Natan Tzvi Shaked

List of Publications by Year
in descending order

147	4,185	94433	123424
papers	citations	37 h-index	61 g-index

153	153	153	2387
all docs	docs citations	times ranked	citing authors

#	Article	IF	Citations
1	Quantitative phase microscopy of biological samples using a portable interferometer. Optics Letters, 2012, 37, 2016.	3.3	195
2	Dual-interference-channel quantitative-phase microscopy of live cell dynamics. Optics Letters, 2009, 34, 767.	3.3	182
3	Generalized cell morphological parameters based on interferometric phase microscopy and their application to cell life cycle characterization. Biomedical Optics Express, 2012, 3, 1757.	2.9	174
4	Tomographic phase microscopy with 180Â° rotation of live cells in suspension by holographic optical tweezers. Optics Letters, 2015, 40, 1881.	3.3	172
5	Two-step-only phase-shifting interferometry with optimized detector bandwidth for microscopy of live cells. Optics Express, 2009, 17, 15585.	3.4	162
6	Compact and portable low-coherence interferometer with off-axis geometry for quantitative phase microscopy and nanoscopy. Optics Express, 2013, 21, 5701.	3.4	162
7	Quantitative microscopy and nanoscopy of sickle red blood cells performed by wide field digital interferometry. Journal of Biomedical Optics, 2011, 16, 1.	2.6	137
8	Roadmap on digital holography [Invited]. Optics Express, 2021, 29, 35078.	3.4	133
9	Whole-cell-analysis of live cardiomyocytes using wide-field interferometric phase microscopy. Biomedical Optics Express, 2010, 1, 706.	2.9	110
10	Review of three-dimensional holographic imaging by multiple-viewpoint-projection based methods. Applied Optics, 2009, 48, H120.	2.1	106
11	Doubling the field of view in off-axis low-coherence interferometric imaging. Light: Science and Applications, 2014, 3, e151-e151.	16.6	105
12	TOP-GAN: Stain-free cancer cell classification using deep learning with a small training set. Medical Image Analysis, 2019, 57, 176-185.	11.6	90
13	Adipocyte Stiffness Increases with Accumulation of Lipid Droplets. Biophysical Journal, 2014, 106, 1421-1431.	0.5	89
14	New procedures for minimizing the torque ripple in switched reluctance motors by optimizing the phase-current profile. IEEE Transactions on Magnetics, 2005, 41, 1184-1192.	2.1	88
15	Rapid 3D Refractiveâ€Index Imaging of Live Cells in Suspension without Labeling Using Dielectrophoretic Cell Rotation. Advanced Science, 2017, 4, 1600205.	11.2	88
16	Quantitative phase microscopy spatial signatures of cancer cells. Cytometry Part A: the Journal of the International Society for Analytical Cytology, 2017, 91, 482-493.	1.5	83
17	Prediction of photothermal phase signatures from arbitrary plasmonic nanoparticles and experimental verification. Light: Science and Applications, 2015, 4, e322-e322.	16.6	80
18	Automated analysis of individual sperm cells using stainâ€free interferometric phase microscopy and machine learning. Cytometry Part A: the Journal of the International Society for Analytical Cytology, 2017, 91, 893-900.	1.5	70

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19	Integral holography: white-light single-shot hologram acquisition. Optics Express, 2007, 15, 5754.	3.4	67
20	Real-time quantitative phase reconstruction in off-axis digital holography using multiplexing. Optics Letters, 2014, 39, 2262.	3.3	64
21	Fast phase processing in off-axis holography using multiplexing with complex encoding and live-cell fluctuation map calculation in real-time. Optics Express, 2015, 23, 8773.	3.4	64
22	Flipping interferometry and its application for quantitative phase microscopy in a micro-channel. Optics Letters, 2016, 41, 2354.	3.3	64
23	Simultaneous two-wavelength transmission quantitative phase microscopy with a color camera. Optics Letters, 2010, 35, 2612.	3.3	62
24	Off-axis digital holographic multiplexing for rapid wavefront acquisition and processing. Advances in Optics and Photonics, 2020, 12, 556.	25.5	55
25	Reflective interferometric chamber for quantitative phase imaging of biological sample dynamics. Journal of Biomedical Optics, 2010, 15, 030503.	2.6	54
26	Parallel on-axis holographic phase microscopy of biological cells and unicellular microorganism dynamics. Applied Optics, 2010, 49, 2872.	2.1	54
27	Simultaneous two-wavelength phase unwrapping using an external module for multiplexing off-axis holography. Optics Letters, 2017, 42, 73.	3.3	54
28	Holographic virtual staining of individual biological cells. Proceedings of the National Academy of Sciences of the United States of America, 2020, 117, 9223-9231.	7.1	54
29	Optical solution for bounded NP-complete problems. Applied Optics, 2007, 46, 711.	2.1	53
30	Off-axis interferometric phase microscopy with tripled imaging area. Optics Letters, 2014, 39, 1525.	3.3	51
31	Quantitative phase microscopy of articular chondrocyte dynamics by wide-field digital interferometry. Journal of Biomedical Optics, 2010, 15, 1.	2.6	50
32	Realâ€Time Stainâ€Free Classification of Cancer Cells and Blood Cells Using Interferometric Phase Microscopy and Machine Learning. Cytometry Part A: the Journal of the International Society for Analytical Cytology, 2021, 99, 511-523.	1.5	47
33	Six-pack off-axis holography. Optics Letters, 2017, 42, 4611.	3.3	46
34	Simultaneous three-wavelength unwrapping using external digital holographic multiplexing module. Optics Letters, 2018, 43, 1943.	3.3	45
35	Fast phase processing in off-axis holography by CUDA including parallel phase unwrapping. Optics Express, 2016, 24, 3177.	3.4	41
36	Dual-channel low-coherence interferometry and its application to quantitative phase imaging of fingerprints. Optics Express, 2012, 20, 26906.	3.4	40

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37	PhUn-Net: ready-to-use neural network for unwrapping quantitative phase images of biological cells. Biomedical Optics Express, 2020, 11, 1107.	2.9	40
38	Interferometric phase microscopy for label-free morphological evaluation of sperm cells. Fertility and Sterility, 2015, 104, 43-47.e2.	1.0	39
39	High-resolution 4-D acquisition of freely swimming human sperm cells without staining. Science Advances, 2020, 6, eaay7619.	10.3	38
40	Opticalâ€mechanical signatures of cancer cells based on fluctuation profiles measured by interferometry. Journal of Biophotonics, 2014, 7, 624-630.	2.3	36
41	Video-rate processing in tomographic phase microscopy of biological cells using CUDA. Optics Express, 2016, 24, 11839.	3.4	36
42	Modified Fresnel computer-generated hologram directly recorded by multiple-viewpoint projections. Applied Optics, 2008, 47, D21.	2.1	32
43	Synthesizing computer generated holograms with reduced number of perspective projections. Optics Express, 2007, 15, 13250.	3.4	30
44	High-speed and low-power electro-optical DSP coprocessor. Journal of the Optical Society of America A: Optics and Image Science, and Vision, 2009, 26, A11.	1.5	29
45	Dynamic Adhesion of Umbilical Cord Blood Endothelial Progenitor Cells under Laminar Shear Stress. Biophysical Journal, 2010, 99, 3545-3554.	0.5	29
46	Optical phase nanoscopy in red blood cells using low-coherence spectroscopy. Journal of Biomedical Optics, 2012, 17, 101509.	2.6	29
47	Compact interferometric module for full-field interferometric phase microscopy with low spatial coherence illumination. Optics Letters, 2017, 42, 1492.	3.3	27
48	Review on methods of solving the refractive indexâ€“thickness coupling problem in digital holographic microscopy of biological cells. Optics Communications, 2018, 422, 8-16.	2.1	27
49	Is multiplexed off-axis holography for quantitative phase imaging more spatial bandwidth-efficient than on-axis holography? [Invited]. Journal of the Optical Society of America A: Optics and Image Science, and Vision, 2019, 36, A1.	1.5	27
50	Optimal spatial bandwidth capacity in multiplexed off-axis holography for rapid quantitative phase reconstruction and visualization. Optics Express, 2017, 25, 33400.	3.4	26
51	A Review of Incoherent Digital Fresnel Holography. Journal of Holography and Speckle, 2009, 5, 124-140.	0.1	25
52	First experimental realization of six-pack holography and its application to dynamic synthetic aperture superresolution. Optics Express, 2019, 27, 26708.	3.4	25
53	Integral refractive index imaging of flowing cell nuclei using quantitative phase microscopy combined with fluorescence microscopy. Biomedical Optics Express, 2018, 9, 1177.	2.9	24
54	Phase Unwrapping Using Residual Neural Networks. , 2018, , .		24

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55	Quantitative phase imaging by wide-field interferometry with variable shearing distance uncoupled from the off-axis angle. Optics Express, 2020, 28, 5617.	3.4	24
56	Multiple-viewpoint projection holograms synthesized by spatially incoherent correlation with broadband functions. Journal of the Optical Society of America A: Optics and Image Science, and Vision, 2008, 25, 2129.	1.5	23
57	Individual sperm selection by microfluidics integrated with interferometric phase microscopy. Methods, 2018, 136, 152-159.	3.8	23
58	Wide-field interferometric phase microscopy with molecular specificity using plasmonic nanoparticles. Journal of Biomedical Optics, 2013, 18, 1.	2.6	21
59	Labelâ€free discrimination and selection of cancer cells from blood during flow using holographyâ€induced dielectrophoresis. Journal of Biophotonics, 2020, 13, e202000151.	2.3	20
60	Simultaneous off-axis multiplexed holography and regular fluorescence microscopy of biological cells. Optics Letters, 2018, 43, 2587.	3.3	19
61	Spectral-domain differential interference contrast microscopy. Optics Letters, 2011, 36, 430.	3.3	18
62	Single-exposure full-field multi-depth imaging using low-coherence holographic multiplexing. Optics Letters, 2018, 43, 2046.	3.3	17
63	Continuous wide-field characterization of drug release from skin substitute using off-axis interferometry. Optics Letters, 2013, 38, 3017.	3.3	16
64	Localized measurements of physical parameters within human sperm cells obtained with wideâ€field interferometry. Journal of Biophotonics, 2017, 10, 1305-1314.	2.3	16
65	Flipping interferometry with doubled imaging area. Optics Letters, 2018, 43, 5543.	3.3	16
66	Dynamic Tomographic Phase Microscopy by Double Six-Pack Holography. ACS Photonics, 2022, 9, 1295-1303.	6.6	15
67	Detection and controlled depletion of cancer cells using photothermal phase microscopy. Journal of Biophotonics, 2015, 8, 755-763.	2.3	14
68	Limited-angle tomographic phase microscopy utilizing confocal scanning fluorescence microscopy. Biomedical Optics Express, 2021, 12, 1869.	2.9	14
69	Optical binary-matrix synthesis for solving bounded NP-complete combinatorial problems. Optical Engineering, 2007, 46, 108201.	1.0	13
70	Off-axis interferometer with adjustable fringe contrast based on polarization encoding. Optics Letters, 2015, 40, 2273.	3.3	13
71	Broadband quantitative phase microscopy with extended field of view using off-axis interferometric multiplexing. Journal of Biomedical Optics, 2015, 20, 1.	2.6	13
72	Erythrocyte volumetric measurements in imaging flow cytometry using simultaneous three-wavelength digital holographic microscopy. Biomedical Optics Express, 2020, 11, 6649.	2.9	11

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73	Stainâ€free interferometric phase microscopy correlation with DNA fragmentation stain in human spermatozoa. Journal of Biophotonics, 2018, 11, e201800137.	2.3	10
74	Wafer defect detection by a polarization-insensitive external differential interference contrast module. Applied Optics, 2018, 57, 3534.	1.8	9
75	Six-pack holographic imaging for dynamic rejection of out-of-focus objects. Optics Express, 2021, 29, 632.	3.4	9
76	Low-Coherence Shearing Interferometry With Constant Off-Axis Angle. Frontiers in Physics, 2021, 8, .	2.1	9
77	Four dimensional phase unwrapping of dynamic objects in digital holography. Optics Express, 2018, 26, 3772.	3.4	8
78	Dynamic measurements of flowing cells labeled by gold nanoparticles using full-field photothermal interferometric imaging. Journal of Biomedical Optics, 2017, 22, 1.	2.6	7
79	Simultaneous Morphology, Motility, and Fragmentation Analysis of Live Individual Sperm Cells for Male Fertility Evaluation. Advanced Intelligent Systems, 2022, 4, .	6.1	7
80	Cell and nucleus refractiveâ€index mapping by interferometric phase microscopy and rapid confocal fluorescence microscopy. Journal of Biophotonics, 2020, 13, e202000117.	2.3	6
81	Cancer-Cell Deep-Learning Classification by Integrating Quantitative-Phase Spatial and Temporal Fluctuations. Cells, 2021, 10, 3353.	4.1	6
82	Fluorescence multicolor hologram recorded by using a macrolens array. Optics Letters, 2008, 33, 1461.	3.3	5
83	Parallel decomposition of combinatorial optimization problems using electro-optical vector by matrix multiplication architecture. Journal of Supercomputing, 2012, 62, 633-655.	3.6	5
84	Angular phase unwrapping of optically thick objects with a thin dimension. Optics Express, 2017, 25, 3347.	3.4	5
85	Deep learning approaches for unwrapping phase images with steep spatial gradients: a simulation. , 2018, , .		5
86	Flipping Interferometric Module for Simultaneous Dual-Wavelength Unwrapping of Quantitative Phase Maps of Biological Cells. Frontiers in Physics, 2021, 9, .	2.1	5
87	Hybrid Reflective Interferometric System Combining Wide-Field and Single-Point Phase Measurements. IEEE Photonics Journal, 2015, 7, 1-13.	2.0	4
88	Live Cancer Cell Classification Based on Quantitative Phase Spatial Fluctuations and Deep Learning With a Small Training Set. Frontiers in Physics, 2021, 9, .	2.1	4
89	Prediction of Sperm Progression in Three Dimensions Using Rapid Optical Imaging and Dynamic Mechanical Modeling. Cells, 2022, 11, 1319.	4.1	4
90	Three-dimensional object recognition using a quasi-correlator invariant to imaging distances. Optics Express, 2008, 16, 17148.	3.4	3

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91	Optical phase measurements in red blood cells using low-coherence spectroscopy. Proceedings of SPIE, 2012, , .	0.8	3
92	Multiplane imaging with extended field-of-view using a quadratically distorted grating. Optics Communications, 2020, 463, 125399.	2.1	3
93	Combinatorial Optimization Using Electro-Optical Vector by Matrix Multiplication Architecture. Lecture Notes in Computer Science, 2009, , 130-143.	1.3	3
94	Quantitative Phase Microscopy of Biological Cell Dynamics by Wide-Field Digital Interferometry. Springer Series in Surface Sciences, 2011, , 169-198.	0.3	3
95	Dynamic three-wavelength imaging and volumetry of flowing cells with doubled field of view by six-pack holography. Applied Physics B: Lasers and Optics, 2022, 128, 1.	2.2	3
96	Incoherent holographic imaging through thin turbulent media. Optics Communications, 2009, 282, 1546-1550.	2.1	2
97	Whole cell imaging based on wide-field interferometric phase microscopy and its application to cardiomyocytes. , 2011, , .		2
98	Optimal spatial bandwidth capacity in multiplexed off-axis holography for rapid quantitative phase reconstruction and visualization: erratum. Optics Express, 2018, 26, 20848.	3.4	2
99	Classification of tissue biopsies by Raman spectroscopy guided by quantitative phase imaging and its application to bladder cancer. Journal of Biophotonics, 2022, 15, e202200009.	2.3	2
100	Optical processor for solving the traveling salesman problem (TSP). , 2006, , .		1
101	Dynamic quantitative microscopy and nanoscopy of red blood cells in sickle cell disease. Proceedings of SPIE, 2012, , .	0.8	1
102	Portable low-coherence interferometry for quantitatively imaging fast dynamics with extended field of view. Proceedings of SPIE, 2014, , .	0.8	1
103	Tomographic phase microscopy using optical tweezers. Proceedings of SPIE, 2015, , .	0.8	1
104	Analyzing the texture changes in the quantitative phase maps of adipocytes. , 2016, , .		1
105	Photothermal quantitative phase imaging of living cells with nanoparticles utilizing a cost-efficient setup. Proceedings of SPIE, 2017, , .	0.8	1
106	Sperm Inspection for In Vitro Fertilization via Self-Assembled Microdroplet Formation and Quantitative Phase Microscopy. Cells, 2021, 10, 3317.	4.1	1
107	Holography of incoherently illuminated 3D scenes. , 2008, , .		0
108	Quantitative Phase Microscopy of Live Biological Cell Dynamics. , 2010, , .		0

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109	Quantitative analysis of three-dimensional biological cells using interferometric microscopy. , 2011, , .		0
110	Portable low-coherence interferometer for quantitative phase microscopy of live cells. Proceedings of SPIE, 2013, , .	0.8	0
111	Optical-mechanical properties of diseased cells measured by interferometry. , 2013, , .		0
112	Special Section Guest Editorial: Optical Imaging, Sensing, and Light Interactions in Cells and Tissues. Journal of Biomedical Optics, 2013, 18, 111401.	2.6	0
113	Non-invasive continuous imaging of drug release from soy-based skin equivalent using wide-field interferometry. Proceedings of SPIE, 2013, , .	0.8	0
114	Real-time processing of off-axis interferograms: from the camera to the user. , 2014, , .		0
115	ITIA: tripling the field-of-view in off-axis interferometric phase microscopy. Proceedings of SPIE, 2014, , .	0.8	0
116	IDIA: doubling the recorded imaging area or the frame rate in off-axis interferometric microscopy. , 2014, , .		0
117	Reflective interferometric system combining low-coherence spectral-domain phase microscopy and wide-field holography for characterization of thin samples. , 2014, , .		0
118	Dual-modality wide-field photothermal quantitative phase microscopy and depletion of cell populations. , 2015, , .		0
119	Fast processing of quantitative phase profiles from off-axis interferograms for real-time applications. Proceedings of SPIE, 2015, , .	0.8	0
120	Multiplexed off-axis interferometric phase microscopy for dynamic cell measurements. , 2015, , .		0
121	Dynamic photothermal interferometric phase microscopy. Proceedings of SPIE, 2016, , .	0.8	0
122	Portable Spatially Incoherent Holography for Optical Profiling of Sharp-Edge Objects. , 2016, , .		0
123	Autonomous generation of extended images of dynamic phase objects in a depth volume sample using a simple focusing criterion and K-means clustering. Proceedings of SPIE, 2017, , .	0.8	0
124	Multi-modal and photothermal quantitative phase imaging of living cells with nanoparticles in a combined setup. , 2017, , .		0
125	Fresnel Incoherent Digital Holograms Directly Recorded by Multiple Viewpoint Projections. , 2008, , .		0
126	New Directions in Interferometric Phase Microscopy of Biological Cell Dynamics. , 2010, , .		0

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127	Real-time quantitative phase and dual-channel fluorescence microscopy for studying cellular and biomolecular dynamics. , 2011, , .		0
128	Optical-Mechanical Signatures of Cancer Cells Measured by Interferometry. , 2012, , .		0
129	Cell Life Cycle Characterization Based on Generalized Morphological Parameters for Interferometric Phase Microscopy. , 2012, , .		0
130	Novel Optical Signature for Sickle Cell Trait Red Blood Cells. , 2012, , .		0
131	Phase-Sensitive Optical Coherence Microscopy (OCM). , 2013, , 261-279.		0
132	Low-Coherence, Common-Path, and Dynamic Holographic Microscopy and Nanoscopy Using Portable Systems. , 2013, , .		0
133	Real-Time Unwrapped Phase-Profile Calculation from Off-Axis Holograms using Conventional Computers. , 2014, , .		0
134	New Method for Field of View Extension or Frame-Rate Increase in Low-Coherence Off-Axis Holography. , 2014, , .		0
135	Tomographic phase microscopy using optical tweezers. , 2015, , .		0
136	Using Cell Micro-Manipulation for Holographic Imaging of the 3-D Refractive Index Profiles of Cells in Suspension. , 2016, , .		0
137	Combined 1-D/2-D Phase Unwrapping for Optically Thick Objects in Tomographic Phase Microscopy. , 2016, , .		0
138	GPU-Based Real-Time Processing of 3-D Refractive Index Maps of Biological Cells from Tomographic Phase Microscopy. , 2016, , .		0
139	Solving the Refractive-Index/Thickness Coupling Problem in Digital Holography of Dynamic Biological Cells during Flow using Computational Optics. , 2017, , .		0
140	Live Cell Trapping and Rotation for Label-Free Tomography and 3-D Refractive-Index Imaging. , 2017, , .		0
141	Unwrapping Dynamic Optically Thick Objects in Time- Lapse Tomographic Phase Microscopy. , 2017, , .		0
142	Six-Pack Off-Axis Holographic Multiplexing. , 2018, , .		0
143	Real-Time 3-D Processing and Visualization by Optimal Bandwidth Capacity Interferometry. , 2018, , .		0
144	Quantitative phase microscopy of dynamic cells using off-axis holographic compression by spatial multiplexing. , 2018, , .		0

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145	Label-Free Quantitative Classification of Cancer Cells Measured by Interferometric Phase Microscopy. , 2019, , .		0
146	Digital holography can differentiate between bladder cancer grades.. Journal of Clinical Oncology, 2019, 37, 413-413.	1.6	0
147	Wound healing assay of two competing cell types with dry mass measurement. , 2019, , .		0