Federica A Villa

List of Publications by Year
in descending order

132 papers	3,177 citations	201674 27 h-index	168389 53 g-index
137 all docs	137 docs citations	137 times ranked	2468 citing authors

#	Article	IF	Citations
1	Range-Finding SPAD Array With Smart Laser-Spot Tracking and TDC Sharing for Background Suppression. IEEE Open Journal of the Solid-State Circuits Society, 2022, 2, 26-37.	2.7	8
2	SPAD Pixel With Sub-NS Dead-Time for High-Count Rate Applications. IEEE Journal of Selected Topics in Quantum Electronics, 2022, 28, 1-8.	2.9	19
3	Multi-Channel SPAD Chip for Silicon Photonics With Multi-Photon CoIncidence Detection. IEEE Journal of Selected Topics in Quantum Electronics, 2022, 28, 1-7.	2.9	6
4	Fast Skin Segmentation on Low-Resolution Grayscale Images for Remote PhotoPlethysmoGraphy. IEEE MultiMedia, 2022, 29, 28-35.	1.7	2
5	SPAD Sensors for Time-Gated Raman Spectroscopy. , 2022, , .		0
6	Confocal-based fluorescence fluctuation spectroscopy with a SPAD array detector. Light: Science and Applications, 2021, 10, 31.	16.6	37
7	Time-gated 128x1 and 8x8 SPAD cameras for 2D photon-counting and 3D time-of-flight maps. , 2021, , .		1
8	Spot Tracking and TDC Sharing in SPAD Arrays for TOF LiDAR. Sensors, 2021, 21, 2936.	3.8	9
9	Single Photon Avalanche Diode Arrays for Quantum Imaging and Microscopy. Advanced Quantum Technologies, 2021, 4, 2100005.	3.9	25
10	Protective Measurementâ€"A New Quantum Measurement Paradigm: Detailed Description of the First Realization. Applied Sciences (Switzerland), 2021, 11, 4260.	2.5	2
11	Analysis of a quantum imaging system based on SPAD detection. , 2021, , .		0
12	SPADs and SiPMs Arrays for Long-Range High-Speed Light Detection and Ranging (LiDAR). Sensors, 2021, 21, 3839.	3.8	83
13	Single Photon Avalanche Diode Arrays for Time-Resolved Raman Spectroscopy. Sensors, 2021, 21, 4287.	3.8	22
14	Enhanced Quantum Imaging SPAD arrays. , 2021, , .		0
15	Cooled SPAD array detector for low light-dose fluorescence laser scanning microscopy. Biophysical Reports, 2021, 1, 100025.	1.2	7
16	Linear SPAD array single- and multiple-photon coincidence- based Quantum Random Number Generator. , 2021, , .		0
17	Multi-photon coincidence-detection SPAD array for super-resolution microscopy. , 2021, , .		0
18	SPAD 3D LiDAR sensors for automotive, industrial automation and surveillance. , 2021, , .		1

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19	32Ã—32 SPAD camera for 2D photon-counting and 3D time-of-flight ranging. , 2021, , .		0
20	Towards low timing jitter photon number-resolved Digital Silicon Photomultiplier. , 2021, , .		0
21	Large-Area, Fast-Gated Digital SiPM With Integrated TDC for Portable and Wearable Time-Domain NIRS. IEEE Journal of Solid-State Circuits, 2020, 55, 3097-3111.	5.4	21
22	High Detection Rate Fast-Gated CMOS Single-Photon Avalanche Diode Module. IEEE Photonics Journal, 2020, 12, 1-12.	2.0	6
23	Imaging and certifying high-dimensional entanglement with a single-photon avalanche diode camera. Npj Quantum Information, 2020, 6, .	6.7	37
24	Biometric Signals Estimation Using Single Photon Camera and Deep Learning. Sensors, 2020, 20, 6102.	3.8	7
25	Real-time multispectral fluorescence lifetime imaging using Single Photon Avalanche Diode arrays. Scientific Reports, 2020, 10, 8116.	3.3	24
26	Fast-Gated 16 Ã— 1 SPAD Array for Non-Line-of-Sight Imaging Applications. Instruments, 2020, 4, 14.	1.8	16
27	Single-Photon Detectors Modeling and Selection Criteria for High-Background LiDAR. IEEE Sensors Journal, 2020, 20, 7021-7032.	4.7	19
28	Deep skin detection on low resolution grayscale images. Pattern Recognition Letters, 2020, 131, 322-328.	4.2	15
29	High concentration factor diffractive microlenses integrated with CMOS single-photon avalanche diode detector arrays for fill-factor improvement. Applied Optics, 2020, 59, 4488.	1.8	19
30	Two-photon image-scanning microscopy with SPAD array and blind image reconstruction. Biomedical Optics Express, 2020, 11, 2905.	2.9	33
31	SPAD-based asynchronous-readout array detectors for image-scanning microscopy. Optica, 2020, 7, 755.	9.3	37
32	Spatial images from temporal data. Optica, 2020, 7, 900.	9.3	23
33	Wearable, low-cost device for monitoring cerebral blood flow with speckle contrast optical spectroscopy. , 2020, , .		0
34	Obtaining Images by Measuring Time. Optics and Photonics News, 2020, 31, 50.	0.5	0
35	Microelectronic 3D Imaging and Neuromorphic Recognition for Autonomous UAVs. NATO Science for Peace and Security Series B: Physics and Biophysics, 2020, , 185-194.	0.3	2
36	A multipixel diffuse correlation spectroscopy system based on a single photon avalanche diode array. Journal of Biophotonics, 2019, 12, e201900091.	2.3	19

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37	Remote PhotoPlethysmoGraphy Using SPAD Camera for Automotive Health Monitoring Application. , 2019, , .		2
38	Multispectral Depth-Resolved Fluorescence Lifetime Spectroscopy Using SPAD Array Detectors and Fiber Probes. Sensors, 2019, 19, 2678.	3.8	6
39	Gated SPAD Arrays for Single-Photon Time-Resolved Imaging and Spectroscopy. IEEE Photonics Journal, 2019, 11, 1-10.	2.0	13
40	A robust and versatile platform for image scanning microscopy enabling super-resolution FLIM. Nature Methods, 2019, 16, 175-178.	19.0	132
41	3D RGB Non-Line-Of-Sight single-pixel imaging. , 2019, , .		5
42	Time-gated SPAD camera with reconfigurable macropixels for LIDAR applications. , 2019, , .		2
43	32 Ã— 32 CMOS SPAD Imager for Gated Imaging, Photon Timing, and Photon Coincidence. IEEE Journal of Selected Topics in Quantum Electronics, 2018, 24, 1-6.	2.9	45
44	A 20 A Sub-Nanosecond Integrated CMOS Laser Diode Driver for High Repetition Rate SPAD-Based Direct Time-of-Flight Measurements. , 2018, , .		3
45	A novel sub-10 ps resolution TDC for CMOS SPAD array. , 2018, , .		7
46	SPADs and TDCs for photon-counting, timing and gated-imaging at 30 ps resolution and 60% efficiency. , 2018, , .		2
47	High-Speed Low-Power 4 Channel Laser Diode Driver for Pico-Projector Application. , 2018, , .		0
48	Compact, multi-exposure speckle contrast optical spectroscopy (SCOS) device for measuring deep tissue blood flow. Biomedical Optics Express, 2018, 9, 322.	2.9	41
49	Investigating the Effects of the Interaction Intensity in a Weak Measurement. Scientific Reports, 2018, 8, 6959.	3.3	16
50	DarkSide-20k: A 20 tonne two-phase LAr TPC for direct dark matter detection at LNGS. European Physical Journal Plus, 2018, 133, 1.	2.6	247
51	DEIS: Dependability Engineering Innovation for Industrial CPS. Lecture Notes in Mobility, 2018, , 151-163.	0.2	7
52	Single-Photon Avalanche Diodes in a 0.16 Î¼m BCD Technology With Sharp Timing Response and Red-Enhanced Sensitivity. IEEE Journal of Selected Topics in Quantum Electronics, 2018, 24, 1-9.	2.9	73
53	Image scanning microscopy (ISM) with a single photon avalanche diode (SPAD) array detector. , 2018, , .		1
54	Compact, Low Power Consumption and Low cost Multi-exposure Speckle Contrast Optical Spectroscopy (SCOS) device for Real-time Measurement of Deep Tissue Blood Flow. , 2018, , .		0

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55	Time-gated CMOS SPAD array in 0.16 Âµm BCD with shared timing electronics and background light rejection for LIDAR applications. , 2018, , .		1
56	Protective measurements: extracting the expectation value by measuring a single particle. , 2018, , .		0
57	0.16 Âµm BCD single-photon avalanche diode with 30 ps timing jitter, high detection efficiency and low noise. , 2018, , .		2
58	Quantum weak-interaction-based measurement: from sequential weak measurement to protective measurement. , 2018, , .		0
59	Time-resolved CMOS SPAD arrays: architectures, applications and perspectives. , 2017, , .		2
60	Non-Contact Inclusion Detection in Food Through a Single-Photon Time-of-Flight Imager. IEEE Sensors Journal, 2017, 17, 78-83.	4.7	3
61	Miniaturized 64-channel single-photon timing system. , 2017, , .		1
62	3D SPAD camera for Advanced Driver Assistance. , 2017, , .		2
63	Determining the quantum expectation value by measuring a single photon. Nature Physics, 2017, 13, 1191-1194.	16.7	43
64	Weak measurements: From measuring incompatible observables and testing quantum contextuality to protective measurements. , 2017, , .		0
65	Anomalous weak values and the violation of a multiple-measurement Leggett-Garg inequality. Physical Review A, 2017, 96, .	2.5	26
66	Cryogenic Characterization of FBK RGB-HD SiPMs. Journal of Instrumentation, 2017, 12, P09030-P09030.	1.2	16
67	Conformational dynamics in TRPV1 channels reported by an encoded coumarin amino acid. ELife, 2017, 6, .	6.0	25
68	Wearable Multi-Frequency and Multi-Segment Bioelectrical Impedance Spectroscopy for Unobtrusively Tracking Body Fluid Shifts during Physical Activity in Real-Field Applications: A Preliminary Study. Sensors, 2016, 16, 673.	3.8	23
69	Photon-efficient imaging with a single-photon camera. Nature Communications, 2016, 7, 12046.	12.8	169
70	Experiment Investigating the Connection between Weak Values and Contextuality. Physical Review Letters, 2016, 116, 180401.	7.8	44
71	Measuring Incompatible Observables by Exploiting Sequential Weak Values. Physical Review Letters, 2016, 117, 170402.	7.8	66
72	Automotive Three-Dimensional Vision Through a Single-Photon Counting SPAD Camera. IEEE Transactions on Intelligent Transportation Systems, 2016, 17, 782-795.	8.0	75

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73	SPAD Figures of Merit for Photon-Counting, Photon-Timing, and Imaging Applications: A Review. IEEE Sensors Journal, 2016, 16, 3-12.	4.7	161
74	Eight-Channel 21 ps Precision <inline-formula> <tex-math notation="LaTeX">$10~mu ext{s}$ </tex-math></inline-formula> Range Time-to-Digital Converter Module. IEEE Transactions on Instrumentation and Measurement, 2016, 65, 423-430.	4.7	7
75	Photon-efficient computational imaging with a single-photon camera. , 2016, , .		7
76	A new method utilizing novel single-photon avalanche diode arrays for multi-exposure laser speckle flowmetry. , 2016, , .		0
77	Short-gate techniques for high-speed photon counting with InGaAs/InP SPADs. , 2016, , .		0
78	Latest developments in speckle contrast optical tomography (SCOT) for deep tissue blood flow imaging. , 2016, , .		0
79	Fill-factor improvement of Si CMOS single-photon avalanche diode detector arrays by integration of diffractive microlens arrays. Optics Express, 2015, 23, 33777.	3.4	36
80	Memory effect in silicon time-gated single-photon avalanche diodes. Journal of Applied Physics, 2015, 117, .	2.5	15
81	Planar CMOS analog SiPMs: design, modeling, and characterization. Journal of Modern Optics, 2015, 62, 1693-1702.	1.3	14
82	Spectrally Resolved Single-Photon Timing of Silicon Photomultipliers for Time-Domain Diffuse Spectroscopy. IEEE Photonics Journal, 2015, 7, 1-12.	2.0	28
83	Low-Cost and Compact Single-Photon Counter Based on a CMOS SPAD Smart Pixel. IEEE Photonics Technology Letters, 2015, 27, 2504-2507.	2.5	7
84	SPICE Electrical Models and Simulations of Silicon Photomultipliers. IEEE Transactions on Nuclear Science, 2015, 62, 1950-1960.	2.0	24
85	High-Speed Quantum Random Number Generation Using CMOS Photon Counting Detectors. IEEE Journal of Selected Topics in Quantum Electronics, 2015, 21, 23-29.	2.9	32
86	Fully CMOS analog and digital SiPMs. Proceedings of SPIE, 2015, , .	0.8	0
87	High-Fill-Factor <inline-formula> <tex-math notation="LaTeX">$60imes 1$ </tex-math></inline-formula> SPAD Array With 60 Subnanosecond Integrated TDCs. IEEE Photonics Technology Letters, 2015, 27, 1261-1264.	2.5	28
88	High linearity SPAD and TDC array for TCSPC and 3D ranging applications. Proceedings of SPIE, 2015, , .	0.8	1
89	SPADAS: a high-speed 3D single-photon camera for advanced driver assistance systems. , 2015, , .		1
90	Dual channel timeâ€toâ€digital converter module with 10 ps resolution and 320Âns full scale range. Electronics Letters, 2015, 51, 994-996.	1.0	4

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91	High-speed multi-exposure laser speckle contrast imaging with a single-photon counting camera. Biomedical Optics Express, 2015, 6, 2865.	2.9	46
92	Enhanced single-photon time-of-flight 3D ranging. Optics Express, 2015, 23, 24962.	3.4	52
93	ALART: a novel lidar system for vegetation height retrieval from space. Proceedings of SPIE, 2015, , .	0.8	0
94	Hyper-hemispheric lens distortion model for 3D-imaging SPAD-array-based applications. , 2015, , .		0
95	Enhancing the fill-factor of CMOS SPAD arrays using microlens integration. Proceedings of SPIE, 2015, , .	0.8	2
96	Integrated Circuit for Subnanosecond Gating of InGaAs/InP SPAD. IEEE Journal of Quantum Electronics, 2015, 51, 1-7.	1.9	20
97	Analog SiPM in planar CMOS technology. , 2014, , .		7
98	Multichannel low power time-to-digital converter card with 21 ps precision and full scale range up to 10 Î¼s. Review of Scientific Instruments, 2014, 85, 114703.	1.3	6
99	Low-noise CMOS SPAD arrays with in-pixel time-to-digital converters. , 2014, , .		2
100	CMOS Imager With 1024 SPADs and TDCs for Single-Photon Timing and 3-D Time-of-Flight. IEEE Journal of Selected Topics in Quantum Electronics, 2014, 20, 364-373.	2.9	198
101	Feasibility of Long-Term Monitoring of Multifrequency and Multisegment Body Impedance by Portable Devices. IEEE Transactions on Biomedical Engineering, 2014, 61, 1877-1886.	4.2	10
102	16-Channel Module Based on a Monolithic Array of Single-Photon Detectors and 10-ps Time-to-Digital Converters. IEEE Journal of Selected Topics in Quantum Electronics, 2014, 20, 218-225.	2.9	22
103	100 000 Frames/s 64 Ã— 32 Single-Photon Detector Array for 2-D Imaging and 3-D Ranging. IEEE Journal of Selected Topics in Quantum Electronics, 2014, 20, 354-363.	2.9	144
104	CMOS SPADs with up to 500 Î¼m diameter and 55% detection efficiency at 420 nm. Journal of Modern Optics, 2014, 61, 102-115.	1.3	77
105	Fast Sensing and Quenching of CMOS SPADs for Minimal Afterpulsing Effects. IEEE Photonics Technology Letters, 2013, 25, 776-779.	2.5	93
106	TDC with 1.5% DNL based on a single-stage vernier delay-loop fine interpolation. , 2013, , .		1
107	CMOS single photon sensor with in-pixel TDC for Time-of-Flight applications. , 2013, , .		7
108	A High-Linearity, 17 ps Precision Time-to-Digital Converter Based on a Single-Stage Vernier Delay Loop Fine Interpolation. IEEE Transactions on Circuits and Systems I: Regular Papers, 2013, 60, 557-569.	5.4	143

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109	Figures of merit for CMOS SPADs and arrays. , 2013, , .		4
110	Single-photon pulsed-light indirect time-of-flight 3D ranging. Optics Express, 2013, 21, 5086.	3.4	32
111	Large-area CMOS SPADs with very low dark counting rate. Proceedings of SPIE, 2013, , .	0.8	6
112	Development of new photon-counting detectors for single-molecule fluorescence microscopy. Philosophical Transactions of the Royal Society B: Biological Sciences, 2013, 368, 20120035.	4.0	100
113	Monolithic time-to-digital converter chips for time-correlated single-photon counting and fluorescence lifetime measurements. Proceedings of SPIE, 2013, , .	0.8	3
114	Low-noise low-jitter 32-pixels CMOS single-photon avalanche diodes array for single-photon counting from 300 nm to 900 nm. Review of Scientific Instruments, 2013, 84, 123112.	1.3	22
115	Indirect time-of-flight 3D ranging based on SPADs. Proceedings of SPIE, 2012, , .	0.8	7
116	10 ps resolution, 160 ns full scale range and less than 1.5% differential non-linearity time-to-digital converter module for high performance timing measurements. Review of Scientific Instruments, 2012, 83, 074703.	1.3	15
117	Single-chip time-to-digital converter with 10 ps resolution, 160 ns dynamic range, and 1% LSB DNL. , 2012, , .		0
118	SPAD imagers for remote sensing at the single-photon level. , 2012, , .		9
119	SPAD Smart Pixel for Time-of-Flight and Time-Correlated Single-Photon Counting Measurements. IEEE Photonics Journal, 2012, 4, 795-804.	2.0	77
120	Correction to â€œSPAD Smart Pixel for Time-of-Flight and Time-Correlated Single-Photon Counting Measurementsâ€•[Jun 12 795-804]. IEEE Photonics Journal, 2012, 4, 1027-1027.	2.0	0
121	SPAD detector for long-distance 3D ranging with sub-nanosecond TDC. , 2012, , .		1
122	Low-noise and large-area CMOS SPADs with timing response free from slow tails. , 2012, , .		39
123	CMOS SPAD pixels for indirect time-of-flight ranging. , 2012, , .		4
124	3D sensor for indirect ranging with pulsed laser source. Proceedings of SPIE, 2012, , .	0.8	1
125	Low-power 20-meter 3D ranging SPAD camera based on continuous-wave indirect time-of-flight. , 2012, , .		3
126	A compact Time-to-Digital Converter (TDC) module with 10 ps resolution and less than 1.5% LSB DNL. , 2012, , .		0

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127	15bit Time-to-Digital Converters with 0.9% DNL<inf>rms</inf> and 160ns FSR for single-photon imagers. , 2011, , .		1
128	Ultra high-throughput single molecule spectroscopy with a 1024 pixel SPAD. Proceedings of SPIE, 2011, 7905, .	0.8	27
129	New photon-counting detectors for single-molecule fluorescence spectroscopy and imaging. , 2011, 8033, 803316.		14
130	Effects of pedaling on the high frequency components of HRV during exercise. , 2008, , .		1
131	Historical Perspectives, State of art and Research Trends of Single Photon Avalanche Diodes and Their Applications (Part 1: Single Pixels). Frontiers in Physics, 0, 10, .	2.1	1
132	Historical Perspectives, State of Art and Research Trends of SPAD Arrays and Their Applications (Part) Tj ETQq0 0 0 rgBT /Overlock 10 Tf	2.1	9