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	Ethical implications of AI in robotic surgical training: A Delphi consensus statement. European Urology Focus, 2022, 8, 613-622.	3.1	23
2	Band selection for oxygenation estimation with multispectral/hyperspectral imaging. Biomedical Optics Express, 2022, 13, 1224.	2.9	9
3	SERV-CT: A disparity dataset from cone-beam CT for validation of endoscopic 3D reconstruction. Medical Image Analysis, 2022, 76, 102302.	11.6	22
4	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
5	Surgical data science – from concepts toward clinical translation. Medical Image Analysis, 2022, 76, 102306.	11.6	107
6	SIMPA: an open-source toolkit for simulation and image processing for photonics and acoustics. Journal of Biomedical Optics, 2022, 27, .	2.6	9
7	Ten years of image analysis and machine learning competitions in dementia. NeuroImage, 2022, 253, 119083.	4.2	10
8	Semantic segmentation of multispectral photoacoustic images using deep learning. Photoacoustics, 2022, 26, 100341.	7.8	15
9	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
10	Reattachable fiducial skin marker for automatic multimodality registration. International Journal of Computer Assisted Radiology and Surgery, 2022, 17, 2141-2150.	2.8	3
11	Robust deep learning-based semantic organ segmentation in hyperspectral images. Medical Image Analysis, 2022, 80, 102488.	11.6	27
12	Spectral organ fingerprints for machine learning-based intraoperative tissue classification with hyperspectral imaging in a porcine model. Scientific Reports, 2022, 12, .	3.3	17
13	A Delphi consensus statement for digital surgery. Npj Digital Medicine, 2022, 5, .	10.9	28
14	The Medical Segmentation Decathlon. Nature Communications, 2022, 13, .	12.8	252
15	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
16	Invertible Neural Networks for Uncertainty Quantification in Photoacoustic Imaging. Informatik Aktuell, 2021, , 330-335.	0.6	0
17	Task Fingerprinting for Meta Learning inBiomedical Image Analysis. Lecture Notes in Computer Science, 2021, , 436-446.	1.3	1
18	Learned spectral decoloring enables photoacoustic oximetry. Scientific Reports, 2021, 11, 6565.	3.3	34

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19	Heidelberg colorectal data set for surgical data science in the sensor operating room. Scientific Data, 2021, 8, 101.	5.3	37
20	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
21	Deep learning for biomedical photoacoustic imaging: A review. Photoacoustics, 2021, 22, 100241.	7.8	126
22	Common Pitfalls and Recommendations for Grand Challenges in Medical Artificial Intelligence. European Urology Focus, 2021, 7, 710-712.	3.1	9
23	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
24	Methods and open-source toolkit for analyzing and visualizing challenge results. Scientific Reports, 2021, 11, 2369.	3.3	25
25	RSNA-MICCAI Panel Discussion: 2. Leveraging the Full Potential of AIâ€"Radiologists and Data Scientists Working Together. Radiology: Artificial Intelligence, 2021, 3, e210248.	5.8	1
26	Modern Information Technology for Cancer Research: Whatâ€™s in IT for Me? An Overview of Technologies and Approaches. Oncology, 2020, 98, 363-369.	1.9	10
27	Surgical data science. , 2020, , 931-952.		2
28	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
29	BIAS: Transparent reporting of biomedical image analysis challenges. Medical Image Analysis, 2020, 66, 101796.	11.6	59
30	Light source calibration for multispectral imaging in surgery. International Journal of Computer Assisted Radiology and Surgery, 2020, 15, 1117-1125.	2.8	3
31	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
32	Surgical spectral imaging. Medical Image Analysis, 2020, 63, 101699.	11.6	82
33	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
34	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
35	Photoacoustics can image spreading depolarization deep in gyrencephalic brain. Scientific Reports, 2019, 9, 8661.	3.3	11
36	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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37	Polhemus EM tracked Micro Sensor for CTâ€guided interventions. Medical Physics, 2019, 46, 15-24.	3.0	13
38	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
39	Out of Distribution Detection for Intra-operative Functional Imaging. Lecture Notes in Computer Science, 2019, , 75-82.	1.3	3
40	Live Monitoring of Haemodynamic Changes with Multispectral ImageÂAnalysis. Lecture Notes in Computer Science, 2019, , 38-46.	1.3	5
41	Photoacoustic monitoring of blood oxygenation during neurosurgical interventions. , 2019, , .		5
42	Uncertainty-Aware Organ Classification for Surgical Data Science Applications in Laparoscopy. IEEE Transactions on Biomedical Engineering, 2018, 65, 2649-2659.	4.2	37
43	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
44	Clickstream Analysis for Crowd-Based Object Segmentation with Confidence. IEEE Transactions on Pattern Analysis and Machine Intelligence, 2018, 40, 2814-2826.	13.9	11
45	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
46	PSMA-11â€"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
47	Signed Real-Time Delay Multiply and Sum Beamforming for Multispectral Photoacoustic Imaging. Journal of Imaging, 2018, 4, 121.	3.0	33
48	Why rankings of biomedical image analysis competitions should be interpreted with care. Nature Communications, 2018, 9, 5217.	12.8	198
49	Confidence Estimation for Machine Learning-Based Quantitative Photoacoustics. Journal of Imaging, 2018, 4, 147.	3.0	24
50	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
51	Visualization of Biomedical Data. Annual Review of Biomedical Data Science, 2018, 1, 275-304.	6.5	63
52	Toward a standard ontology of surgical process models. International Journal of Computer Assisted Radiology and Surgery, 2018, 13, 1397-1408.	2.8	54
53	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
54	Context encoding enables machine learning-based quantitative photoacoustics. Journal of Biomedical Optics, 2018, 23, 1.	2.6	40

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55	Large-scale medical image annotation with crowd-powered algorithms. Journal of Medical Imaging, 2018, 5, 1.	1.5	33
56	Domain and task specific multispectral band selection (Conference Presentation). , 2018, , .		1
57	Reconstruction of initial pressure from limited view photoacoustic images using deep learning. , 2018, , .		21
58	Confidence estimation for quantitative photoacoustic imaging. , 2018, , .		1
59	Crowdsourcing for error detection in cortical surface delineations. International Journal of Computer Assisted Radiology and Surgery, 2017, 12, 161-166.	2.8	8
60	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
61	Tissue classification for laparoscopic image understanding based on multispectral texture analysis. Journal of Medical Imaging, 2017, 4, 015001.	1.5	21
62	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
63	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
64	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
65	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
66	Indocyanine green fluorescence imaging in hepatobiliary surgery. Photodiagnosis and Photodynamic Therapy, 2017, 17, 208-215.	2.6	91
67	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
68	Physiological Parameter Estimation from Multispectral Images Unleashed. Lecture Notes in Computer Science, 2017, , 134-141.	1.3	16
69	Surgical data science for next-generation interventions. Nature Biomedical Engineering, 2017, 1, 691-696.	22.5	283
70	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
71	Freehand photoacoustic tomography for 3D angiography using local gradient information. , 2016, , .		4
72	Intraoperative Computed Tomography Imaging for Navigated Laparoscopic Renal Surgery: First Clinical Experience. Journal of Endourology, 2016, 30, 1105-1111.	2.1	30

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73	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
74	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
75	Towards markerless navigation for percutaneous needle insertions. International Journal of Computer Assisted Radiology and Surgery, 2016, 11, 107-117.	2.8	22
76	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
77	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
78	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
79	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
80	Physics–based shape matching for intraoperative image guidance. Medical Physics, 2014, 41, 111901.	3.0	65
81	Patch based specular reflection removal for range images in hybrid 3-D endoscopy. , 2014, , .		0
82	MITK-US: real-time ultrasound support within MITK. International Journal of Computer Assisted Radiology and Surgery, 2014, 9, 411-420.	2.8	16
83	Can Masses of Non-Experts Train Highly Accurate Image Classifiers?. Lecture Notes in Computer Science, 2014, 17, 438-445.	1.3	56
84	Pose-independent surface matching for intra-operative soft-tissue marker-less registration. Medical Image Analysis, 2014, 18, 1101-1114.	11.6	31
85	Electromagnetic Tracking in Medicine—A Review of Technology, Validation, and Applications. IEEE Transactions on Medical Imaging, 2014, 33, 1702-1725.	8.9	344
86	Crowdsourcing for Reference Correspondence Generation in Endoscopic Images. Lecture Notes in Computer Science, 2014, 17, 349-356.	1.3	26
87	GPGPU-beschleunigter anisotroper ICP zur Registrierung von Tiefendaten. Informatik Aktuell, 2014, , 24-29.	0.6	0
88	Mobile augmented reality for computer-assisted percutaneous nephrolithotomy. International Journal of Computer Assisted Radiology and Surgery, 2013, 8, 663-675.	2.8	83
89	The Medical Imaging Interaction Toolkit: challenges and advances. International Journal of Computer Assisted Radiology and Surgery, 2013, 8, 607-620.	2.8	339
90	Optical techniques for 3D surface reconstruction in computer-assisted laparoscopic surgery. Medical Image Analysis, 2013, 17, 974-996.	11.6	217

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91	Calibration of time-of-flight cameras for accurate intraoperative surface reconstruction. Medical Physics, 2013, 40, 082701.	3.0	10
92	Mobile EM Field Generator for Ultrasound Guided Navigated Needle Insertions. Lecture Notes in Computer Science, 2013, , 71-80.	1.3	4
93	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
94	Real-Time Range Imaging in Health Care: A Survey. Lecture Notes in Computer Science, 2013, , 228-254.	1.3	30
95	ToF/RGB Sensor Fusion for 3-D Endoscopy. Current Medical Imaging, 2013, 9, 113-119.	0.8	9
96	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
97	Standardized assessment of new electromagnetic field generators in an interventional radiology setting. Medical Physics, 2012, 39, 3424-3434.	3.0	62
98	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
99	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
100	MITK-ToFâ€"Range data within MITK. International Journal of Computer Assisted Radiology and Surgery, 2012, 7, 87-96.	2.8	9
101	Elektromagnetisches Tracking fÃ¼r die interventionelle Radiologie. Informatik Aktuell, 2012, , 392-397.	0.6	0
102	Robust multi-modal surface matching for intra-operative registration. , 2011, , .		7
103	Spectrally encoded fiber-based structured lighting probe for intraoperative 3D imaging. Biomedical Optics Express, 2011, 2, 3119.	2.9	55
104	Computer-assisted trajectory planning for percutaneous needle insertions. Medical Physics, 2011, 38, 3246-3259.	3.0	72
105	Time-of-flight camera technique for augmented reality in computer-assisted interventions. , 2011, , .		11
106	Effiziente Planung von Zugangswegen fÃ¼r sichere Nadelinsertionen. Informatik Aktuell, 2011, , 199-203.	0.6	0
107	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
108	Correspondences Search for Surface-Based Intra-Operative Registration. Lecture Notes in Computer Science, 2010, 13, 660-667.	1.3	11

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109	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
110	Respiratory motion compensation for CT-guided interventions in the liver. Computer Aided Surgery, 2008, 13, 125-138.	1.8	24
111	<i>In vivo</i> accuracy assessment of a needleâ€based navigation system for CTâ€guided radiofrequency ablation of the liver. Medical Physics, 2008, 35, 5385-5396.	3.0	72
112	Computer-assisted soft tissue interventions. , 2008, , .		2
113	On combining internal and external fiducials for liver motion compensation. Computer Aided Surgery, 2008, 13, 369-376.	1.8	15
114	Respiratory motion compensation for CT-guided interventions in the liver. Computer Aided Surgery, 2008, 13, 125-138.	1.8	13
115	Robust hand tracking for surgical telestration. International Journal of Computer Assisted Radiology and Surgery, 0, , .	2.8	6