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	Dynamic Tomographic Phase Microscopy by Double Six-Pack Holography. ACS Photonics, 2022, 9, 1295-1303.	6.6	15
2	Simultaneous Morphology, Motility, and Fragmentation Analysis of Live Individual Sperm Cells for Male Fertility Evaluation. Advanced Intelligent Systems, 2022, 4, .	6.1	7
3	Prediction of Sperm Progression in Three Dimensions Using Rapid Optical Imaging and Dynamic Mechanical Modeling. Cells, 2022, 11, 1319.	4.1	4
4	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
5	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
6	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
7	Six-pack holographic imaging for dynamic rejection of out-of-focus objects. Optics Express, 2021, 29, 632.	3.4	9
8	Low-Coherence Shearing Interferometry With Constant Off-Axis Angle. Frontiers in Physics, 2021, 8, .	2.1	9
9	Limited-angle tomographic phase microscopy utilizing confocal scanning fluorescence microscopy. Biomedical Optics Express, 2021, 12, 1869.	2.9	14
10	Flipping Interferometric Module for Simultaneous Dual-Wavelength Unwrapping of Quantitative Phase Maps of Biological Cells. Frontiers in Physics, 2021, 9, .	2.1	5
11	Roadmap on digital holography [Invited]. Optics Express, 2021, 29, 35078.	3.4	133
12	Cancer-Cell Deep-Learning Classification by Integrating Quantitative-Phase Spatial and Temporal Fluctuations. Cells, 2021, 10, 3353.	4.1	6
13	Sperm Inspection for In Vitro Fertilization via Self-Assembled Microdroplet Formation and Quantitative Phase Microscopy. Cells, 2021, 10, 3317.	4.1	1
14	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
15	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
16	Cell and nucleus refractiveâ€index mapping by interferometric phase microscopy and rapid confocal fluorescence microscopy. Journal of Biophotonics, 2020, 13, e202000117.	2.3	6
17	Multiplane imaging with extended field-of-view using a quadratically distorted grating. Optics Communications, 2020, 463, 125399.	2.1	3
18	High-resolution 4-D acquisition of freely swimming human sperm cells without staining. Science Advances, 2020, 6, eaay7619.	10.3	38

#	Article	IF	Citations
19	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
20	Off-axis digital holographic multiplexing for rapid wavefront acquisition and processing. Advances in Optics and Photonics, 2020, 12, 556.	25.5	55
21	PhUn-Net: ready-to-use neural network for unwrapping quantitative phase images of biological cells. Biomedical Optics Express, 2020, 11, 1107.	2.9	40
22	Erythrocyte volumetric measurements in imaging flow cytometry using simultaneous three-wavelength digital holographic microscopy. Biomedical Optics Express, 2020, 11, 6649.	2.9	11
23	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
24	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
25	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
26	First experimental realization of six-pack holography and its application to dynamic synthetic aperture superresolution. Optics Express, 2019, 27, 26708.	3.4	25
27	Label-Free Quantitative Classification of Cancer Cells Measured by Interferometric Phase Microscopy. , 2019, , .		0
28	Digital holography can differentiate between bladder cancer grades.. Journal of Clinical Oncology, 2019, 37, 413-413.	1.6	0
29	Wound healing assay of two competing cell types with dry mass measurement. , 2019, , .		0
30	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
31	Individual sperm selection by microfluidics integrated with interferometric phase microscopy. Methods, 2018, 136, 152-159.	3.8	23
32	Deep learning approaches for unwrapping phase images with steep spatial gradients: a simulation. , 2018, , .		5
33	Single-exposure full-field multi-depth imaging using low-coherence holographic multiplexing. Optics Letters, 2018, 43, 2046.	3.3	17
34	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
35	Four dimensional phase unwrapping of dynamic objects in digital holography. Optics Express, 2018, 26, 3772.	3.4	8
36	Wafer defect detection by a polarization-insensitive external differential interference contrast module. Applied Optics, 2018, 57, 3534.	1.8	9

#	Article	IF	Citations
37	Simultaneous three-wavelength unwrapping using external digital holographic multiplexing module. Optics Letters, 2018, 43, 1943.	3.3	45
38	Phase Unwrapping Using Residual Neural Networks. , 2018, , .		24
39	Stainâ€free interferometric phase microscopy correlation with DNA fragmentation stain in human spermatozoa. Journal of Biophotonics, 2018, 11, e201800137.	2.3	10
40	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
41	Simultaneous off-axis multiplexed holography and regular fluorescence microscopy of biological cells. Optics Letters, 2018, 43, 2587.	3.3	19
42	Flipping interferometry with doubled imaging area. Optics Letters, 2018, 43, 5543.	3.3	16
43	Six-Pack Off-Axis Holographic Multiplexing. , 2018, , .		0
44	Real-Time 3-D Processing and Visualization by Optimal Bandwidth Capacity Interferometry. , 2018, , .		0
45	Quantitative phase microscopy of dynamic cells using off-axis holographic compression by spatial multiplexing. , 2018, , .		0
46	Localized measurements of physical parameters within human sperm cells obtained with wideâ€field interferometry. Journal of Biophotonics, 2017, 10, 1305-1314.	2.3	16
47	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
48	Photothermal quantitative phase imaging of living cells with nanoparticles utilizing a cost-efficient setup. Proceedings of SPIE, 2017, , .	0.8	1
49	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
50	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
51	Multi-modal and photothermal quantitative phase imaging of living cells with nanoparticles in a combined setup. , 2017, , .		0
52	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
53	Rapid 3D Refractiveâ€Index Imaging of Live Cells in Suspension without Labeling Using Dielectrophoretic Cell Rotation. Advanced Science, 2017, 4, 1600205.	11.2	88
54	Angular phase unwrapping of optically thick objects with a thin dimension. Optics Express, 2017, 25, 3347.	3.4	5

#	Article	IF	Citations
55	Six-pack off-axis holography. Optics Letters, 2017, 42, 4611.	3.3	46
56	Optimal spatial bandwidth capacity in multiplexed off-axis holography for rapid quantitative phase reconstruction and visualization. Optics Express, 2017, 25, 33400.	3.4	26
57	Compact interferometric module for full-field interferometric phase microscopy with low spatial coherence illumination. Optics Letters, 2017, 42, 1492.	3.3	27
58	Simultaneous two-wavelength phase unwrapping using an external module for multiplexing off-axis holography. Optics Letters, 2017, 42, 73.	3.3	54
59	Solving the Refractive-Index/Thickness Coupling Problem in Digital Holography of Dynamic Biological Cells during Flow using Computational Optics. , 2017, , .		0
60	Live Cell Trapping and Rotation for Label-Free Tomography and 3-D Refractive-Index Imaging. , 2017, , .		0
61	Unwrapping Dynamic Optically Thick Objects in Time- Lapse Tomographic Phase Microscopy. , 2017, , .		0
62	Flipping interferometry and its application for quantitative phase microscopy in a micro-channel. Optics Letters, 2016, 41, 2354.	3.3	64
63	Dynamic photothermal interferometric phase microscopy. Proceedings of SPIE, 2016, , .	0.8	0
64	Portable Spatially Incoherent Holography for Optical Profiling of Sharp-Edge Objects. , 2016, , .		0
65	Video-rate processing in tomographic phase microscopy of biological cells using CUDA. Optics Express, 2016, 24, 11839.	3.4	36
66	Analyzing the texture changes in the quantitative phase maps of adipocytes. , 2016, , .		1
67	Fast phase processing in off-axis holography by CUDA including parallel phase unwrapping. Optics Express, 2016, 24, 3177.	3.4	41
68	Using Cell Micro-Manipulation for Holographic Imaging of the 3-D Refractive Index Profiles of Cells in Suspension. , 2016, , .		0
69	Combined 1-D/2-D Phase Unwrapping for Optically Thick Objects in Tomographic Phase Microscopy. , 2016, , .		0
70	GPU-Based Real-Time Processing of 3-D Refractive Index Maps of Biological Cells from Tomographic Phase Microscopy. , 2016, , .		0
71	Hybrid Reflective Interferometric System Combining Wide-Field and Single-Point Phase Measurements. IEEE Photonics Journal, 2015, 7, 1-13.	2.0	4
72	Dual-modality wide-field photothermal quantitative phase microscopy and depletion of cell populations. , 2015, , .		0

#	Article	IF	Citations
73	Fast processing of quantitative phase profiles from off-axis interferograms for real-time applications. Proceedings of SPIE, 2015, , .	0.8	0
74	Multiplexed off-axis interferometric phase microscopy for dynamic cell measurements. , 2015, , .		0
75	Interferometric phase microscopy for label-free morphological evaluation of sperm cells. Fertility and Sterility, 2015, 104, 43-47.e2.	1.0	39
76	Tomographic phase microscopy with 180Â° rotation of live cells in suspension by holographic optical tweezers. Optics Letters, 2015, 40, 1881.	3.3	172
77	Off-axis interferometer with adjustable fringe contrast based on polarization encoding. Optics Letters, 2015, 40, 2273.	3.3	13
78	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
79	Broadband quantitative phase microscopy with extended field of view using off-axis interferometric multiplexing. Journal of Biomedical Optics, 2015, 20, 1.	2.6	13
80	Prediction of photothermal phase signatures from arbitrary plasmonic nanoparticles and experimental verification. Light: Science and Applications, 2015, 4, e322-e322.	16.6	80
81	Tomographic phase microscopy using optical tweezers. Proceedings of SPIE, 2015, , .	0.8	1
82	Detection and controlled depletion of cancer cells using photothermal phase microscopy. Journal of Biophotonics, 2015, 8, 755-763.	2.3	14
83	Tomographic phase microscopy using optical tweezers. , 2015, , .		0
84	Doubling the field of view in off-axis low-coherence interferometric imaging. Light: Science and Applications, 2014, 3, e151-e151.	16.6	105
85	Off-axis interferometric phase microscopy with tripled imaging area. Optics Letters, 2014, 39, 1525.	3.3	51
86	Real-time processing of off-axis interferograms: from the camera to the user. , 2014, , .		0
87	ITIA: tripling the field-of-view in off-axis interferometric phase microscopy. Proceedings of SPIE, 2014, , .	0.8	0
88	Adipocyte Stiffness Increases with Accumulation of Lipid Droplets. Biophysical Journal, 2014, 106, 1421-1431.	0.5	89
89	Opticalâ€mechanical signatures of cancer cells based on fluctuation profiles measured by interferometry. Journal of Biophotonics, 2014, 7, 624-630.	2.3	36
90	Real-time quantitative phase reconstruction in off-axis digital holography using multiplexing. Optics Letters, 2014, 39, 2262.	3.3	64

#	Article	IF	Citations
91	Portable low-coherence interferometry for quantitatively imaging fast dynamics with extended field of view. Proceedings of SPIE, 2014, , .	0.8	1
92	IDIA: doubling the recorded imaging area or the frame rate in off-axis interferometric microscopy. , 2014, , .		0
93	Reflective interferometric system combining low-coherence spectral-domain phase microscopy and wide-field holography for characterization of thin samples. , 2014, , .		0
94	Real-Time Unwrapped Phase-Profile Calculation from Off-Axis Holograms using Conventional Computers. , 2014, , .		0
95	New Method for Field of View Extension or Frame-Rate Increase in Low-Coherence Off-Axis Holography. , 2014, , .		0
96	Portable low-coherence interferometer for quantitative phase microscopy of live cells. Proceedings of SPIE, 2013, , .	0.8	0
97	Optical-mechanical properties of diseased cells measured by interferometry. , 2013, , .		0
98	Special Section Guest Editorial: Optical Imaging, Sensing, and Light Interactions in Cells and Tissues. Journal of Biomedical Optics, 2013, 18, 111401.	2.6	0
99	Continuous wide-field characterization of drug release from skin substitute using off-axis interferometry. Optics Letters, 2013, 38, 3017.	3.3	16
100	Compact and portable low-coherence interferometer with off-axis geometry for quantitative phase microscopy and nanoscopy. Optics Express, 2013, 21, 5701.	3.4	162
101	Wide-field interferometric phase microscopy with molecular specificity using plasmonic nanoparticles. Journal of Biomedical Optics, 2013, 18, 1.	2.6	21
102	Non-invasive continuous imaging of drug release from soy-based skin equivalent using wide-field interferometry. Proceedings of SPIE, 2013, , .	0.8	0
103	Phase-Sensitive Optical Coherence Microscopy (OCM). , 2013, , 261-279.		0
104	Low-Coherence, Common-Path, and Dynamic Holographic Microscopy and Nanoscopy Using Portable Systems. , 2013, , .		0
105	Quantitative phase microscopy of biological samples using a portable interferometer. Optics Letters, 2012, 37, 2016.	3.3	195
106	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
107	Dual-channel low-coherence interferometry and its application to quantitative phase imaging of fingerprints. Optics Express, 2012, 20, 26906.	3.4	40
108	Dynamic quantitative microscopy and nanoscopy of red blood cells in sickle cell disease. Proceedings of SPIE, 2012, , .	0.8	1

#	Article	IF	Citations
109	Optical phase measurements in red blood cells using low-coherence spectroscopy. Proceedings of SPIE, 2012, , .	0.8	3
110	Parallel decomposition of combinatorial optimization problems using electro-optical vector by matrix multiplication architecture. Journal of Supercomputing, 2012, 62, 633-655.	3.6	5
111	Optical phase nanoscopy in red blood cells using low-coherence spectroscopy. Journal of Biomedical Optics, 2012, 17, 101509.	2.6	29
112	Optical-Mechanical Signatures of Cancer Cells Measured by Interferometry. , 2012, , .		0
113	Cell Life Cycle Characterization Based on Generalized Morphological Parameters for Interferometric Phase Microscopy. , 2012, , .		0
114	Novel Optical Signature for Sickle Cell Trait Red Blood Cells. , 2012, , .		0
115	Spectral-domain differential interference contrast microscopy. Optics Letters, 2011, 36, 430.	3.3	18
116	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
117	Quantitative analysis of three-dimensional biological cells using interferometric microscopy. , 2011, , .		0
118	Whole cell imaging based on wide-field interferometric phase microscopy and its application to cardiomyocytes. , 2011, , .		2
119	Quantitative Phase Microscopy of Biological Cell Dynamics by Wide-Field Digital Interferometry. Springer Series in Surface Sciences, 2011, , 169-198.	0.3	3
120	Real-time quantitative phase and dual-channel fluorescence microscopy for studying cellular and biomolecular dynamics. , 2011, , .		0
121	Quantitative phase microscopy of articular chondrocyte dynamics by wide-field digital interferometry. Journal of Biomedical Optics, 2010, 15, 1.	2.6	50
122	Reflective interferometric chamber for quantitative phase imaging of biological sample dynamics. Journal of Biomedical Optics, 2010, 15, 030503.	2.6	54
123	Quantitative Phase Microscopy of Live Biological Cell Dynamics. , 2010, , .		0
124	Dynamic Adhesion of Umbilical Cord Blood Endothelial Progenitor Cells under Laminar Shear Stress. Biophysical Journal, 2010, 99, 3545-3554.	0.5	29
125	Parallel on-axis holographic phase microscopy of biological cells and unicellular microorganism dynamics. Applied Optics, 2010, 49, 2872.	2.1	54
126	Whole-cell-analysis of live cardiomyocytes using wide-field interferometric phase microscopy. Biomedical Optics Express, 2010, 1, 706.	2.9	110

#	Article	IF	Citations
127	Simultaneous two-wavelength transmission quantitative phase microscopy with a color camera. Optics Letters, 2010, 35, 2612.	3.3	62
128	New Directions in Interferometric Phase Microscopy of Biological Cell Dynamics. , 2010, , .		0
129	Incoherent holographic imaging through thin turbulent media. Optics Communications, 2009, 282, 1546-1550.	2.1	2
130	Dual-interference-channel quantitative-phase microscopy of live cell dynamics. Optics Letters, 2009, 34, 767.	3.3	182
131	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
132	Two-step-only phase-shifting interferometry with optimized detector bandwidth for microscopy of live cells. Optics Express, 2009, 17, 15585.	3.4	162
133	Review of three-dimensional holographic imaging by multiple-viewpoint-projection based methods. Applied Optics, 2009, 48, H120.	2.1	106
134	Combinatorial Optimization Using Electro-Optical Vector by Matrix Multiplication Architecture. Lecture Notes in Computer Science, 2009, , 130-143.	1.3	3
135	A Review of Incoherent Digital Fresnel Holography. Journal of Holography and Speckle, 2009, 5, 124-140.	0.1	25
136	Fluorescence multicolor hologram recorded by using a macrolens array. Optics Letters, 2008, 33, 1461.	3.3	5
137	Modified Fresnel computer-generated hologram directly recorded by multiple-viewpoint projections. Applied Optics, 2008, 47, D21.	2.1	32
138	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
139	Three-dimensional object recognition using a quasi-correlator invariant to imaging distances. Optics Express, 2008, 16, 17148.	3.4	3
140	Holography of incoherently illuminated 3D scenes. , 2008, , .		0
141	Fresnel Incoherent Digital Holograms Directly Recorded by Multiple Viewpoint Projections. , 2008, , .		0
142	Optical binary-matrix synthesis for solving bounded NP-complete combinatorial problems. Optical Engineering, 2007, 46, 108201.	1.0	13
143	Integral holography: white-light single-shot hologram acquisition. Optics Express, 2007, 15, 5754.	3.4	67
144	Synthesizing computer generated holograms with reduced number of perspective projections. Optics Express, 2007, 15, 13250.	3.4	30

#	Article	IF	Citations
145	Optical solution for bounded NP-complete problems. Applied Optics, 2007, 46, 711.	2.1	53
146	Optical processor for solving the traveling salesman problem (TSP). , 2006, , .		1
147	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