. **2022**, 71, 103169	11
471	A Feature Selection Strategy to Optimize Retinal Vasculature Segmentation. **2022**, 70, 2971-2989	0
470	Luminosity and contrast enhancement of retinal vessel images using weighted average histogram. **2022**, 71, 103089	2
469	Morphological Cross Entropy Loss for Improved Semantic Segmentation of Small and Thin Objects. **2021**, 192, 582-591	1
468	Classification of Fundus Images Based on Deep Learning for Detecting Eye Diseases. **2021**, 67, 411-426	2
467	Contrast Enhancement in Deep Convolutional Neural Networks for Segmentation of Retinal Blood Vessels. **2021**, 278-290	1
466	Multi-scale retinal vessel segmentation using encoder-decoder network with squeeze-and-excitation connection and atrous spatial pyramid pooling. **2021**, 60, 239-249	1
465	Unsupervised automated retinal vessel segmentation based on Radon line detector and morphological reconstruction. **2021**, 15, 1484-1498	2
464	A smartphone-based test and predictive models for rapid, non-invasive, and point-of-care monitoring of ocular and cardiovascular complications related to diabetes. **2021**, 24, 100485	0

463	Fine retinal vessel segmentation by combining Nest U-net and patch-learning. **2021**, 25, 5519-5532	5
462	A Survey on Prematurity Detection of Diabetic Retinopathy Based on Fundus Images Using Deep Learning Techniques. **2021**, 140-155	
461	Memorizing Structure-Texture Correspondence for Image Anomaly Detection. **2021**, PP,	3
460	Identifying Chinese Herbal Medicine by Image with Three Deep CNNs. **2021**,	
459	RV-GAN: Segmenting Retinal Vascular Structure in Fundus Photographs Using a Novel Multi-scale Generative Adversarial Network. **2021**, 34-44	5
458	An Analysis of Use of Image Processing and Neural Networks for Window Crossing in an Autonomous Drone. **2021**, 229-252	
457	Segmentation of retinal blood vessel structure based on statistical distribution of the area of isolated objects. **2021**, 263-278	1
456	Retinal blood vessels segmentation using classical edge detection filters and the neural network. **2021**, 23, 100521	13
455	Extraction of Blood Vessels in Ophthalmic Color Images of Human Retinas. **2006**, 118-126	4
454	Model Based Segmentation for Retinal Fundus Images. **2003**, 422-429	8
453	The Ubiquitous Matched Filter: A Tutorial and Application to Radar Detection. **2012**, 91-108	1
452	Unsupervised Change Detection in Multitemporal Images of the Human Retina. **2011**, 309-337	1
451	Blood Skeleton Extraction Approach for Retinopathy Images. **2012**, 145-150	2
450	State of the Art in Vascular Biometrics. **2020**, 3-61	7
449	A Single-Resolution Fully Convolutional Network for Retinal Vessel Segmentation in Raw Fundus Images. **2019**, 59-69	1
448	A Deep Learning Design for Improving Topology Coherence in Blood Vessel Segmentation. **2019**, 93-101	12
447	Fundus Image Based Retinal Vessel Segmentation Utilizing a Fast and Accurate Fully Convolutional Network. **2019**, 112-120	7
446	Multi-discriminator Generative Adversarial Networks for Improved Thin Retinal Vessel Segmentation. **2019**, 148-155	1

445	A Review on Recent Developments for the Retinal Vessel Segmentation Methodologies and Exudate Detection in Fundus Images Using Deep Learning Algorithms. **2020**, 1363-1370	2
444	Image Processing and Machine Learning Techniques for Diabetic Retinopathy Detection: A Review. **2020**, 136-154	3
443	TopoGAN: A Topology-Aware Generative Adversarial Network. **2020**, 118-136	1
442	Extreme Consistency: Overcoming Annotation Scarcity and Domain Shifts. **2020**, 699-709	5
441	An Elastic Interaction-Based Loss Function for Medical Image Segmentation. **2020**, 755-764	3
440	Boosting Connectivity in Retinal Vessel Segmentation via a Recursive Semantics-Guided Network. **2020**, 786-795	4
439	RVSeg-Net: An Efficient Feature Pyramid Cascade Network for Retinal Vessel Segmentation. **2020**, 796-805	6
438	Uncertainty Quantification in Medical Image Segmentation with Normalizing Flows. **2020**, 80-90	5
437	A Semantically Flexible Feature Fusion Network for Retinal Vessel Segmentation. **2020**, 159-167	7
436	Classification and Detection of Diabetic Retinopathy. **2013**, 135-145	2
435	Tracing retinal blood vessels by matrix-forest theorem of directed graphs. **2014**, 17, 626-33	10
434	On Classifying Diabetic Patients with Proliferative Retinopathies via a Radial Basis Probabilistic Neural Network. **2015**, 115-126	2
433	Retinal Vessel Detection Based on Fuzzy Morphological Line Enhancement. **2015**, 61-70	2
432	Random Forest Active Learning for Retinal Image Segmentation. **2016**, 213-221	2
431	Blood Vessel Segmentation from Color Retinal Images Using K-Means Clustering and 2D Gabor Wavelet. **2018**, 221-227	3
430	Combining Contrast Invariant L1 Data Fidelities with Nonlinear Spectral Image Decomposition. **2017**, 80-93	3
429	Contrast Enhancement by Top-Hat and Bottom-Hat Transform with Optimal Structuring Element: Application to Retinal Vessel Segmentation. **2017**, 533-540	10
428	Analysis of Retinal Vascular Biomarkers for Early Detection of Diabetes. **2018**, 811-817	2

427	A Markov Random Field Approach to Outline Lesions in Fundus Images. **2009**, 472-475	4
426	Vessel Cross-Sectional Diameter Measurement on Color Retinal Image. **2008**, 214-227	7
425	Evolution of Retinal Blood Vessel Segmentation Methodology Using Wavelet Transforms for Assessment of Diabetic Retinopathy. **2009**, 171-182	2
424	A Comparative Study on Feature Selection for Retinal Vessel Segmentation Using FABC. **2009**, 655-662	14
423	Retinal Vessel Centerline Extraction Using Multiscale Matched Filter and Sparse Representation-Based Classifier. **2010**, 181-190	2
422	State-of-the-Art of Computer-Aided Detection/Diagnosis (CAD). **2010**, 296-305	5
421	Automatic Unsupervised Segmentation of Retinal Vessels Using Self-Organizing Maps and K-Means Clustering. **2011**, 263-274	10
420	Retinal Vessel Extraction Using First-Order Derivative of Gaussian and Morphological Processing. **2011**, 410-420	19
419	MFCA: Matched Filters with Cellular Automata for Retinal Vessel Detection. **2011**, 504-514	5
418	Automated Image Analysis and the Application of Diagnostic Algorithms in an Ocular Telehealth Network. **2012**, 43-57	1
417	Using MAS to Detect Retinal Blood Vessels. **2012**, 239-246	3
416	Detection of Neovascularization for Screening of Proliferative Diabetic Retinopathy. **2012**, 372-379	7
415	Ensemble Classification System Applied for Retinal Vessel Segmentation on Child Images Containing Various Vessel Profiles. **2012**, 380-389	9
414	Accurate and efficient linear structure segmentation by leveraging ad hoc features with learned filters. **2012**, 15, 189-97	20
413	Globally Minimal Path Method Using Dynamic Speed Functions Based on Progressive Wave Propagation. **2013**, 25-37	2
412	Segmentation of Retinal Blood Vessels Using Gaussian Mixture Models and Expectation Maximisation. **2013**, 105-112	8
411	Two Applications of Shape-Based Morphology: Blood Vessels Segmentation and a Generalization of Constrained Connectivity. **2013**, 390-401	15
410	Detection of Curvilinear Structures by Tensor Voting Applied to Fiber Characterization. **2013**, 22-33	4

409	Blood Vessel Segmentation in Retinal Images Using Lattice Neural Networks. **2013**, 532-544	8
408	A New Approach for Color Distorted Region Removal in Diabetic Retinopathy Detection. **2015**, 85-97	2
407	Automated Optical Disc Segmentation and Blood Vessel Extraction for Fundus Images Using Ophthalmic Image Processing. **2019**, 182-194	6
406	Semantic Segmentation of Retinal Blood Vessel via Multi-scale Convolutional Neural Network. **2020**, 231-241	3
405	Computerized retinal image analysis - a survey. **2020**, 79, 22389-22421	6
404	Quantitative Fluorescein Angiography. **2006**, 917-947	1
403	Unsupervised multiscale retinal blood vessel segmentation using fundus images. **2020**, 14, 2616-2625	5
402	Secure Transmission and Repository Platform for Electronic Medical Images: Case Study of Retinal Fundus in Teleophthalmology. **2020**,	1
401	Cross-Domain Segmentation of Fundus Vessels Based on Feature Space Alignment. **2020**,	1
400	Tracking and diameter estimation of retinal vessels using Gaussian process and Radon transform. **2017**, 4, 034006	7
399	Blood vessel segmentation in modern wide-field retinal images in the presence of additive Gaussian noise. **2018**, 5, 031405	5
398	Recurrent residual U-Net for medical image segmentation. **2019**, 6, 014006	165
397	Segmentation of retinal blood vessels based on feature-oriented dictionary learning and sparse coding using ensemble classification approach. **2019**, 6, 044006	2
396	A deep learning-based smartphone app for real-time detection of retinal abnormalities in fundus images. **2019**,	11
395	A Hybrid Unsupervised Approach for Retinal Vessel Segmentation. **2020**, 2020, 8365783	6
394	Detecting Retinal Pathology Automatically with Special Emphasis on Diabetic Retinopathy. **2009**,	3
393	Segmentation of the Vascular Network of the Retina. **2014**, 101-126	5
392	Blood vessel segmentation of fundus images via cross-modality dictionary learning. **2018**, 57, 7287-7295	5

391	PA-Fuse: deep supervised approach for the fusion of photoacoustic images with distinct reconstruction characteristics. **2019**, 10, 2227-2243	14
390	Modeling Photo-Bleaching Kinetics to Create High Resolution Maps of Rod Rhodopsin in the Human Retina. **2015**, 10, e0131881	4
389	Unsupervised Retinal Vessel Segmentation Using Combined Filters. **2016**, 11, e0149943	45
388	Supervised retinal vessel segmentation from color fundus images based on matched filtering and AdaBoost classifier. **2017**, 12, e0188939	29
387	Diabetic Retinopathy Lesion Discriminative Diagnostic System for Retinal Fundus Images. **2020**, 9, 71-82	3
386	Retinal Vessel Detection Using Deep Learning: A novel DirectNet Architecture. **2018**, 20, 151-159	3
385	Blood Vessel Segmentation from Fundus Images Using Modified U-net Convolutional Neural Network. **2020**, 8, 21-25	3
384	A Systematic Review of Deep Learning Methods Applied to Ocular Images. **2019**, 30, 9-26	6
383	Analysis of Oriented Texture with Applications to the Detection of Architectural Distortion in Mammograms. **2010**, 5, 1-162	8
382	The computer based method to diabetic retinopathy assessment in retinal images: a review. **2019**, 16, em114	1
381	Analysis of Dynamic Behaviors of Improved Pulse Coupled Neural Network in Image Processing. **2009**, 34, 1291-1297	1
380	Computing the fibre orientation from Radon data using local Radon transform. **2011**, 5, 879-891	3
379	Retinal blood vessel segmentation based on Densely Connected U-Net. **2020**, 17, 3088-3108	9
378	A New Partitioning Method in Frequency Analysis of the Retinal Images for Human Identification. **2011**, 02, 274-278	3
377	The Comparison of Clustering Algorithms K-Means and Fuzzy C-Means for Segmentation Retinal Blood Vessels. **2020**, 28, 42-47	14
376	Automatic Segmentation of Retinal Blood Vessels Based on Improved Multiscale Line Detection. **2014**, 8, 119-128	38
375	A Comparison and Evaluation of Computerized Methods for Blood Vessel Enhancement and Segmentation in Retinal Images. **2013**, 600-603	4
374	MIA-UNet: Multi-Scale Iterative Aggregation U-Network for Retinal Vessel Segmentation. **2021**, 129, 805-828	1

373	ADD-Net:Attention U-Net with Dilated Skip Connection and Dense Connected Decoder for Retinal Vessel Segmentation. **2021**, 327-338	
372	Domain Adaptation for Medical Image Analysis: A Survey. **2021**, PP,	36
371	FPGA-Based Two-Dimensional Matched Filter Design for Vein Imaging Systems. **2021**, 9, 1800510	0
370	Bi-SANetBilateral Network with Scale Attention for Retinal Vessel Segmentation. **2021**, 13, 1820	2
369	Optic disc analysis in retinal fundus using L2 norm of contourlet subbands, superimposed edges, and morphological filling. 1	
368	Sharing Practices for Datasets Related to Accessibility and Aging.. **2021**, 1,	1
367	Blood Vessel Detection in Retinal Images by Shape-Based Multi-Threshold Probing. **2001**, 38-44	1
366	A Shape-Directed Scaling Method for Fundus Image with Maintenance to Blood-Vessel Shapes and Color Reality. **2005**, 125, 1399-1407	
365	A region based algorithm for vessel detection in retinal images. **2006**, 9, 645-53	8
364	[CAD for retinal fundus images]. **2007**, 63, 1464-8	0
363	Context-Dependent Segmentation of Retinal Blood Vessels Using Hidden Markov Models. **2008**, 348-355	1
362	Automatic Localization and Segmentation of Blood Vessels, Optic Disc, and Macula in Digital Fundus Images. **2008**, 543-564	0
361	Capillary Blood Vessel Tracking Using Polar Coordinates Based Model Identification. **2009**, 499-506	4
360	Automated Microaneurysm Detection for Screening. **2009**,	1
359	Introduction. **2009**,	4
358	Determining Retinal Vessel Widths and Detection of Width Changes. **2009**,	
357	Retinal Vessel Image Segmentation and Three-dimensional Reconstruction of Retinal Vessel. **2009**, 35, 1168-1176	
356	Structure-Based Evaluation Methodology for Curvilinear Structure Detection Algorithms. **2011**, 305-314	

355	An Effective Supervised Framework for Retinal Blood Vessel Segmentation Using Local Standardisation and Bagging. **2011**, 117-125	0
354	ARIAS: Automated Retinal Image Analysis System. **2011**, 67-76	2
353	Retinal Vessel Segmentation Using Nonsubsampled Contourlet Transform. **2011**, 34, 574-582	3
352	Extracting blood centerline adapted for retinal fundus images with pathologies. **2011**, 25, 749-755	1
351	Segmentierung von Blutgefäßen in retinalen Fundusbildern. **2012**, 256-261	
350	Using Genetic Algorithm for Identification of Diabetic Retinal Exudates in Digital Color Images. **2012**, 04, 188-198	4
349	A Comparison and Evaluation of Computerized Methods for OD Localization and Detection in Retinal Images. **2013**, 613-616	1
348	Platform Image Processing Applied to the Study of Retinal Vessels. **2014**, 21-30	1
347	Unsupervised Segmentation of Blood Vessels from Colour Retinal Fundus Images. **2014**, 194-203	
346	Automated Retinal Blood Vessel Segmentation Using Fuzzy Mathematical Morphology and Morphological Reconstruction. **2014**, 131-140	
345	COSFIRE: A Brain-Inspired Approach to Visual Pattern Recognition. **2014**, 76-87	2
344	Metodologia para a detecção de artefactos luminosos em imagens de retinografia com aplicação em rastreio oftalmológico. **2014**,	
343	Multiscale Recognition Algorithm for Eye Ground Texture Based on Fusion Threshold Equalization. **2014**, 9,	
342	Histogram-Based Masking Technique for Retinal Fundus Images. **2015**, 561-567	
341	Orientation-Sensitive Overlap Measures for the Validation of Medical Image Segmentations. **2016**, 361-369	
340	A New EYENET Model for Diagnosis of Age-Related Macular Degeneration. **2016**, 422-440	
339	Fusion Methodologies of Multiple Traits. **2016**, 217-247	1
338	A Method of Vessel Segmentation Based on BP Neural Network for Color Fundus Images. **2016**, 383-390	

337	An Automatic Approach to Segment Retinal Blood Vessels and Its Separation into Arteries/Veins. **2017**, 191-199	1
336	Medical Image Enhancement Using Edge Information-Based Methods. **2017**, 1701-1726	
335	Medical Image Enhancement Using Edge Information-Based Methods. **2017**, 123-148	
334	A New Heuristic Function of Ant Colony System for Retinal Vessel Segmentation. **2017**, 2063-2081	
333	Particle Swarm Optimization Approach for the Segmentation of Retinal Vessels from Fundus Images. **2017**, 551-558	
332	Retinal Vessel Segmentation from a Hyperspectral Camera Images. **2017**, 559-566	
331	Nonlinear retinal image enhancement for vessel detection. **2017**,	0
330	An Approach for the Early Detection of Retinal Disorders and Performing Human Authentication. **2018**, 157-173	1
329	Retinal Blood Vessel Segmentation Using Extreme Learning Machine. **2017**, 21, 1280-1290	0
328	Segmentation of blood vessels from retinal images. **2017**, 9, 198-202	
327	A New EYENET Model for Diagnosis of Age-Related Macular Degeneration. **2018**, 153-171	
326	Automatic Detection of Blood Vessel in Retinal Images Using Vesselness Enhancement Filter and Adaptive Thresholding. **2018**, 18-33	
325	Biometric retinal authentication based on multiresolution feature extraction using mahalanobis distance. **2018**, 7, 28-46	1
324	Particle swarm optimization method for small retinal vessels detection on multiresolution fundus images. **2018**, 23, 1-13	2
323	Post-processing for retinal vessel detection. **2018**,	
322	Combining EMD with ICA for photoacoustic imaging denoising. **2018**,	
321	Deep Vesselness Measure from Scale-Space Analysis of Hessian Matrix Eigenvalues. **2019**, 473-484	0
320	Biometric Template Generation Framework Using Retinal Vascular Structure. **2019**, 245-256	

319	Automatic Augmentation by Hill Climbing. **2019**, 115-124	0
318	Fine-Scale Vessel Extraction in Fundus Images by Registration with Fluorescein Angiography. **2019**, 779-787	1
317	Patch-Based Generative Adversarial Network Towards Retinal Vessel Segmentation. **2019**, 49-56	0
316	Image Analysis for Ophthalmology: Segmentation and Quantification of Retinal Vascular Systems. **2019**, 543-580	1
315	Retinal Blood Vessel Segmentation using Deep Learning. **2019**, 17, 77-82	1
314	Blood Vessel Extraction from Retinal Images Using Modified Gaussian Filter and Bottom-Hat Transformation. **2020**, 357-363	1
313	Design and Implementation of a Blood Vessel Identification Algorithm in the Diagnosis of Retinography. **2020**, 607-620	
312	Retinal Image Segmentation Based on Texture Features. **2020**, 1037-1043	
311	Segmentation of Blood Vessels from Retinal Fundus Images Using Bird Swarm Algorithm and River Formation Dynamics Algorithm. **2020**, 995-1007	
310	Cascaded Attention Guided Network for Retinal Vessel Segmentation. **2020**, 62-71	1
309	Dataset for Eye Tracking on a Virtual Reality Platform. **2020**,	4
308	B□gesel-Evri□msel Sinir A□ar-ile Retina G□□t□erindeki Lezyonlarñ Tespiti. **2020**, 7, 34-46	
307	Weakly supervised retinal vessel segmentation algorithm without groundtruth. **2020**, 56, 1235-1237	2
306	Impact of the Circular Region of Interest on the Performance of Multimodal Reconstruction of Retinal Images. **2020**, 222-230	
305	Weight Averaging Impact on the Uncertainty of Retinal Artery-Venous Segmentation. **2020**, 52-60	
304	On learning based compressed sensing for high resolution image reconstruction. **2021**, 15, 393-404	
303	Ground truth free retinal vessel segmentation by learning from simple pixels. **2021**, 15, 1210-1220	1
302	A Novel Approach using Deep Neural Network Vessel Segmentation & Retinal Disease Detection. **2020**,	

301	Retinal Vessel Segmentation using Robinson Compass Mask and Fuzzy C-Means. **2020**,	0
300	Retinal vessel segmentation based on task-driven generative adversarial network. **2020**, 14, 4599-4605	0
299	Automated Diagnostic Hybrid Lesion Detection System for Diabetic Retinopathy Abnormalities. **2020**, 10, 494-507	0
298	On the Uncertainty of Retinal Artery-Vein Classification with Dense Fully-Convolutional Neural Networks. **2020**, 87-98	2
297	Automated Retinal Vessel Segmentation Based on Morphological Preprocessing and 2D-Gabor Wavelets. **2020**, 411-423	2
296	CAU-net: A Novel Convolutional Neural Network for Coronary Artery Segmentation in Digital Substraction Angiography. **2020**, 185-196	1
295	Single-Shot Retinal Image Enhancement Using Deep Image Priors. **2020**, 636-646	2
294	Recent Techniques and Trends for Retinal Blood Vessel Extraction and Tortuosity Evaluation: A Comprehensive Review. **2020**, 8, 197787-197816	1
293	Retinal Image Segmentation Through Valley Emphasis Thresholding of the Gabor Filter Response. **2020**, 516-527	0
292	Segmentation of Blood Vessels from Fundus Image Using Scaled Grid. **2020**, 217-227	
291	Low-Resolution Retinal Image Vessel Segmentation. **2020**, 611-627	
290	Early Stage Brain Tumor Detection on MRI Image Using a Hybrid Technique. **2020**,	2
289	A Study on the Examination of RGB Scale Retinal Pictures Using Recent Methodologies. **2020**, 198-220	
288	Automated Red Lesion Detection: An Overview. **2020**, 177-188	1
287	Diabetic retinopathy detection in ocular imaging by dictionary learning. **2020**, 343-378	
286	Encoding Structure-Texture Relation with P-Net for Anomaly Detection in Retinal Images. **2020**, 360-377	16
285	Fundus Image Quality Assessment Through Analysis of Illumination, Naturalness, and Structure Level. **2020**, 508-526	
284	Enhance Contrast and Balance Color of Retinal Image. **2021**, 13, 2089	1

283	Influence of background preprocessing on the performance of deep learning retinal vessel detection. **2021**, 8, 064001	
282	Deep Learning of the Retina Enables Phenome- and Genome-wide Analyses of the Microvasculature. **2021**,	7
281	Fuzzy Logic for Medical Engineering: An Application to Vessel Segmentation. **2006**, 115-127	
280	Using Fast Marching in Automatic Segmentation of Retinal Blood Vessels. **2008**, 233-236	1
279	Detection of blood vessels in retinal images using improved iterative threshold probing of a matched filter response. **2008**, 241-244	0
278	A Review on Automatic Detection of Retinal Lesions in Fundus Images for Diabetic Retinopathy. **2021**, 177-202	0
277	An Inexpensive Smartphone-Based Device and Predictive Models for Rapid, Non-Invasive, and Point-of-Care Monitoring of Ocular and Cardiovascular Complications Related to Diabetes.	
276	Blood Vessel and Optic Disc Segmentation Based on a Metaheuristic Method. **2021**, 207-228	
275	MSU-Net. **2020**,	1
274	A detailed and comparative work for retinal vessel segmentation based on the most effective heuristic approaches. **2021**, 66, 181-200	3
273	Cauchy based matched filter for retinal vessels detection. **2014**, 4, 1-9	3
272	Vessel Segmentation in Retinal Images Using Multi-scale Line Operator and K-Means Clustering. **2014**, 4, 122-9	8
271	Vessel Delineation in Retinal Images using Leung-Malik filters and Two Levels Hierarchical Learning. **2015**, 2015, 1140-7	1
270	A new baseline for retinal vessel segmentation: Numerical identification and correction of methodological inconsistencies affecting 100+ papers. **2021**, 75, 102300	2
269	A double-pass fundus reflection model for efficient single retinal image enhancement. **2022**, 192, 108400	2
268	An Automatic Active Contour Approach to Segment Retinal Blood Vessels. **2021**,	
267	Graph Cuts Loss to Boost Model Accuracy and Generalizability for Medical Image Segmentation. **2021**,	0
266	Fundus Disease Image Classification based on Improved Transformer. **2021**,	1

265	Fundus Image Registration Technique Based on Local Feature of Retinal Vessels. **2021**, 11, 11201	0
264	Improved retinal vessel segmentation using the enhanced pre-processing method for high resolution fundus images. 10, 1222	
263	Determining Top Fully-Connected Layer's Hidden Neuron Count for Transfer Learning, using Knowledge Distillation. **2020**,	0
262	RNA-Net: Residual Nonlocal Attention Network for Retinal Vessel Segmentation. **2020**,	0
261	Blood Vessel Segmentation from Retinal Images. **2020**,	1
260	Semantic Segmentation of Retinal Vessels Using SegNet. **2020**,	1
259	Blood Vessel Segmentation in Fundus Images Using Hessian Matrix for Diabetic Retinopathy Detection. **2020**,	1
258	A Comparative Investigation of Blood Vessels in Retinal Images. **2020**,	
257	Fully automatic CNN-based segmentation of retinal bifurcations in 2D adaptive optics ophthalmoscopy images. **2020**,	
256	EfficientNet for retinal blood vessel segmentation. **2020**,	1
255	An Effective Vessel Network Identification Scheme Using Multilevel Attribute Analysis. **2022**, 329-338	
254	Unsupervised Three-Dimensional Tubular Structure Segmentation via Filter Combination. **2021**, 14, 1	0
253	An Adaptive Topology-enhanced Deep Learning Method Combined with Fast Label Extraction Scheme for Retinal Vessel Segmentation. **2021**,	1
252	Retinal Vascular Network Segmentation using a concatenated CNN Architecture. **2021**,	
251	Retinal Vessel Segmentation Based on Multidirection Filter. **2021**,	
250	A Fusion Based Approach for Blood Vessel Segmentation from Fundus Images by Separating Brighter Optic Disc. **2021**, 31, 811-820	1
249	Compare Derived U-Nets Using For Retinal Vessels Segmentation. **2021**,	
248	Manifold learning to address catastrophic forgetting. **2021**,	

247	Retinal Image Enhancement Using Cycle-Constraint Adversarial Network.. **2021**, 8, 793726		3
246	Medical image segmentation using deep learning: A survey.		10
245	Efficient blood vessel segmentation from color fundus image using deep neural network. **2022**, 1-13		1
244	Robustness of deep learning methods for ocular fundus segmentation: Evaluation of blur sensitivity.		0
243	Brain-inspired models for visual object recognition: an overview. 1		1
242	RTNet: Relation Transformer Network for Diabetic Retinopathy Multi-lesion Segmentation.. *IEEE Transactions on Medical Imaging*, **2022**, PP,	11.7	6
241	Guidance Image-Based Enhanced Matched Filter with Modified Thresholding for Blood Vessel Extraction. **2022**, 14, 194		4
240	PCAT-UNet: UNet-like network fused convolution and transformer for retinal vessel segmentation.. **2022**, 17, e0262689		5
239	Minimizing probability graph connectivity cost for discontinuous filamentary structures tracing in neuron image.. **2022**, PP,		0
238	Self-relabeling for noise-tolerant retina vessel segmentation through label reliability estimation.. **2022**, 22, 8		0
237	A holistic overview of deep learning approach in medical imaging.. **2022**, 1-34		5
236	Bridge-Net: Context-involved U-net with patch-based loss weight mapping for retinal blood vessel segmentation. **2022**, 195, 116526		5
235	Improving the Curvelet Saliency and Deep Convolutional Neural Networks for Diabetic Retinopathy Classification in Fundus Images. **2022**, 12, 8204-8209		0
234	Multiscale Joint Optimization Strategy for Retinal Vascular Segmentation.. **2022**, 22,		
233	Segmentation of ́Significant Regions in ́Retinal Images: Perspective of ́U-Net Network Through a ́Comparative Approach. **2022**, 29-40		
232	Multi-kernel Fusion Pooling and Linear Convolution Kernel for Retinal Image Segmentation. **2022**,		
231	RAVIR: A Dataset and Methodology for the Semantic Segmentation and Quantitative Analysis of Retinal Arteries and Veins in Infrared Reflectance Imaging.. **2022**, PP,		1
230	Local Intensity Order Transformation for Robust Curvilinear Object Segmentation.. **2022**, PP,		3

229	Artificial Intelligence for Medical Diagnosis. **2022**, 181-201		0
228	Dual Encoder-based Dynamic-Channel Graph Convolutional Network with Edge Enhancement for Retinal Vessel Segmentation.. *IEEE Transactions on Medical Imaging*, **2022**, PP,	11.7	1
227	A Survey of Deep Learning for Retinal Blood Vessel Segmentation Methods: Taxonomy, Trends, Challenges and Future Directions.. **2022**, 1-1		1
226	Analysis of´Contrast and´Luminous Enhancement Algorithms on´Colour Retinal Fundus Images. **2022**, 413-423		
225	T-Net: A Resource-Constrained Tiny Convolutional Neural Network for Medical Image Segmentation. **2022**,		4
224	Semi-Supervised Semantic Segmentation of Vessel Images using Leaking Perturbations. **2022**,		0
223	DBFU-Net: Double branch fusion U-Net with hard example weighting train strategy to segment retinal vessel.. **2022**, 8, e871		1
222	Peripapillary Atrophy Segmentation and Classification Methodologies for Glaucoma Image Detection: A Review.. **2022**,		
221	Improving sensitivity and connectivity of retinal vessel segmentation via error discrimination network.. **2022**,		0
220	Computer-aided diagnosis of cataract severity using retinal fundus images and deep learning.		1
219	The Role of Generative Adversarial Network in Medical Image Analysis: An in-depth survey.		2
218	A Few-Shot Learning-Based Retinal Vessel Segmentation Method for Assisting in the Central Serous Chorioretinopathy Laser Surgery.. **2022**, 9, 821565		1
217	ILU-Net: Inception-Like U-Net for retinal vessel segmentation. **2022**, 169012		0
216	Improving foveal avascular zone segmentation in fluorescein angiograms by leveraging manual vessel labels from public color fundus pictures. **2022**, 13, 2566		
215	Artificial intelligence-based measurement outperforms current methods for colorectal polyp size measurement.. **2022**,		1
214	Retinal Blood Vessel Segmentation Using a Generalized Gamma Probability Distribution Function (PDF) of Matched Filtered. **2022**, 11, 1-16		1
213	CSAUNet: A cascade self-attention u-shaped network for precise fundus vessel segmentation. **2022** , 75, 103613		1
212	DilUnet: A U-net based architecture for blood vessels segmentation.. **2022**, 218, 106732		3

211	Applications of fractional calculus in computer vision: A survey. **2022**, 489, 407-428	2
210	Detecting retinal vasculature as a key biomarker for deep Learning-based intelligent screening and analysis of diabetic and hypertensive retinopathy. **2022**, 200, 117009	4
209	Self-Supervised Vessel Segmentation via Adversarial Learning. **2021**,	1
208	EAR-NET: Error Attention Refining Network For Retinal Vessel Segmentation. **2021**,	1
207	RC-Net: A Convolutional Neural Network for Retinal Vessel Segmentation. **2021**,	3
206	Towards Stroke Biomarkers on Fundus Retinal Imaging: A Comparison Between Vasculature Embeddings and General Purpose Convolutional Neural Networks. **2021**, 2021, 3873-3876	1
205	MSC-Net: Multitask Learning Network for Retinal Vessel Segmentation and Centerline Extraction. **2022**, 12, 403	0
204	Retinal Vessel Segmentation and Disc Detection from Color Fundus Images Using Inception Module and Residual Connection. **2022**, 603-616	0
203	Pyramid-Net: Intra-layer Pyramid-Scale Feature Aggregation Network for Retinal Vessel Segmentation.. **2021**, 8, 761050	
202	Detecting Chronic Vascular Damage with Attention-Guided Neural System. **2021**,	0
201	Thin Semantics Enhancement via High-Frequency Priori Rule for Thin Structures Segmentation. **2021**,	
200	Retinal Vessel Segmentation Algorithm Based on Residual Convolution Neural Network.. **2021**, 9, 786425	0
199	Diabetic and Hypertensive Retinopathy Screening in Fundus Images Using Artificially Intelligent Shallow Architectures.. **2021**, 12,	2
198	Retinal Blood Vessel Segmentation using a Multi-Scale Layer in Deep Learning. **2021**,	
197	SUPRDAD: A Robust Feature Extractor Better Recognizes Low-Prevalent Retinal Diseases. **2021**,	
196	Performance Analysis of Deep-Neural-Network-Based Automatic Diagnosis of Diabetic Retinopathy.. **2021**, 22,	6
195	VesselXnet - A lightweight and efficient encoder-decoder based model for Retinal Vessel Segmentation. **2021**,	0
194	DAVS-NET: Dense Aggregation Vessel Segmentation Network for retinal vasculature detection in fundus images.. **2021**, 16, e0261698	1

193	A Two-Stage GAN for High-Resolution Retinal Image Generation and Segmentation. **2022**, 11, 60		5
192	Multi-Feature Extraction with Ensemble Network for Tracing Chronic Retinal Disorders. **2021**,		0
191	Semi-automated Clinical Staging of Retinopathy of Prematurity Images. **2021**,		
190	Retinal Blood Vessel Extraction Using a New Enhancement Technique of Modified Convolution Filters and Sauvola Thresholding.		
189	RFARN: Retinal vessel segmentation based on reverse fusion attention residual network. **2021**, 16, e0257256		1
188	M3U-CDVAE: Lightweight Retinal Vessel Segmentation and Refinement Network.		
187	MLFF: Multiple Low-Level Features Fusion Model for Retinal Vessel Segmentation. **2022**, 271-281		
186	Retinal Vessel Segmentation with Skeletal Prior and Contrastive Loss.. *IEEE Transactions on Medical Imaging*, **2022**, PP,	11.7	1
185	Detection of Non-proliferative Diabetic Retinopathy using GUI. **2022**,		
184	LightEyes: A Lightweight Fundus Segmentation Network for Mobile Edge Computing.. **2022**, 22,		0
183	State-of-the-art retinal vessel segmentation with minimalistic models.. **2022**, 12, 6174		3
182	Modified U-Net for cytological medical image segmentation.		0
181	Retinal blood vessels segmentation using Wald PDF and MSMO operator. 1-18		
180	Diabetic Retinopathy Detection From Fundus Images Using Multi-Tasking Model With EfficientNet B5. **2022**, 44, 03027		0
179	Pre-Trained Convolutional Neural Network for Automated Grading of Diabetic Retinopathy. **2022**,		0
178	Performance Comparison of Most Recently Proposed Evolutionary, Swarm Intelligence, and Physics-Based Metaheuristic Algorithms for Retinal Vessel Segmentation. **2022**, 2022, 1-25		1
177	Retinal Vessel Segmentation with Pixel-Wise Adaptive Filters. **2022**,		1
176	AMD Classification Based on Adversarial Domain Adaptation with Center Loss. **2022**,		

175	U-shaped Retinal Vessel Segmentation Based on Adaptive Aggregation of Feature Information.. **2022**,	
174	Dilated Deep Neural Architectures for Improving Retinal Vessel Extraction. 1	
173	HRNet:A hierarchical recurrent convolution neural network for retinal vessel segmentation. 1	
172	Segmenting Retinal Vessels Using a Shallow Segmentation Network to Aid Ophthalmic Analysis. **2022**, 10, 1536	1
171	Segmentation of Optic Disc and Cup Using Modified Recurrent Neural Network.. **2022**, 2022, 6799184	0
170	How to design a deep neural network for retinal vessel segmentation: an empirical study. **2022**, 77, 103761	0
169	Improving AMD Diagnosis by˝the˝Simultaneous Identification of˝Associated Retinal Lesions. **2022**, 148-159	
168	Detection of Diabetic Retinopathy Using Deep Learning-Based Framework. **2022**, 223-233	0
167	Modified Anam-Net Based Lightweight Deep Learning Model for Retinal Vessel Segmentation. **2022**, 73, 1501-1526	0
166	MCG&BA-Net: Retinal vessel segmentation using multiscale context gating and breakpoint attention.	
165	A high accuracy segmentation method for retinal blood vessel detection based on hybrid filters and an adaptive thresholding.	
164	A Comprehensive Review of Deep Learning Strategies in Retinal Disease Diagnosis Using Fundus Images. **2022**, 1-1	0
163	DR-VNet: Retinal Vessel Segmentation via Dense Residual UNet. **2022**, 198-210	2
162	Vessel Segmentation Approach with Deep Neural Network Model for Detection of Diabetic Retinopathy. **2022**,	
161	Machine Learning for Cataract Classification/Grading on Ophthalmic Imaging Modalities: A Survey. **2022**, 19, 184-208	6
160	Artifical intelligence with optimal deep learning enabled automated retinal fundus image classification model.	1
159	iGWAS: image-based genome-wide association of self-supervised deep phenotyping of human medical images.	0
158	AutoMorph: Automated Retinal Vascular Morphology Quantification via a Deep Learning Pipeline.	

157	CRAUNet: A cascaded residual attention U-Net for retinal vessel segmentation. **2022**, 147, 105651	0
156	Factorized U-net for Retinal Vessel Segmentation. **2022**, 181-190	
155	MFI-Net: Multiscale Feature Interaction Network for Retinal Vessel Segmentation. **2022**, 1-12	0
154	FunNet: a deep learning network for the detection of age-related macular degeneration. **2022**, 157-172	
153	Meta-Tubular-Net: A Robust Topology-Aware Re-Weighting Network for Retinal Vessel Segmentation.	
152	Automated segmentation of blood vessels in retinal images based on entropy weighted thresholding. 1-12	
151	Central retinal artery: branching patterns on the disc of optic nerve. **2022**, 28, 13-19	
150	MTPA_Unet: Multi-Scale Transformer-Position Attention Retinal Vessel Segmentation Network Joint Transformer and CNN. **2022**, 22, 4592	0
149	Statistical shape analysis of brain arterial networks (BAN). **2022**, 16,	1
148	MC-DMD: A data-driven method for blood vessel enhancement in retinal images using morphological closing and dynamic mode decomposition. **2022**,	
147	Multifilters-Based Unsupervised Method for Retinal Blood Vessel Segmentation. **2022**, 12, 6393	0
146	Mayfly optimization with deep learning enabled retinal fundus image classification model. **2022**, 102, 108176	3
145	A Morphological Image Preprocessing Method Based on the Geometrical Shape of Lesions to Improve the Lesion Recognition Performance of Convolutional Neural Networks. **2022**, 10, 70919-70936	1
144	SRV-GAN: A generative adversarial network for segmenting retinal vessels. **2022**, 19, 9948-9965	0
143	Data augmentation for medical image analysis. **2022**, 279-302	
142	Research on Diabetic Retinal Fundus Screening Model Based on Conditional Generative Adversarial Nets. **2022**, 160-172	
141	Full-Resolution Network and Dual-Threshold Iteration for Retinal Vessel and Coronary Angiograph Segmentation. **2022**, 1-12	1
140	Analysis of Vessel Segmentation Based on Various Enhancement Techniques for Improvement of Vessel Intensity Profile. **2022**, 2022, 1-20	

139	Which Color Channel Is Better for Diagnosing Retinal Diseases Automatically in Color Fundus Photographs?. **2022**, 12, 973	
138	TiM-Net: Transformer in M-Net for Retinal Vessel Segmentation. **2022**, 2022, 1-17	0
137	Analysis of retinal blood vessel segmentation techniques: a systematic survey.	
136	Fusion network based on the dual attention mechanism and atrous spatial pyramid pooling for automatic segmentation in retinal vessel images. **2022**, 39, 1393	0
135	The RETA Benchmark for Retinal Vascular Tree Analysis. **2022**, 9,	0
134	MCPANet: Multiscale Cross-Position Attention Network for Retinal Vessel Image Segmentation. **2022**, 14, 1357	0
133	AutoMorph: Automated Retinal Vascular Morphology Quantification Via a Deep Learning Pipeline. **2022**, 11, 12	1
132	A Survey on Recent Computer-Aided Diagnosis for Detecting Diabetic Retinopathy. **2022**, 27-58	
131	Single-shot retinal image enhancement using untrained and pretrained neural networks priors integrated with analytical image priors. **2022**, 148, 105879	3
130	CSGNet: Cascade semantic guided net for retinal vessel segmentation. **2022**, 78, 103930	0
129	Retinal Vessel Segmentation in Fundus Image Using Low-Cost Multiple U-Net Architecture. **2023**, 159-166	
128	CMU-Net: A Cascaded Mini U-Network for Retinal Vessel Segmentation.	
127	Learning multi-scale deep fusion for retinal blood vessel extraction in fundus images.	
126	Retinal Vessel Segmentation via Adversarial Learning and Iterative Refinement.	
125	IterNet++: An improved model for retinal image segmentation by curvelet enhancing, guided filtering, offline hard-sample mining, and test-time augmenting.	0
124	Enhancement of Medical Images through an Iterative McCann Retinex Algorithm: A Case of Detecting Brain Tumor and Retinal Vessel Segmentation. **2022**, 12, 8243	1
123	Retinal Vessel Segmentation, a Review of Classic and Deep Methods.	1
122	Deep´learning based Classification network and Versatile seeded region growing Approach for detection of Age related macular Degeneration in Two Dimensional Retinal Images.	

121	FIVES: A Fundus Image Dataset for Artificial Intelligence based Vessel Segmentation. **2022**, 9,	4
120	A review on the use of deep learning for medical images segmentation. **2022**, 506, 311-335	2
119	M3U-CDVAE: Lightweight retinal vessel segmentation and refinement network. **2023**, 79, 104113	0
118	Width Attention based Convolutional Neural Network for Retinal Vessel Segmentation. **2022**, 209, 118313	1
117	HT-Net: A Hybrid Transformer Network for Fundus Vessel Segmentation. **2022**, 22, 6782	0
116	Detection of Cataract from Fundus Images Using Deep Transfer Learning. **2022**, 175-186	0
115	GUNet: A GCN-CNN Hybrid Model for Retinal Vessel Segmentation by Learning Graphical Structures. **2022**, 33-42	0
114	AADG: Automatic Augmentation for Domain Generalization on Retinal Image Segmentation. **2022**, 1-1	0
113	A Multilevel Remote Relational Modeling Network for Accurate Segmentation of Fundus Blood Vessels. **2022**, 71, 1-14	0
112	Learning based multi-scale feature fusion for retinal blood vessels segmentation. **2022**, 16, 174830262110653	0
111	eXtreme Gradient Boosting Scheme for Fundus Vessels Separation. **2022**, 45-58	0
110	Deep Ensemble Network with Meta-Model Architecture to Early Detect the Vascular Damage Caused by Retinopathy. **2022**,	0
109	Fundus GAN - GAN-based Fundus Image Synthesis for Training Retinal Image Classifiers. **2022**,	0
108	Edge-preserving Image Synthesis for Unsupervised Domain Adaptation in Medical Image Segmentation. **2022**,	0
107	Pixel Rows and Columns Relationship Modeling Network based on Transformer for Retinal Vessel Segmentation. **2022**,	0
106	Stacked Ensemble Network to Assess the Structural Variations in Retina: A Bio-marker for Early Disease Diagnosis. **2022**,	0
105	Recent developments on computer aided systems for diagnosis of diabetic retinopathy: a review.	0
104	Staircase-Net: a deep learning based architecture for retinal blood vessel segmentation. **2022**, 47,	0

103	Segmentation of retinal blood vessel using generalized extreme value probability distribution function(pdf)-based matched filter approach.	0
102	PARAMETER OPTIMIZATION FOR UNSUPERVISED RETINAL VESSEL SEGMENTATION WITH IMAGE FILTERING. **2022**, 10, 844-855	0
101	Retinal Vessel Segmentation Using Multi-Scale Residual Convolutional Neural Network (MSR-Net) Combined with Generative Adversarial Networks.	4
100	Comparative analysis of improved FCM algorithms for the segmentation of retinal blood vessels.	0
99	Learned regularization for image reconstruction in sparse-view photoacoustic tomography.	1
98	PointScatter: Point Set Representation for Tubular Structure Extraction. **2022**, 366-383	0
97	A Multi-Task Dense Network with Self-Supervised Learning for Retinal Vessel Segmentation. **2022**, 11, 3538	0
96	Deep Learning Technology Applied to Medical Image Tissue Classification. **2022**, 12, 2430	0
95	Approaches for Detection of Diabetic Retinopathy: A Review. **2023**, 201-212	0
94	Local-Sensitive Connectivity Filter (LS-CF): A Post-Processing Unsupervised Improvement of the Frangi, Hessian and Vesselness Filters for Multimodal Vessel Segmentation. **2022**, 8, 291	0
93	Immunofluorescence Capillary Imaging Segmentation. **2022**,	0
92	Human treelike tubular structure segmentation: A comprehensive review and future perspectives. **2022**, 106241	0
91	Vessel Segmentation and Dirt/Reflection Detection For Retinal Fundus Photographs. **2022**,	0
90	SFA-Net: Scale and Feature Aggregate Network for Retinal Vessel Segmentation. **2022**, 2022, 1-12	0
89	Systematic bibliometric and visualized analysis of research hotspots and trends on the application of artificial intelligence in diabetic retinopathy. 13,	0
88	Recent trends and advances in fundus image analysis: A review. **2022**, 106277	2
87	MC-UNet: Multimodule Concatenation Based on U-Shape Network for Retinal Blood Vessels Segmentation. **2022**, 2022, 1-10	0
86	Do you need sharpened details? Asking MMDC-Net: Multi-layer multi-scale dilated convolution network for retinal vessel segmentation. **2022**, 150, 106198	0

85	Disentangled Representation for Cross-Domain Medical Image Segmentation. **2022**, 1-1	0
84	Separable Paravector Orientation Tensors for Enhancing Retinal Vessels. **2022**, 1-1	0
83	A two-stage histogram equalization enhancement scheme for feature preservation in retinal fundus images. **2023**, 80, 104384	0
82	Towards Long-Range Pixels Connection for Context-Aware Semantic Segmentation. **2022**,	0
81	A Comprehensive Survey on the Detection of Diabetic Retinopathy. 1-21	1
80	Study on retinal vascular image segmentation method based on hybrid model. **2022**,	0
79	MAGF-Net: A multiscale attention-guided fusion network for retinal vessel segmentation. **2023**, 206, 112316	0
78	Weakly-supervised detection of AMD-related lesions in color fundus images using explainable deep learning. **2023**, 229, 107296	0
77	SPNet: A novel deep neural network for retinal vessel segmentation based on shared decoder and pyramid-like loss. **2023**, 523, 199-212	1
76	Automated lesion segmentation in fundus images with many-to-many reassembly of features. **2023** , 136, 109191	0
75	Retinal Image Segmentation U sing Clustering Methods: Performance Analysis. **2022**,	0
74	Attention W-Net: Improved Skip Connections for Better Representations. **2022**,	0
73	Retinal Blood Vessel Extraction From Fundus Images Using Improved Otsu Method. **2022**, 948-969	0
72	BCR-UNet: Bi-directional ConvLSTM residual U-Net for retinal blood vessel segmentation. 10,	1
71	CPMF-Net: Multi-Feature Network Based on Collaborative Patches for Retinal Vessel Segmentation. **2022**, 22, 9210	0
70	G-Net Light: A Lightweight Modified Google Net for Retinal Vessel Segmentation. **2022**, 9, 923	0
69	Comparing the Clinical Viability of Automated Fundus Image Segmentation Methods. **2022**, 22, 9101	0
68	Comparison of Retinal Imaging Techniques in Individuals with Pulmonary Artery Hypertension Using Vessel Generation Analysis. **2022**, 12, 1985	0

67	RADCU-Net: residual attention and dual-supervision cascaded U-Net for retinal blood vessel segmentation.	0
66	Deep Multi-Task Learning for an Autoencoder-Regularized Semantic Segmentation of Fundus Retina Images. **2022**, 10, 4798	0
65	Review of Semantic Segmentation of Medical Images Using Modified Architectures of UNET. **2022**, 12, 3064	0
64	Using Artificial Intelligence to Analyse the Retinal Vascular Network: The Future of Cardiovascular Risk Assessment Based on Oculomics? A Narrative Review.	0
63	MCFSA-Net : A multi-scale channel fusion and spatial activation network for retinal vessel segmentation.	0
62	Leveraging image complexity in macro-level neural network design for medical image segmentation. **2022**, 12,	1
61	Detection of Diabetic Retinopathy Using Convolution Neural Network. **2023**, 427-439	0
60	Statistical and Topological Summaries Aid Disease Detection for Segmented Retinal Vascular Images.	0
59	Impact of CLAHE-based image enhancement for diabetic retinopathy classification through deep learning. **2023**, 216, 57-66	0
58	Counteracting data bias and class imbalance towards useful and reliable retinal disease recognition system.	0
57	Developing a Novel Methodology by Integrating Deep Learning and HMM for Segmentation of Retinal Blood Vessels in Fundus Images.	0
56	Computational intelligence in eye disease diagnosis: a comparative study.	0
55	TP-Net: Two-Path Network for Retinal Vessel Segmentation. **2023**, 1-12	0
54	Retinal Blood-Vessel Extraction Using Weighted Kernel Fuzzy C-Means Clustering and Dilation-Based Functions. **2023**, 13, 342	0
53	Impact of Retinal Vessel Image Coherence on Retinal Blood Vessel Segmentation. **2023**, 12, 396	0
52	Retinal blood vessel segmentation by using the MS-LSDNet network and geometric skeleton reconnection method. **2023**, 153, 106416	0
51	Improving vessel connectivity in retinal vessel segmentation via adversarial learning. **2023**, 262, 110243	0
50	Orientation and Context Entangled Network for Retinal Vessel Segmentation. **2023**, 217, 119443	0

49	A Novel Dual-supervised Convolutional Network for Retinal Vessel Segmentation. **2022**,	0
48	Design of Hardware Acceleration of Matched Filter for Retinal Vessel Enhancement. **2022**,	0
47	Region Extraction with Deep Cascaded Neural Architecture for Preserving Image Intensities. **2022**,	0
46	An Overview of Deep-Learning-Based Methods for Cardiovascular Risk Assessment with Retinal Images. **2023**, 13, 68	0
45	Texture Segmentation on Synthesized Vascular Image. **2022**,	1
44	Diabetic Retinopathy Detection Using Transfer and Reinforcement Learning with Effective Image Preprocessing and Data Augmentation Techniques. **2023**, 33-61	0
43	A Novel Soft Clustering Method for Detection of Exudates. **2023**, 46, 1039-1058	0
42	An ensemble of deep convolutional neural networks is more accurate and reliable than board-certified ophthalmologists at detecting multiple diseases in retinal fundus photographs. bjo-2022-322183	8
41	Human retinal biometric recognition system based on multiple feature extraction. **2023**, 32,	0
40	An evolutionary U-shaped network for Retinal Vessel Segmentation using Binary Teaching Learning-Based Optimization. **2023**, 83, 104669	0
39	CFCNet: A coarse-to-fine cascade network for retinal vessel segmentation. **2022**,	0
38	A Machine Learning Framework for Classification of Expert and Non-Experts Radiologists using Eye Gaze Data. **2022**,	0
37	iResSENet: An Accurate Convolutional Neural Network for Retinal Blood Vessel Segmentation. **2023**, 567-578	0
36	SepFE: Separable Fusion Enhanced Network for Retinal Vessel Segmentation. **2023**, 136, 2465-2485	0
35	AA-WGAN: Attention augmented Wasserstein generative adversarial network with application to fundus retinal vessel segmentation. **2023**, 158, 106874	0
34	OCT2Former: A retinal OCT-angiography vessel segmentation transformer. **2023**, 233, 107454	0
33	A feature aggregation and feature fusion network for retinal vessel segmentation. **2023**, 85, 104829	0
32	Automated diagnosis of Retinopathy of prematurity from retinal images of preterm infants using hybrid deep learning techniques. **2023**, 85, 104883	1

31	TUnet-LBF: Retinal fundus image fine segmentation model based on transformer Unet network and LBF. **2023**, 106937	0
30	DL-Assisted ROP Screening Technique. **2022**, 236-258	0
29	DA-Res2UNet: Explainable blood vessel segmentation from fundus images. **2023**, 68, 539-549	0
28	Optimized Smartphone-based Implementation of B-COSFIRE Filter for Retinal Blood Vessel Segmentation. **2022**,	0
27	GRETINA: A Large-Scale High-Quality Generated Retinal Image Dataset for Security and Privacy Assessment. **2023**, 373-387	0
26	Deep Learning for Image Segmentation: A Focus on Medical Imaging. **2023**, 75, 1995-2024	0
25	Neural Networks Application for Accurate Retina Vessel Segmentation from OCT Fundus Reconstruction. **2023**, 23, 1870	0
24	Segmentation of Blood Vessels by Local Analysis of 2D Image Patches. **2022**,	0
23	Exudate identification in retinal fundus images using precise textural verifications. **2023**, 13,	0
22	Classification and Segmentation of Diabetic Retinopathy: A Systemic Review. **2023**, 13, 3108	0
21	Deep learning approaches for the retinal vasculature segmentation in fundus images. **2023**, 139-155	0
20	Detection and diagnosis of diseases by feature extraction and analysis on fundus images using deep learning techniques. **2023**, 211-227	0
19	A bio-inspired fall webworm optimization algorithm for feature selection and support vector machine optimization for retinal abnormalities detection.	0
18	Fused Residual Attention Dense Double-U Network Retinal Vessel Segmentation Algorithm. **2023**,	0
17	A deep learning-based framework for retinal fundus image enhancement. **2023**, 18, e0282416	0
16	SS-Norm: Spectral-spatial normalization for single-domain generalization with application to retinal vessel segmentation.	0
15	MS-CANet: Multi-Scale Subtraction Network with Coordinate Attention for Retinal Vessel Segmentation. **2023**, 15, 835	0
14	Deep Learning Architectures for Diagnosis of Diabetic Retinopathy. **2023**, 13, 4445	0

13	Transformers in medical imaging: A survey. **2023**, 102802	2
12	LMSA-Net : A lightweight multi-scale aware network for retinal vessel segmentation.	0
11	Fusing feature and output space for unsupervised domain adaptation on medical image segmentation.	0
10	Deep ensemble learning for accurate retinal vessel segmentation. **2023**, 158, 106829	1
9	LUVS-Net: A Lightweight U-Net Vessel Segmentor for Retinal Vasculature Detection in Fundus Images. **2023**, 12, 1786	0
8	Deep learning for diabetic retinopathy assessments: a literature review.	0
7	Classification of Glaucoma Using K-Mean Clustering with Optic Disk and Cup Segmentation. **2022**,	0
6	Retinal Disease Detection Using Deep Learning Techniques: A Comprehensive Review. **2023**, 9, 84	0
5	BCU-Net: Bridging ConvNeXt and U-Net for medical image segmentation. **2023**, 106960	0
4	A lightweight network guided with differential matched filtering for retinal vessel segmentation. **2023**, 106924	0
3	A reliable automatic cataract detection using deep learning.	0
2	Segmentation of 3D blood vessel networks using unsupervised deep learning.	0
1	FM-Unet: Biomedical image segmentation based on feedback mechanism Unet. **2023**, 20, 12039-12055	0