Lena Maier-Hein

List of Publications by Year
in descending order

115 papers	4,739 citations	126907 33 h-index	106344 65 g-index
129 all docs	129 docs citations	129 times ranked	5013 citing authors

#	Article	IF	Citations
1	Electromagnetic Tracking in Medicine—A Review of Technology, Validation, and Applications. IEEE Transactions on Medical Imaging, 2014, 33, 1702-1725.	8.9	344
2	The Medical Imaging Interaction Toolkit: challenges and advances. International Journal of Computer Assisted Radiology and Surgery, 2013, 8, 607-620.	2.8	339
3	Comparative Validation of Polyp Detection Methods in Video Colonoscopy: Results From the MICCAI 2015 Endoscopic Vision Challenge. IEEE Transactions on Medical Imaging, 2017, 36, 1231-1249.	8.9	297
4	Surgical data science for next-generation interventions. Nature Biomedical Engineering, 2017, 1, 691-696.	22.5	283
5	The Medical Segmentation Decathlon. Nature Communications, 2022, 13, .	12.8	252
6	Optical techniques for 3D surface reconstruction in computer-assisted laparoscopic surgery. Medical Image Analysis, 2013, 17, 974-996.	11.6	217
7	Why rankings of biomedical image analysis competitions should be interpreted with care. Nature Communications, 2018, 9, 5217.	12.8	198
8	Deep learning for biomedical photoacoustic imaging: A review. Photoacoustics, 2021, 22, 100241.	7.8	126
9	Convergent Iterative Closest-Point Algorithm to Accomodate Anisotropic and Inhomogenous Localization Error. IEEE Transactions on Pattern Analysis and Machine Intelligence, 2012, 34, 1520-1532.	13.9	108
10	Surgical data science – from concepts toward clinical translation. Medical Image Analysis, 2022, 76, 102306.	11.6	107
11	Exploiting the potential of unlabeled endoscopic video data with self-supervised learning. International Journal of Computer Assisted Radiology and Surgery, 2018, 13, 925-933.	2.8	93
12	Indocyanine green fluorescence imaging in hepatobiliary surgery. Photodiagnosis and Photodynamic Therapy, 2017, 17, 208-215.	2.6	91
13	PSMA-11–Derived Dual-Labeled PSMA Inhibitors for Preoperative PET Imaging and Precise Fluorescence-Guided Surgery of Prostate Cancer. Journal of Nuclear Medicine, 2018, 59, 639-645.	5.0	89
14	Mobile augmented reality for computer-assisted percutaneous nephrolithotomy. International Journal of Computer Assisted Radiology and Surgery, 2013, 8, 663-675.	2.8	83
15	Surgical spectral imaging. Medical Image Analysis, 2020, 63, 101699.	11.6	82
16	*In vivo* accuracy assessment of a needle‐based navigation system for CT‐guided radiofrequency ablation of the liver. Medical Physics, 2008, 35, 5385-5396.	3.0	72
17	Computer-assisted trajectory planning for percutaneous needle insertions. Medical Physics, 2011, 38, 3246-3259.	3.0	72
18	Physics‐based shape matching for intraoperative image guidance. Medical Physics, 2014, 41, 111901.	3.0	65

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19	Visualization of Biomedical Data. Annual Review of Biomedical Data Science, 2018, 1, 275-304.	6.5	63
20	Standardized assessment of new electromagnetic field generators in an interventional radiology setting. Medical Physics, 2012, 39, 3424-3434.	3.0	62
21	BIAS: Transparent reporting of biomedical image analysis challenges. Medical Image Analysis, 2020, 66, 101796.	11.6	59
22	Mobile markerless augmented reality and its application in forensic medicine. International Journal of Computer Assisted Radiology and Surgery, 2015, 10, 573-586.	2.8	58
23	Can Masses of Non-Experts Train Highly Accurate Image Classifiers?. Lecture Notes in Computer Science, 2014, 17, 438-445.	1.3	56
24	Spectrally encoded fiber-based structured lighting probe for intraoperative 3D imaging. Biomedical Optics Express, 2011, 2, 3119.	2.9	55
25	Toward a standard ontology of surgical process models. International Journal of Computer Assisted Radiology and Surgery, 2018, 13, 1397-1408.	2.8	54
26	Dual-modality endoscopic probe for tissue surface shape reconstruction and hyperspectral imaging enabled by deep neural networks. Medical Image Analysis, 2018, 48, 162-176.	11.6	44
27	Generating Large Labeled Data Sets for Laparoscopic Image Processing Tasks Using Unpaired Image-to-Image Translation. Lecture Notes in Computer Science, 2019, , 119-127.	1.3	43
28	Comparative validation of multi-instance instrument segmentation in endoscopy: Results of the ROBUST-MIS 2019 challenge. Medical Image Analysis, 2021, 70, 101920.	11.6	41
29	Can we predict the severe course of COVID-19 - a systematic review and meta-analysis of indicators of clinical outcome?. PLoS ONE, 2021, 16, e0255154.	2.5	41
30	Context encoding enables machine learning-based quantitative photoacoustics. Journal of Biomedical Optics, 2018, 23, 1.	2.6	40
31	Robust near real-time estimation of physiological parameters from megapixel multispectral images with inverse Monte Carlo and random forest regression. International Journal of Computer Assisted Radiology and Surgery, 2016, 11, 909-917.	2.8	37
32	Uncertainty-Aware Organ Classification for Surgical Data Science Applications in Laparoscopy. IEEE Transactions on Biomedical Engineering, 2018, 65, 2649-2659.	4.2	37
33	Heidelberg colorectal data set for surgical data science in the sensor operating room. Scientific Data, 2021, 8, 101.	5.3	37
34	Learned spectral decoloring enables photoacoustic oximetry. Scientific Reports, 2021, 11, 6565.	3.3	34
35	Signed Real-Time Delay Multiply and Sum Beamforming for Multispectral Photoacoustic Imaging. Journal of Imaging, 2018, 4, 121.	3.0	33
36	Large-scale medical image annotation with crowd-powered algorithms. Journal of Medical Imaging, 2018, 5, 1.	1.5	33

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37	Pose-independent surface matching for intra-operative soft-tissue marker-less registration. Medical Image Analysis, 2014, 18, 1101-1114.	11.6	31
38	Intraoperative Computed Tomography Imaging for Navigated Laparoscopic Renal Surgery: First Clinical Experience. Journal of Endourology, 2016, 30, 1105-1111.	2.1	30
39	Real-Time Range Imaging in Health Care: A Survey. Lecture Notes in Computer Science, 2013, , 228-254.	1.3	30
40	Crowdtruth validation: a new paradigm for validating algorithms that rely on image correspondences. International Journal of Computer Assisted Radiology and Surgery, 2015, 10, 1201-1212.	2.8	29
41	Robust augmented reality guidance with fluorescent markers in laparoscopic surgery. International Journal of Computer Assisted Radiology and Surgery, 2016, 11, 899-907.	2.8	29
42	A Delphi consensus statement for digital surgery. Npj Digital Medicine, 2022, 5, .	10.9	28
43	Anser EMT: the first open-source electromagnetic tracking platform for image-guided interventions. International Journal of Computer Assisted Radiology and Surgery, 2017, 12, 1059-1067.	2.8	27
44	Toward automatic C-arm positioning for standard projections in orthopedic surgery. International Journal of Computer Assisted Radiology and Surgery, 2020, 15, 1095-1105.	2.8	27
45	Robust deep learning-based semantic organ segmentation in hyperspectral images. Medical Image Analysis, 2022, 80, 102488.	11.6	27
46	Electromagnetic tracking for US-guided interventions: standardized assessment of a new compact field generator. International Journal of Computer Assisted Radiology and Surgery, 2012, 7, 813-818.	2.8	26
47	Crowdsourcing for Reference Correspondence Generation in Endoscopic Images. Lecture Notes in Computer Science, 2014, 17, 349-356.	1.3	26
48	Toward knowledge-based liver surgery: holistic information processing for surgical decision support. International Journal of Computer Assisted Radiology and Surgery, 2015, 10, 749-759.	2.8	25
49	Methods and open-source toolkit for analyzing and visualizing challenge results. Scientific Reports, 2021, 11, 2369.	3.3	25
50	Respiratory motion compensation for CT-guided interventions in the liver. Computer Aided Surgery, 2008, 13, 125-138.	1.8	24
51	Confidence Estimation for Machine Learning-Based Quantitative Photoacoustics. Journal of Imaging, 2018, 4, 147.	3.0	24
52	Ethical implications of AI in robotic surgical training: A Delphi consensus statement. European Urology Focus, 2022, 8, 613-622.	3.1	23
53	Towards markerless navigation for percutaneous needle insertions. International Journal of Computer Assisted Radiology and Surgery, 2016, 11, 107-117.	2.8	22
54	Uncertainty-aware performance assessment of optical imaging modalities with invertible neural networks. International Journal of Computer Assisted Radiology and Surgery, 2019, 14, 997-1007.	2.8	22

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55	SERV-CT: A disparity dataset from cone-beam CT for validation of endoscopic 3D reconstruction. Medical Image Analysis, 2022, 76, 102302.	11.6	22
56	Tissue classification for laparoscopic image understanding based on multispectral texture analysis. Journal of Medical Imaging, 2017, 4, 015001.	1.5	21
57	Reconstruction of initial pressure from limited view photoacoustic images using deep learning. , 2018, , .		21
58	Projective biomechanical depth matching for soft tissue registration in laparoscopic surgery. International Journal of Computer Assisted Radiology and Surgery, 2017, 12, 1101-1110.	2.8	19
59	Kidney edge detection in laparoscopic image data for computer-assisted surgery. International Journal of Computer Assisted Radiology and Surgery, 2020, 15, 379-387.	2.8	17
60	Spectral organ fingerprints for machine learning-based intraoperative tissue classification with hyperspectral imaging in a porcine model. Scientific Reports, 2022, 12, .	3.3	17
61	MITK-US: real-time ultrasound support within MITK. International Journal of Computer Assisted Radiology and Surgery, 2014, 9, 411-420.	2.8	16
62	Physiological Parameter Estimation from Multispectral Images Unleashed. Lecture Notes in Computer Science, 2017, , 134-141.	1.3	16
63	On combining internal and external fiducials for liver motion compensation. Computer Aided Surgery, 2008, 13, 369-376.	1.8	15
64	Semantic segmentation of multispectral photoacoustic images using deep learning. Photoacoustics, 2022, 26, 100341.	7.8	15
65	Polhemus EM tracked Micro Sensor for CT€guided interventions. Medical Physics, 2019, 46, 15-24.	3.0	13
66	Respiratory motion compensation for CT-guided interventions in the liver. Computer Aided Surgery, 2008, 13, 125-138.	1.8	13
67	Navigated Liver Biopsy Using a Novel Soft Tissue Navigation System versus CT-Guided Liver Biopsy in a Porcine Model. Academic Radiology, 2010, 17, 1282-1287.	2.5	12
68	Three-Dimensional Reconstruction of Preoperative Imaging Improves Surgical Success in Laparoscopy. Journal of Laparoendoscopic and Advanced Surgical Techniques - Part A, 2017, 27, 181-185.	1.0	12
69	ToF Meets RGB: Novel Multi-Sensor Super-Resolution for Hybrid 3-D Endoscopy. Lecture Notes in Computer Science, 2013, 16, 139-146.	1.3	12
70	Respiratory liver motion simulator for validating image-guided systems ex-vivo. International Journal of Computer Assisted Radiology and Surgery, 2008, 2, 287-292.	2.8	11
71	Time-of-flight camera technique for augmented reality in computer-assisted interventions. , 2011, , .		11
72	Clickstream Analysis for Crowd-Based Object Segmentation with Confidence. IEEE Transactions on Pattern Analysis and Machine Intelligence, 2018, 40, 2814-2826.	13.9	11

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73	Photoacoustics can image spreading depolarization deep in gyrencephalic brain. Scientific Reports, 2019, 9, 8661.	3.3	11
74	Correspondences Search for Surface-Based Intra-Operative Registration. Lecture Notes in Computer Science, 2010, 13, 660-667.	1.3	11
75	Calibration of time-of-flight cameras for accurate intraoperative surface reconstruction. Medical Physics, 2013, 40, 082701.	3.0	10
76	First clinical use of the EchoTrack guidance approach for radiofrequency ablation of thyroid gland nodules. International Journal of Computer Assisted Radiology and Surgery, 2017, 12, 931-940.	2.8	10
77	MITK-OpenIGTLink for combining open-source toolkits in real-time computer-assisted interventions. International Journal of Computer Assisted Radiology and Surgery, 2017, 12, 351-361.	2.8	10
78	Modern Information Technology for Cancer Research: What's in IT for Me? An Overview of Technologies and Approaches. Oncology, 2020, 98, 363-369.	1.9	10
79	Ten years of image analysis and machine learning competitions in dementia. NeuroImage, 2022, 253, 119083.	4.2	10
80	MITK-ToF—Range data within MITK. International Journal of Computer Assisted Radiology and Surgery, 2012, 7, 87-96.	2.8	9
81	Mobile, real-time, and point-of-care augmented reality is robust, accurate, and feasible: a prospective pilot study. Surgical Endoscopy and Other Interventional Techniques, 2018, 32, 2958-2967.	2.4	9
82	Patch-based adaptive weighting with segmentation and scale (PAWSS) for visual tracking in surgical video. Medical Image Analysis, 2019, 57, 120-135.	11.6	9
83	Common Pitfalls and Recommendations for Grand Challenges in Medical Artificial Intelligence. European Urology Focus, 2021, 7, 710-712.	3.1	9
84	ToF/RGB Sensor Fusion for 3-D Endoscopy. Current Medical Imaging, 2013, 9, 113-119.	0.8	9
85	Band selection for oxygenation estimation with multispectral/hyperspectral imaging. Biomedical Optics Express, 2022, 13, 1224.	2.9	9
86	SIMPA: an open-source toolkit for simulation and image processing for photonics and acoustics. Journal of Biomedical Optics, 2022, 27, .	2.6	9
87	Multi-sensor super-resolution for hybrid range imaging with application to 3-D endoscopy and open surgery. Medical Image Analysis, 2015, 24, 220-234.	11.6	8
88	Crowdsourcing for error detection in cortical surface delineations. International Journal of Computer Assisted Radiology and Surgery, 2017, 12, 161-166.	2.8	8
89	Robust multi-modal surface matching for intra-operative registration. , 2011, , .		7
90	Robust hand tracking for surgical telestration. International Journal of Computer Assisted Radiology and Surgery, 0, , .	2.8	6

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91	Tattoo tomography: Freehand 3D photoacoustic image reconstruction with an optical pattern. International Journal of Computer Assisted Radiology and Surgery, 2021, 16, 1101-1110.	2.8	5
92	Live Monitoring of Haemodynamic Changes with Multispectral ImageÂAnalysis. Lecture Notes in Computer Science, 2019, , 38-46.	1.3	5
93	Photoacoustic monitoring of blood oxygenation during neurosurgical interventions. , 2019, , .		5
94	3-D Operation Situs Reconstruction with Time-of-Flight Satellite Cameras Using Photogeometric Data Fusion. Lecture Notes in Computer Science, 2013, 16, 356-363.	1.3	5
95	Freehand photoacoustic tomography for 3D angiography using local gradient information. , 2016, , .		4
96	Mobile EM Field Generator for Ultrasound Guided Navigated Needle Insertions. Lecture Notes in Computer Science, 2013, , 71-80.	1.3	4
97	Light source calibration for multispectral imaging in surgery. International Journal of Computer Assisted Radiology and Surgery, 2020, 15, 1117-1125.	2.8	3
98	Out of Distribution Detection for Intra-operative Functional Imaging. Lecture Notes in Computer Science, 2019, , 75-82.	1.3	3
99	Deep learning-based classification of DSA image sequences of patients with acute ischemic stroke. International Journal of Computer Assisted Radiology and Surgery, 2022, 17, 1633-1641.	2.8	3
100	Reattachable fiducial skin marker for automatic multimodality registration. International Journal of Computer Assisted Radiology and Surgery, 2022, 17, 2141-2150.	2.8	3
101	Computer-assisted soft tissue interventions. , 2008, , .		2
102	Ultrasound-navigated radiofrequency ablation of thyroid nodules with integrated electromagnetic tracking: comparison with conventional ultrasound guidance in gelatin models. International Journal of Computer Assisted Radiology and Surgery, 2017, 12, 1635-1642.	2.8	2
103	Surgical data science. , 2020, , 931-952.		2
104	Computer-assisted intra-operative verification of surgical outcome for the treatment of syndesmotic injuries through contralateral side comparison. International Journal of Computer Assisted Radiology and Surgery, 2019, 14, 2211-2220.	2.8	1
105	Task Fingerprinting for Meta Learning inBiomedical Image Analysis. Lecture Notes in Computer Science, 2021, , 436-446.	1.3	1
106	Domain and task specific multispectral band selection (Conference Presentation). , 2018, , .		1
107	Confidence estimation for quantitative photoacoustic imaging. , 2018, , .		1
108	RSNA-MICCAI Panel Discussion: 2. Leveraging the Full Potential of Alâ€"Radiologists and Data Scientists Working Together. Radiology: Artificial Intelligence, 2021, 3, e210248.	5.8	1

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109	A Platform and Multisided Market for Translational, Software-Defined Medical Procedures in the Operating Room (OP 4.1): Proof-of-Concept Study. JMIR Medical Informatics, 2022, 10, e27743.	2.6	1
110	Patch based specular reflection removal for range images in hybrid 3-D endoscopy. , 2014, , .		0
111	Guest editorial for the IJCARS special issue on MICCAI 2017. International Journal of Computer Assisted Radiology and Surgery, 2018, 13, 1309-1310.	2.8	0
112	Invertible Neural Networks for Uncertainty Quantification in Photoacoustic Imaging. Informatik Aktuell, 2021, , 330-335.	0.6	0
113	Effiziente Planung von Zugangswegen für sichere Nadelinsertionen. Informatik Aktuell, 2011, , 199-203.	0.6	0
114	Elektromagnetisches Tracking für die interventionelle Radiologie. Informatik Aktuell, 2012, , 392-397.	0.6	0
115	GPGPU-beschleunigter anisotroper ICP zur Registrierung von Tiefendaten. Informatik Aktuell, 2014, , 24-29.	0.6	0