

Omer Oralkan

List of Publications by Year in descending order

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143
papers

5,563
citations

136950

32
h-index

95266

68
g-index

145
all docs

145
docs citations

145
times ranked

4931
citing authors

#	ARTICLE	IF	CITATIONS
1	Carbon nanotubes as photoacoustic molecular imaging agents in living mice. Nature Nanotechnology, 2008, 3, 557-562.	31.5	1,215
2	Capacitive micromachined ultrasonic transducers: next-generation arrays for acoustic imaging?. IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control, 2002, 49, 1596-1610.	3.0	413
3	Precise Neural Stimulation in the Retina Using Focused Ultrasound. Journal of Neuroscience, 2013, 33, 4550-4560.	3.6	243
4	Capacitive micromachined ultrasonic transducers for medical imaging and therapy. Journal of Micromechanics and Microengineering, 2011, 21, 054004.	2.6	240
5	Capacitive micromachined ultrasonic transducers: fabrication technology. IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control, 2005, 52, 2242-2258.	3.0	212
6	Integration of 2D CMUT arrays with front-end electronics for volumetric ultrasound imaging. IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control, 2008, 55, 327-342.	3.0	193
7	Flexible Technologies for Self-Powered Wearable Health and Environmental Sensing. Proceedings of the IEEE, 2015, 103, 665-681.	21.3	166
8	Volumetric ultrasound imaging using 2-D CMUT arrays. IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control, 2003, 50, 1581-1594.	3.0	161
9	Low-Power Wearable Systems for Continuous Monitoring of Environment and Health for Chronic Respiratory Disease. IEEE Journal of Biomedical and Health Informatics, 2016, 20, 1251-1264.	6.3	159
10	An integrated circuit with transmit beamforming flip-chip bonded to a 2-D CMUT array for 3-D ultrasound imaging. IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control, 2009, 56, 2145-2156.	3.0	133
11	Minimally Redundant 2-D Array Designs for 3-D Medical Ultrasound Imaging. IEEE Transactions on Medical Imaging, 2009, 28, 1051-1061.	8.9	131
12	Editorsâ€™ Choiceâ€™Critical Reviewâ€™A Critical Review of Solid State Gas Sensors. Journal of the Electrochemical Society, 2020, 167, 037570.	2.9	112
13	3-D ultrasound imaging using a forward-looking CMUT ring array for intravascular/intracardiac applications. IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control, 2006, 53, 1202-1211.	3.0	109
14	Three-dimensional photoacoustic imaging using a two-dimensional CMUT array. IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control, 2009, 56, 2411-2419.	3.0	87
15	Integrated Circuits for Volumetric Ultrasound Imaging With 2-D CMUT Arrays. IEEE Transactions on Biomedical Circuits and Systems, 2013, 7, 796-804.	4.0	82
16	Fabrication of Flexible Transducer Arrays With Through-Wafer Electrical Interconnects Based on Trench Refilling With PDMS. Journal of Microelectromechanical Systems, 2008, 17, 446-452.	2.5	77
17	Deep Tissue Photoacoustic Imaging Using a Miniaturized 2-D Capacitive Micromachined Ultrasonic Transducer Array. IEEE Transactions on Biomedical Engineering, 2012, 59, 1199-1204.	4.2	73
18	Dynamic Response of Model Lipid Membranes to Ultrasonic Radiation Force. PLoS ONE, 2013, 8, e77115.	2.5	69

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19	Finite element modeling and experimental characterization of crosstalk in 1-D CMUT arrays. IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control, 2007, 54, 418-430.	3.0	68
20	A three-mask process for fabricating vacuum-sealed capacitive micromachined ultrasonic transducers using anodic bonding. IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control, 2015, 62, 972-982.	3.0	68
21	Capacitive micromachined ultrasonic transducer design for high power transmission. IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control, 2005, 52, 326-339.	3.0	67
22	Experimental characterization of collapse-mode CMUT operation. IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control, 2006, 53, 1513-1523.	3.0	67
23	Chemical Vapor Detection Using a Capacitive Micromachined Ultrasonic Transducer. Analytical Chemistry, 2011, 83, 9314-9320.	6.5	60
24	Capacitive micromachined ultrasonic transducer (CMUT) as a chemical sensor for DMMP detection. Sensors and Actuators B: Chemical, 2011, 160, 1120-1127.	7.8	59
25	Silicon Micromachined Ultrasonic Transducers. Japanese Journal of Applied Physics, 2000, 39, 2883-2887.	1.5	54
26	Next-gen ultrasound. IEEE Spectrum, 2009, 46, 44-54.	0.7	51
27	Medical imaging using capacitive micromachined ultrasonic transducer arrays. Ultrasonics, 2002, 40, 471-476.	3.9	41
28	A comparison between conventional and collapse-mode capacitive micromachined ultrasonic transducers in 10-MHz 1-D arrays. IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control, 2013, 60, 1245-1255.	3.0	40
29	A Low-Power Wireless Multichannel Gas Sensing System Based on a Capacitive Micromachined Ultrasonic Transducer (CMUT) Array. IEEE Internet of Things Journal, 2019, 6, 831-843.	8.7	39
30	Forward-looking intracardiac ultrasound imaging using a 1-D CMUT array integrated with custom front-end electronics. IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control, 2008, 55, 2651-2660.	3.0	38
31	A Multichannel Oscillator for a Resonant Chemical Sensor System. IEEE Transactions on Industrial Electronics, 2014, 61, 5632-5640.	7.9	36
32	Differentiation Between Electric Breakdowns and Dielectric Breakdown in Thin Silicon Oxides. Journal of the Electrochemical Society, 1998, 145, 1033-1038.	2.9	35
33	Integration of trench-isolated through-wafer interconnects with 2d capacitive micromachined ultrasonic transducer arrays. Sensors and Actuators A: Physical, 2007, 138, 221-229.	4.1	34
34	Nonuniqueness of time-dependent-dielectric-breakdown distributions. Applied Physics Letters, 1997, 71, 3682-3684.	3.3	33
35	Wafer-bonded 2-D CMUT arrays incorporating through-wafer trench-isolated interconnects with a supporting frame. IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control, 2009, 56, 182-192.	3.0	33
36	Volumetric real-time imaging using a CMUT ring array. IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control, 2012, 59, 1201-1211.	3.0	33

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37	Forward-looking volumetric intracardiac imaging using a fully integrated CMUT ring array. , 2009, , .		31
38	Dynamic analysis of capacitive micromachined ultrasonic transducers. IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control, 2005, 52, 2270-2275.	3.0	29
39	Fabrication of Vacuum-Sealed Capacitive Micromachined Ultrasonic Transducers With Through-Glass-Via Interconnects Using Anodic Bonding. Journal of Microelectromechanical Systems, 2017, 26, 226-234.	2.5	26
40	First In Vivo Use of a Capacitive Micromachined Ultrasound Transducer Array-Based Imaging and Ablation Catheter. Journal of Ultrasound in Medicine, 2012, 31, 247-256.	1.7	25
41	GPU-Based Real-Time Volumetric Ultrasound Image Reconstruction for a Ring Array. IEEE Transactions on Medical Imaging, 2013, 32, 1258-1264.	8.9	25
42	Backward-Mode Photoacoustic Imaging Using Illumination Through a CMUT With Improved Transparency. IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control, 2018, 65, 85-94.	3.0	25
43	CMUT as a chemical sensor for DMMP detection. , 2008, , .		23
44	Coherent array imaging using phased subarrays. Part II: simulations and experimental results. IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control, 2005, 52, 51-64.	3.0	22
45	High-frequency CMUT arrays for high-resolution medical imaging. , 2005, 5750, 87.		21
46	Experimental Studies With a 9F Forward-Looking Intracardiac Imaging and Ablation Catheter. Journal of Ultrasound in Medicine, 2009, 28, 207-215.	1.7	21
47	Design optimization for a 2-D sparse transducer array for 3-D ultrasound imaging. , 2010, 2010, 1928-1931.		20
48	A Wearable Ultrasonic Neurostimulator-Part II: A 2D CMUT Phased Array System With a Flip-Chip Bonded ASIC. IEEE Transactions on Biomedical Circuits and Systems, 2021, 15, 705-718.	4.0	20
49	The feasibility of using thermal strain imaging to regulate energy delivery during intracardiac radio-frequency ablation. IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control, 2011, 58, 1406-1417.	3.0	19
50	3D volumetric ultrasound imaging with a 32×32 CMUT array integrated with front-end ICs using flip-chip bonding technology. , 2013, , .		19
51	Fabrication of 2D Capacitive Micromachined Ultrasonic Transducer (CMUT) Arrays on Insulating Substrates With Through-Wafer Interconnects Using Sacrificial Release Process. Journal of Microelectromechanical Systems, 2020, 29, 553-561.	2.5	18
52	Multi-row linear cMUT array using cMUTs and multiplexing electronics. , 2009, , .		17
53	Forward-looking intracardiac imaging catheters using fully integrated CMUT arrays. , 2010, , .		17
54	Entrainment of cerebellar Purkinje cell spiking activity using pulsed ultrasound stimulation. Brain Stimulation, 2021, 14, 598-606.	1.6	17

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55	Dual-mode integrated circuit for imaging and HIFU with 2-D CMUT arrays. , 2015, , .		16
56	An Improved CMUT Structure Enabling Release and Collapse of the Plate in the Same Tx/Rx Cycle for Dual-Frequency Acoustic Angiography. IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control, 2020, 67, 2291-2302.	3.0	16
57	Capacitive micromachined ultrasonic transducers (CMUTs) for photoacoustic imaging. , 2006, , .		15
58	Design of HIFU CMUT Arrays for Treatment of Liver and Renal Cancer. AIP Conference Proceedings, 2007, , .	0.4	14
59	Two-dimensional capacitive micromachined ultrasonic transducer (CMUT) arrays for a miniature integrated volumetric ultrasonic imaging system. , 2005, , .		13
60	Electric breakdowns and breakdown mechanisms in ultra-thin silicon oxides. Microelectronics Reliability, 1999, 39, 171-179.	1.7	12
61	Beamforming and hardware design for a multichannel front-end integrated circuit for real-time 3D catheter-based ultrasonic imaging. , 2006, 6147, 89.		12
62	Photoacoustic Imaging of the Bladder. Journal of Ultrasound in Medicine, 2013, 32, 1245-1250.	1.7	12
63	A Wearable Ultrasonic Neurostimulator - Part I: A 1D CMUT Phased Array System for Chronic Implantation in Small Animals. IEEE Transactions on Biomedical Circuits and Systems, 2021, 15, 692-704.	4.0	12
64	Wideband acoustic activation and detection of droplet vaporization events using a capacitive micromachined ultrasonic transducer. Journal of the Acoustical Society of America, 2016, 139, 3193-3198.	1.1	11
65	A Low-Power Wearable E-Nose System Based on a Capacitive Micromachined Ultrasonic Transducer (CMUT) Array for Indoor VOC Monitoring. IEEE Sensors Journal, 2021, 21, 19684-19696.	4.7	11
66	Capacitive Micromachined Ultrasonic Transducer Arrays for Integrated Diagnostic/Therapeutic Catheters. AIP Conference Proceedings, 2006, , .	0.4	10
67	Photoacoustic-imaging-based temperature monitoring for high-intensity focused ultrasound therapy. , 2016, 2016, 3235-3238.		10
68	An FPGA-Based Backend System for Intravascular Photoacoustic and Ultrasound Imaging. IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control, 2019, 66, 45-56.	3.0	10
69	Design and Fabrication of Wideband Air-Coupled Capacitive Micromachined Ultrasonic Transducers With Varying Width Annular-Ring and Spiral Cell Structures. IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control, 2021, 68, 2749-2759.	3.0	10
70	A miniature real-time volumetric ultrasound imaging system. , 2005, 5750, 26.		9
71	Real-time volumetric imaging system for CMUT arrays. , 2011, , .		9
72	Photoacoustic imaging using a 9F microLinear CMUT ICE catheter. , 2012, , .		9

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73	GPU-based real-time imaging software suite for medical ultrasound. , 2013, , .		9
74	Transcranial Neuromodulation Array With Imaging Aperture for Simultaneous Multifocus Stimulation in Nonhuman Primates. IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control, 2022, 69, 261-272.	3.0	9
75	3-D Deep penetration photoacoustic imaging with a 2-D CMUT array. , 2010, 2010, 375-377.		8
76	Zero-bias resonant sensor with an oxide-nitride layer as charge trap. , 2010, , .		8
77	A Sub-Millimeter Lateral Resolution Ultrasonic Beamforming System for Brain Stimulation in Behaving Animals. , 2019, 2019, 6462-6465.		8
78	A Row-Column (RC) Addressed 2-D Capacitive Micromachined Ultrasonic Transducer (CMUT) Array on a Glass Substrate. IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control, 2021, 68, 767-776.	3.0	8
79	A Handheld Imaging Probe for Acoustic Angiography With an Ultrawideband Capacitive Micromachined Ultrasonic Transducer (CMUT) Array. IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control, 2022, 69, 2318-2330.	3.0	8
80	A 32x32 integrated CMUT array for volumetric ultrasound imaging. , 2013, , .		7
81	Integration of a dual-mode catheter for ultrasound image guidance and HIFU ablation using a 2-D CMUT array. , 2017, , .		7
82	Electronic nose system based on a functionalized capacitive micromachined ultrasonic transducer (CMUT) array for selective detection of plant volatiles. Sensors and Actuators B: Chemical, 2021, 341, 130001.	7.8	7
83	Miniaturized ultrasound imaging probes enabled by CMUT arrays with integrated frontend electronic circuits. , 2010, 2010, 5987-90.		6
84	Miniaturized, wearable, ultrasound probe for on-demand ultrasound screening. , 2011, , .		6
85	An optically transparent capacitive micromachined ultrasonic transducer (CMUT) fabricated using SU-8 or BCB adhesive wafer bonding. , 2017, , .		6
86	A Fast-Switching (1.35- μs) Low-Control-Voltage (2.5-V) MEMS T/R Switch Monolithically Integrated With a Capacitive Micromachined Ultrasonic Transducer. Journal of Microelectromechanical Systems, 2018, 27, 190-200.	2.5	6
87	Towards an Untethered Ultrasound Beamforming System for Brain Stimulation in Behaving Animals. , 2018, 2018, 1596-1599.		6
88	Flexible transducer arrays with through-wafer electrical interconnects based on trench refilling with PDMS. , 2007, , .		5
89	The effect of parallelism of CMUT cells on phase noise for chem/bio sensor applications. , 2008, , .		5
90	Fabrication of anodically bonded capacitive micromachined ultrasonic transducers with vacuum-sealed cavities. , 2014, , .		5

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91	Fabrication of capacitive micromachined ultrasonic transducers with through-glass-via interconnects. , 2015, , .		5
92	2D CMUT array based ultrasonic micromanipulation platform. , 2016, , .		5
93	Design and Fabrication of High-Frequency Ultra-Wideband 1D CMUT Arrays for Acoustic Angiography Applications - Preliminary Results. , 2018, , .		5
94	Optimizing the energy balance to achieve autonomous self-powering for vigilant health and IoT applications. Journal of Physics: Conference Series, 2019, 1407, 012001.	0.4	5
95	A family of intracardiac ultrasound imaging devices designed for guidance of electrophysiology ablation procedures. , 2009, 2009, 1913-7.		4
96	Photoacoustic molecular imaging using single walled carbon nanotubes in living mice. , 2009, , .		4
97	Simulating capacitive micromachined ultrasonic transducers (CMUTs) using field II. , 2010, , .		4
98	Volumetric intracardiac imaging using a fully integrated CMUT ring array: Recent developments. , 2011, , .		4
99	A MEMS T/R switch embedded in CMUT structure for ultrasound imaging frontends. , 2016, , .		4
100	A front-end integrated circuit for a 2D capacitive micromachined ultrasound transducer (CMUT) array as a noninvasive neural stimulator. , 2017, , .		4
101	A handheld 1D transparent CMUT array probe for photoacoustic imaging: Preliminary results. , 2017, , .		4
102	An Ultrasonic Energy Harvesting IC Providing Adjustable Bias Voltage for Pre-Charged CMUT. IEEE Transactions on Biomedical Circuits and Systems, 2022, 16, 842-851.	4.0	4
103	Capacitive micromachined ultrasonic transducer as a chemical sensor. , 2008, , .		3
104	Design of high-frequency broadband CMUT arrays. , 2015, , .		3
105	Fabrication of 32 Å– 32 2D Capacitive Micromachined Ultrasonic Transducer (CMUT) Arrays on a Borosilicate Glass Substrate With Silicon-Through-Wafer Interconnects Using Sacrificial Release Process. Journal of Microelectromechanical Systems, 2021, 30, 968-979.	2.5	3
106	Soybean Cyst Nematodes Influence Aboveground Plant Volatile Signals Prior to Symptom Development. Frontiers in Plant Science, 2021, 12, 749014.	3.6	3
107	Design and Fabrication of 1D CMUT Arrays for Dual-Mode Acoustic Angiography Applications - Preliminary Results. , 2021, , .		3
108	A 2D Ultrasonic Transmit Phased Array Based on a 32x32 CMUT Array Flip-Chip Bonded to an ASIC for Neural Stimulation. , 2020, , .		3

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109	Capacitive micromachined ultrasonic transducer technology for medical ultrasound imaging. , 2005, , .		2
110	Investigating large 2D arrays for photoacoustic and acoustic imaging using CMUT technology. , 2008, , .		2
111	Ultrasound compatible RF ablation electrode design for catheter based guidance of RF ablation — In vivo results with thermal strain imaging. , 2010, , .		2
112	Monitoring radiofrequency catheter ablation using thermal strain imaging. , 2010, , .		2
113	An ultrasound-based noninvasive neural interface to the retina. , 2014, , .		2
114	CMUTs on glass with ITO bottom electrodes for improved transparency. , 2016, , .		2
115	Improved CMUT structure and method of operation for dual-frequency acoustic angiography. , 2017, , .		2
116	A Row-Column (RC) Addressed 2D Capacitive Micromachined Ultrasonic Transducer (CMUT) Array on a Glass Substrate: Preliminary Results. , 2018, 2018, 1-4.		2
117	Design and Implementation of Wideband CMUTs for Airborne Applications - Preliminary Results. , 2018, , .		2
118	Design of Pre-Charged CMUTs with a Metal Floating Gate. , 2021, , .		2
119	An Ultra-Wideband Capacitive Micromachined Ultrasonic Transducer (CMUT) Array for Acoustic Angiography: Preliminary Results. , 2020, , .		2
120	Enhanced sensitivity carbon nanotubes as targeted photoacoustic molecular imaging agents. Proceedings of SPIE, 2009, , .	0.8	1
121	Multi-wavelength photoacoustic imaging for monitoring lesion formation during high-intensity focused ultrasound therapy. Proceedings of SPIE, 2017, , .	0.8	1
122	A high-frequency and high-frame-rate ultrasound imaging system design on an FPGA evaluation board for capacitive micromachined ultrasonic transducer arrays. , 2017, , .		1
123	A high-frequency and high-frame-rate ultrasound imaging system design for capacitive micromachined ultrasonic transducer arrays on an FPGA evaluation board. , 2017, , .		1
124	A handheld 1D transparent CMUT array probe for photoacoustic imaging. , 2017, , .		1
125	An optically transparent air-coupled capacitive micromachined ultrasonic transducer (CMUT) fabricated using adhesive bonding. , 2017, , .		1
126	Ultrasound-Based Post-Endovascular Aneurysm Repair (EVAR) Monitoring Device. , 2019, , .		1

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127	A 2D Capacitive Micromachined Ultrasonic Transducer (CMUT) Array with Through-Glass-Via Interconnects Fabricated Using Sacrificial Etching Process. , 2019, , .		1
128	Implementing a 32 x 32 2D Capacitive Micromachined Ultrasonic Transducer (CMUT) Array Incorporating Silicon-Through-Glass-Via (Si-TGV) Interconnects. , 2020, , .		1
129	Forming an Annular Array from 2D Capacitive Micromachined Ultrasonic Transducer (CMUT) Array Elements by Using a Metal Redistribution Layer. , 2020, , .		1
130	An ultrasonic volumetric scanner for image-guided surgery. International Congress Series, 2001, 1230, 190-196.	0.2	0
131	Regulating energy delivery during intracardiac radiofrequency ablation using thermal strain imaging. , 2011, , .		0
132	Ultrasound-Induced Currents in Planar Lipid Blayers: Origins and Potential Physiological Significance. Biophysical Journal, 2012, 102, 34a.	0.5	0
133	Notice of Removal: Integration of percutaneous cardiac catheter for HIFU ablation and image guidance. , 2017, , .		0
134	Notice of Removal: Adaptation of the acoustic angiography technique for use with a capacitive micromachined ultrasound transducer (CMUT). , 2017, , .		0
135	A front-end integrated circuit for a 2D capacitive micromachined ultrasound transducer (CMUT) array for a noninvasive neural interface to the retina. , 2017, , .		0
136	Improved CMUT structure and method of operation for dual-frequency acoustic angiography. , 2017, , .		0
137	Ultrasound Transmission through a Flexible Printed Circuit Board Bonded to the Front Side of a Capacitive Micromachined Ultrasonic Transducer Array: Feasibility Study. , 2019, , .		0
138	Ultrasound Transmission through a Flexible Printed Circuit Board Bonded to the Front Side of a Capacitive Micromachined Ultrasonic Transducer Array: Feasibility Study. , 2019, , .		0
139	Anodically Bonded CMUT with a Two-Layer Bottom Electrode for Increased Reliability and Reduced Parasitic Capacitance. , 2019, , .		0
140	Ultrasound-Based Post-Endovascular Aneurysm Repair (EVAR) Monitoring Device. , 2019, , .		0
141	Guest Editorial Special Issue on Selected Papers From the IEEE Sensors Conference 2018. IEEE Sensors Journal, 2020, 20, 6792-6793.	4.7	0
142	Innovations in Ultrasound Instrumentation for Image Guidance. , 2014, , 163-171.		0
143	Design and Fabrication of Single-Element CMUTs for Forming a Transcranial Array for Focused Beam Applications. , 2021, , .		0