

# Patrick Degenaar

## List of Publications by Year in descending order

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Version: 2024-02-01

126  
papers

2,142  
citations

304368

22  
h-index

264894

42  
g-index

130  
all docs

130  
docs citations

130  
times ranked

2257  
citing authors

#	ARTICLE	IF	CITATIONS
1	Multi-site optical excitation using ChR2 and micro-LED array. Journal of Neural Engineering, 2010, 7, 016004.	1.8	218
2	Photocycles of Channelrhodopsin-2. Photochemistry and Photobiology, 2009, 85, 400-411.	1.3	198
3	Deep learning-based artificial vision for grasp classification in myoelectric hands. Journal of Neural Engineering, 2017, 14, 036025.	1.8	123
4	Optobionic vision—a new genetically enhanced light on retinal prosthesis. Journal of Neural Engineering, 2009, 6, 035007.	1.8	113
5	Micro-LED arrays: a tool for two-dimensional neuron stimulation. Journal Physics D: Applied Physics, 2008, 41, 094014.	1.3	112
6	Modeling Study of the Light Stimulation of a Neuron Cell With Channelrhodopsin-2 Mutants. IEEE Transactions on Biomedical Engineering, 2011, 58, 1742-1751.	2.5	97
7	Polymer Transfer Printing: Application to Layer Coating, Pattern Definition, and Diode Dark Current Blocking. Advanced Materials, 2008, 20, 1679-1683.	11.1	90
8	Optogenetic approaches to retinal prosthesis. Visual Neuroscience, 2014, 31, 345-354.	0.5	71
9	A New Individually Addressable Micro-LED Array for Photogenetic Neural Stimulation. IEEE Transactions on Biomedical Circuits and Systems, 2010, 4, 469-476.	2.7	58
10	Blockade of pathological retinal ganglion cell hyperactivity improves optogenetically evoked light responses in rd1 mice. Frontiers in Cellular Neuroscience, 2015, 9, 330.	1.8	45
11	Surface and subsurface characterisation in micro-milling of monocrystalline silicon. International Journal of Advanced Manufacturing Technology, 2015, 81, 1319-1331.	1.5	43
12	On-Probe Neural Interface ASIC for Combined Electrical Recording and Optogenetic Stimulation. IEEE Transactions on Biomedical Circuits and Systems, 2018, 12, 576-588.	2.7	42
13	Techniques for patterning and guidance of primary culture neurons on micro-electrode arrays. Sensors and Actuators B: Chemical, 2002, 83, 15-21.	4.0	40
14	A Processing Platform for Optoelectronic/Optogenetic Retinal Prosthesis. IEEE Transactions on Biomedical Engineering, 2013, 60, 781-791.	2.5	40
15	Real-Time Simulation of Passage-of-Time Encoding in Cerebellum Using a Scalable FPGA-Based System. IEEE Transactions on Biomedical Circuits and Systems, 2016, 10, 742-753.	2.7	36
16	Designing and testing scene enhancement algorithms for patients with retina degenerative disorders. BioMedical Engineering OnLine, 2010, 9, 27.	1.3	34
17	A head mounted device stimulator for optogenetic retinal prosthesis. Journal of Neural Engineering, 2018, 15, 065002.	1.8	32
18	High Density, High Radiance $\mu$ LED Matrix for Optogenetic Retinal Prostheses and Planar Neural Stimulation. IEEE Transactions on Biomedical Circuits and Systems, 2017, 11, 347-359.	2.7	31

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19	Cell Placement and Neural Guidance Using a Three-Dimensional Microfluidic Array. Japanese Journal of Applied Physics, 2001, 40, 5485-5490.	0.8	29
20	Opto-electro-thermal optimization of photonic probes for optogenetic neural stimulation. Journal of Biophotonics, 2018, 11, e201700358.	1.1	29
21	Modeling and Engineering aspects of ChannelRhodopsin2 System for Neural Photostimulation. , 2006, 2006, 1626-9.		28
22	A Method for Micrometer Resolution Patterning of Primary Culture Neurons for SPM Analysis. Journal of Biochemistry, 2001, 130, 367-376.	0.9	24
23	Distributed current-mode image processing filters. Electronics Letters, 2005, 41, 1201.	0.5	24
24	Micro-machinability and edge chipping mechanism studies on diamond micro-milling of monocrystalline silicon. Journal of Manufacturing Processes, 2019, 38, 93-103.	2.8	24
25	Optogenetics in Silicon: A Neural Processor for Predicting Optically Active Neural Networks. IEEE Transactions on Biomedical Circuits and Systems, 2017, 11, 15-27.	2.7	22
26	Arrays of MicroLEDs and Astrocytes: Biological Amplifiers to Optogenetically Modulate Neuronal Networks Reducing Light Requirement. PLoS ONE, 2014, 9, e108689.	1.1	21
27	Improved content aware scene retargeting for retinitis pigmentosa patients. BioMedical Engineering OnLine, 2010, 9, 52.	1.3	19
28	Biologically inspired microtexturing: Investigation into the surface topography of next-generation neurosurgical probes. , 2008, 2008, 5611-4.		18
29	A Scalable Optoelectronic Neural Probe Architecture With Self-Diagnostic Capability. IEEE Transactions on Circuits and Systems I: Regular Papers, 2018, 65, 2431-2442.	3.5	18
30	A Non-Invasive Retinal Prosthesis - Testing the Concept. Annual International Conference of the IEEE Engineering in Medicine and Biology Society, 2007, 2007, 6365-8.	0.5	17
31	Microtextured Surfaces for Deep-Brain Stimulation Electrodes: A Biologically Inspired Design to Reduce Lead Migration. World Neurosurgery, 2012, 77, 569-576.	0.7	17
32	A Robust Edge Enhancement Approach for Low Vision Patients Using Scene Simplification. , 2008, , .		16
33	A stochastic model of the single photon response in Drosophila photoreceptors. Integrative Biology (United Kingdom), 2010, 2, 354.	0.6	16
34	Object Recognition With an Elastic Net-Regularized Hierarchical MAX Model of the Visual Cortex. IEEE Signal Processing Letters, 2016, 23, 1062-1066.	2.1	16
35	Parallelism to reduce power consumption on FPGA spatiotemporal image processing. , 2008, , .		15
36	High-frequency limit of neural stimulation with Chr2. , 2011, 2011, 4167-70.		15

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37	Self-sensing of temperature rises on light emitting diode based optrodes. Journal of Neural Engineering, 2018, 15, 026012.	1.8	15
38	Soft tissue traversal with zero net force: Feasibility study of a biologically inspired design based on reciprocal motion. , 2009, , .		14
39	Development of optics with micro-LED arrays for improved opto-electronic neural stimulation. , 2013, , .		14
40	A CMOS-based neural implantable optrode for optogenetic stimulation and electrical recording. , 2015, , .		14
41	Enzyme-Linked Sensitive Fluorometric Imaging of Glutamate Release from Cerebral Neurons of Chick Embryos. Journal of Biochemistry, 2003, 134, 353-358.	0.9	11
42	Measured hyperbolic-sine (sinh) CMOS results: A high-order 10Hz~1kHz notch filter for 50/60Hz noise. Microelectronics Journal, 2013, 44, 1268-1277.	1.1	11
43	Effect of crystallographic orientation and employment of different cutting tools on micro-end-milling of monocrystalline silicon. Proceedings of the Institution of Mechanical Engineers, Part B: Journal of Engineering Manufacture, 2016, 230, 1756-1764.	1.5	11
44	A high-performance 8~nV/~šHz 8-channel wearable and wireless system for real-time monitoring of bioelectrical signals. Journal of NeuroEngineering and Rehabilitation, 2019, 16, 156.	2.4	11
45	An 8100 pixel optoelectronic array for optogenetic retinal prosthesis. , 2014, , .		10
46	Fractional order PID system for suppressing epileptic activities. , 2018, , .		10
47	A CMOS image sensor with light-controlled oscillating pixels for an investigative optobionic retinal prosthesis system. Microelectronics Journal, 2009, 40, 1202-1211.	1.1	8
48	Insertion experiments of a biologically inspired microtextured and multi-part probe based on reciprocal motion. , 2010, 2010, 3190-3.		8
49	Individually addressable optoelectronic arrays for optogenetic neural stimulation. , 2010, , .		8
50	A high-performance 4 nV (~šHz) <sup>~1</sup> analog front-end architecture for artefact suppression in local field potential recordings during deep brain stimulation. Journal of Neural Engineering, 2019, 16, 066003.	1.8	8
51	Edge chipping minimisation strategy for milling of monocrystalline silicon: A molecular dynamics study. Applied Surface Science, 2019, 486, 166-178.	3.1	8
52	Scene optimization for optogenetic retinal prosthesis. , 2011, , .		7
53	An implantable optrode with Self-diagnostic function in 0.35~m CMOS for optical neural stimulation. , 2014, , .		7
54	Wireless data and power transfer of an optogenetic implantable visual cortex stimulator. , 2015, 2015, 8006-9.		7

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55	A fixed window Level Crossing ADC with activity dependent power dissipation. , 2016, , .		7
56	An Adaptable Foveating Vision Chip. , 0, , .		6
57	Insertion of a Cytochrome c Protein into a Complex Lipid Monolayer under an Electric Field. Journal of Physical Chemistry C, 2009, 113, 14377-14380.	1.5	6
58	Individually addressable optoelectronic arrays for optogenetic neural stimulation. , 2011, , .		6
59	Extremely slow photocurrent response from hemoprotein films in planar diode geometry. Applied Physics Letters, 2012, 101, 223701.	1.5	6
60	Objects and scenes classification with selective use of central and peripheral image content. Journal of Visual Communication and Image Representation, 2020, 66, 102698.	1.7	6
61	The Neural Engine: A Reprogrammable Low Power Platform for Closed-Loop Optogenetics. IEEE Transactions on Biomedical Engineering, 2020, 67, 3004-3015.	2.5	6
62	An optoelectronic platform for retinal prosthesis. , 2006, , .		5
63	Biphasic micro-LED driver for optogenetics. , 2016, , .		5
64	Extraspectral Imaging for Improving the Perceived Information Presented in Retinal Prosthesis. Journal of Healthcare Engineering, 2018, 2018, 1-14.	1.1	5
65	A current-mode system to self-measure temperature on implantable optoelectronics. BioMedical Engineering OnLine, 2019, 18, 117.	1.3	5
66	Ultrasound Intra Body Multi Node Communication System for Bioelectronic Medicine. Sensors, 2020, 20, 31.	2.1	5
67	Magneto-Optogenetic Deep-Brain Multimodal Neurostimulation. Advanced Intelligent Systems, 2022, 4, 2100082.	3.3	5
68	Noise reduction in analogue computation of Drosophila photoreceptors. Journal of Computational Electronics, 2008, 7, 458-461.	1.3	4
69	An optrode with built-in self-diagnostic and fracture sensor for cortical brain stimulation. , 2016, , .		4
70	A low power flash-FPGA based brain implant micro-system of PID control. , 2017, 2017, 173-176.		4
71	A Flash-FPGA based Rodent Control System for Closed-loop Optogenetic Control of Epilepsy. , 2018, , .		4
72	Closed-Loop Proportion-Derivative Control of Suppressing Seizures in a Neural Mass Model. , 2019, , .		4

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73	Wireless Ultrasonic Communication for Biomedical Injectable Implantable Device. , 2019, 2019, 4024-4027.		4
74	Context-Based Object Recognition: Indoor Versus Outdoor Environments. Advances in Intelligent Systems and Computing, 2020, , 473-490.	0.5	4
75	A Closed-Loop Optogenetic Platform. Frontiers in Neuroscience, 2021, 15, 718311.	1.4	4
76	Photostimulator for optogenetic retinal prosthesis. , 2009, , .		3
77	Efficient scene preparation and downscaling prior to stimulation in retinal prosthesis. , 2013, , .		3
78	FPGA design for dual-spectrum visual scene preparation in retinal prosthesis. , 2014, 2014, 4691-4.		3
79	Biologically-inspired object recognition system for recognizing natural scene categories. , 2016, , .		3
80	Modelling Optogenetic Subthreshold Effects. , 2019, 2019, 6136-6140.		3
81	Wearable Glasses for Retinal Pigmentosa Based on Optogenetics. , 2019, , .		3
82	Low-power pulse-width-modulated neuromorphic spiking circuit allowing signed double byte data transfer along a single channel. Electronics Letters, 2007, 43, 704.	0.5	2
83	A CMOS image sensor with spiking pixels for retinal stimulation. , 2008, , .		2
84	A Spatiotemporal Parallel Image Processing on FPGA for Augmented Vision System. , 2008, , 558-561.		2
85	Implantable optrode design for optogenetic visual cortical prosthesis. Proceedings of SPIE, 2012, , .	0.8	2
86	A scalable FPGA-based cerebellum for passage-of-time representation. , 2014, 2014, 3102-5.		2
87	Power gating in asynchronous micropipelines for low power data driven computing. , 2015, , .		2
88	High density 1/4LED array for retinal prosthesis with a eye-tracking system. , 2016, , .		2
89	Processing occlusions using elastic-net hierarchical MAX model of the visual cortex. , 2017, , .		2
90	LED-based temperature sensor. , 2017, , .		2

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91	Photonic Interaction with the Nervous System. , 2018, , 233-258.		2
92	Medicine-by-wire: Practical considerations on formal techniques for dependable medical systems. Science of Computer Programming, 2020, 200, 102545.	1.5	2
93	Modeling and Engineering aspects of ChannelRhodopsin2 System for Neural Photostimulation. Annual International Conference of the IEEE Engineering in Medicine and Biology Society, 2006, , .	0.5	2
94	Adaptive ON-OFF spiking photoreceptor. Electronics Letters, 2006, 42, 196.	0.5	1
95	A Bio-Inspired Adaptive Retinal Processing Neuron with Multiplexed Spiking Outputs. , 2007, , .		1
96	A Minimum Jerk Design of Active Artificial Foot. , 2008, , .		1
97	Optoelectronic microarrays for retinal prosthesis. , 2009, , .		1
98	Seeing the light: a photonic visual prosthesis for the blind. Proceedings of SPIE, 2009, , .	0.8	1
99	An optogenetic neural stimulation platform for concurrent induction and recording of neural activity. , 2010, , .		1
100	Computational Modelling of the Drosophila Phototransduction Cascade. Biophysical Journal, 2010, 98, 495a.	0.2	1
101	FPGA design of a pulse encoder for optoelectronic neural stimulation and recording arrays. , 2013, , .		1
102	A real-time silicon cerebellum spiking neural model based on FPGA. , 2014, , .		1
103	Live demonstration: A closed-loop cortical brain implant for optogenetic curing epilepsy. , 2017, , .		1
104	Ultrasonic wireless powering link of visual cortical prosthesis implant. , 2017, , .		1
105	Optical Recording and stimulation of an Injectable Wireless Medical Implant. , 2018, , .		1
106	Design Considerations for Artefact-Free Optoelectronic Systems. , 2019, 2019, 3742-3745.		1
107	Wireless Optogenetics Visual Cortical Prosthesis Control System. , 2019, , .		1
108	Live Demonstration: Optogenetic Neuro-prosthetics. , 2019, , .		1

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109	Detection of Simulated Tactile Gratings by Electro-Static Friction Show a Dependency on Bar Width for Blind and Sighted Observers, and Preliminary Neural Correlates in Sighted Observers. <i>Frontiers in Neuroscience</i> , 2020, 14, 548030.	1.4	1
110	A novel hybrid technique to fabricate silicon-based micro-implants with near defect-free quality for neuroprosthetics application. <i>Materials Science and Engineering C</i> , 2020, 110, 110737.	3.8	1
111	A scalable data transmission scheme for implantable optogenetic visual prostheses. <i>Journal of Neural Engineering</i> , 2020, 17, 055001.	1.8	1
112	Newcastle Visual Prosthesis Implantable Control Unit. , 2020, , .		1
113	<title>Near-field imaging of neurotransmitter release and uptake in patterned neuron networks</title>. , 2000, , .		0
114	Reducing Collision Noise In Asynchronous Vision Chips. <i>Midwest Symposium on Circuits and Systems</i> , 2006, , .	1.0	0
115	A preliminary study of vapour-phase polymerized poly(3,4-ethylenedioxythiophene) as a transparent neural electrode. , 2011, , .		0
116	FPGA design of an even power distributor for optoelectronic neural stimulation. , 2013, , .		0
117	Towards reliable hybrid bio-silicon integration using novel adaptive control system. , 2013, , .		0
118	Optical Waveguide Mode Selection Based Pattern- adjustable Optrode for Optogenetics. , 2015, , .		0
119	Micro-Machinability Studies of Single Crystal Silicon Using Diamond End-Mill. , 2016, , .		0
120	A Rodent Flash FPGA Control System for Closed-loop Optogenetic Stimulation to Suppress Seizures. , 2018, , .		0
121	A Reprogrammable Low Power Closed-Loop Optogenetic Platform for Freely Moving Animals. , 2019, , .		0
122	Comparison between Different Optical Systems for Optogenetics based Head Mounted Device for Retina Pigmentosa. , 2019, 2019, 382-385.		0
123	Near-Field Optics in Biology. <i>Microtechnology and MEMS</i> , 2003, , 83-119.	0.2	0
124	A Coding Scheme for Optoelectronic/Optogenetic Retinal Prosthesis. , 2013, , .		0
125	Fully Balanced LED Driving Circuit for Optogenetics Stimulation. , 2020, , .		0
126	Visual Prosthesis, Optogenetic Approaches. , 2022, , 3615-3618.		0