Silvestro Micera

List of Publications by Year
in descending order

141 papers	12,374 citations	41258 49 h-index	29081 104 g-index
159 all docs	159 docs citations	159 times ranked	9535 citing authors

#	Article	IF	Citations
1	Restoration of sensory information via bionic hands. Nature Biomedical Engineering, 2023, 7, 443-455.	11.6	111
2	Toward higher-performance bionic limbs for wider clinical use. Nature Biomedical Engineering, 2023, 7, 473-485.	11.6	104
3	Spinal Cord fMRI: A New Window into the Central Nervous System. Neuroscientist, 2023, 29, 715-731.	2.6	18
4	Combining Optogenetic Stimulation and Motor Training Improves Functional Recovery and Perilesional Cortical Activity. Neurorehabilitation and Neural Repair, 2022, 36, 107-118.	1.4	12
5	Neuromuscular electrical stimulation restores upper limb sensory-motor functions and body representations in chronic stroke survivors. Med, 2022, 3, 58-74.e10.	2.2	19
6	Activity-dependent spinal cord neuromodulation rapidly restores trunk and leg motor functions after complete paralysis. Nature Medicine, 2022, 28, 260-271.	15.2	174
7	Bidirectional bionic limbs: a perspective bridging technology and physiology. Journal of Neural Engineering, 2022, 19, 013001.	1.8	7
8	Preclinical upper limb neurorobotic platform to assess, rehabilitate, and develop therapies. Science Robotics, 2022, 7, eabk2378.	9.9	7
9	Closed-Loop Vagus Nerve Stimulation for the Treatment of Cardiovascular Diseases: State of the Art and Future Directions. Frontiers in Cardiovascular Medicine, 2022, 9, 866957.	1.1	14
10	Wireless neuromodulation with porous silicon. Nature Materials, 2022, 21, 614-616.	13.3	3
11	Uncontrolled manifold analysis of the effects of a perturbation-based training on the organization of leg joint variance in cerebellar ataxia. Experimental Brain Research, 2021, 239, 501-513.	0.7	8
12	Implantable Fiber Bragg Grating Sensor for Continuous Heart Activity Monitoring: Ex-Vivo and In-Vivo Validation. IEEE Sensors Journal, 2021, 21, 14051-14059.	2.4	11
13	All-Polymer Printed Low-Cost Regenerative Nerve Cuff Electrodes. Frontiers in Bioengineering and Biotechnology, 2021, 9, 615218.	2.0	6
14	Compliant peripheral nerve interfaces. Journal of Neural Engineering, 2021, 18, 031001.	1.8	33
15	Multi-pronged neuromodulation intervention engages the residual motor circuitry to facilitate walking in a rat model of spinal cord injury. Nature Communications, 2021, 12, 1925.	5.8	35
16	A Psychometric Platform to Collect Somatosensory Sensations for Neuroprosthetic Use. Frontiers in Medical Technology, 2021, 3, 619280.	1.3	13
17	Bioelectronic medicine for the autonomic nervous system: clinical applications and perspectives. Journal of Neural Engineering, 2021, 18, 041002.	1.8	37
18	Computational approaches to decode grasping force and velocity level in upper-limb amputee from intraneural peripheral signals. Journal of Neural Engineering, 2021, 18, 055001.	1.8	12

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19	Current Solutions and Future Trends for Robotic Prosthetic Hands. Annual Review of Control, Robotics, and Autonomous Systems, 2021, 4, 595-627.	7.5	46
20	Effects of gait rehabilitation on motor coordination in stroke survivors: an UCM-based approach. Experimental Brain Research, 2021, 239, 2107-2118.	0.7	8
21	Adaptation and Optimization of an Intraneural Electrode to Interface with the Cervical Vagus Nerve. , 2021, , .		2
22	Connectivity Measures Differentiate Cortical and Subcortical Sub-Acute Ischemic Stroke Patients. Frontiers in Human Neuroscience, 2021, 15, 669915.	1.0	17
23	A machine learning framework to optimize optic nerve electrical stimulation for vision restoration. Patterns, 2021, 2, 100286.	3.1	6
24	Simultaneous decoding of cardiovascular and respiratory functional changes from pig intraneural vagus nerve signals. Journal of Neural Engineering, 2021, 18, 0460a2.	1.8	17
25	A modular strategy for next-generation upper-limb sensory-motor neuroprostheses. Med, 2021, 2, 912-937.	2.2	16
26	Brain network modulation in transradial amputee with finger perception restored through biomimetic intraneural stimulation. Neurological Sciences, 2021, 42, 5369-5372.	0.9	1
27	Combining robotics with enhanced serotonin-driven cortical plasticity improves post-stroke motor recovery. Progress in Neurobiology, 2021, 203, 102073.	2.8	1
28	Stimulus evoked causality estimation in stereo-EEG. Journal of Neural Engineering, 2021, 18, 056041.	1.8	4
29	MorphoSONIC: A morphologically structured intramembrane cavitation model reveals fiber-specific neuromodulation by ultrasound. IScience, 2021, 24, 103085.	1.9	5
30	Biomimetic bidirectional hand neuroprostheses for restoring somatosensory and motor functions. , 2021, , 321-345.		0
31	The neural resource allocation problem when enhancing human bodies with extra robotic limbs. Nature Machine Intelligence, 2021, 3, 850-860.	8.3	34
32	Intrafascicular peripheral nerve stimulation produces fine functional hand movements in primates. Science Translational Medicine, 2021, 13, eabg6463.	5.8	30
33	Counteracting Balance Loss in Transfemoral Amputees by Using an Active Pelvis Orthosis: A Case Series. IFMBE Proceedings, 2021, , 294-305.	0.2	2
34	Bayesian optimization of peripheral intraneural stimulation protocols to evoke distal limb movements. Journal of Neural Engineering, 2021, 18, 066046.	1.8	9
35	Spatially selective activation of the visual cortex via intraneural stimulation of the optic nerve. Nature Biomedical Engineering, 2020, 4, 181-194.	11.6	53
36	Somatosensory Evoked Potentials following upper limb noninvasive electrical stimulation: a case study. , 2020, 2020, 2881-2884.		1

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37	Tutorial: a computational framework for the design and optimization of peripheral neural interfaces. Nature Protocols, 2020, 15, 3129-3153.	5.5	40
38	Dynamic Functional Connectivity of Resting-State Spinal Cord fMRI Reveals Fine-Grained Intrinsic Architecture. Neuron, 2020, 108, 424-435.e4.	3.8	38
39	Experimental and Computational Study on Motor Control and Recovery After Stroke: Toward a Constructive Loop Between Experimental and Virtual Embodied Neuroscience. Frontiers in Systems Neuroscience, 2020, 14, 31.	1.2	23
40	Soft Embodiment for Engineering Artificial Limbs. Trends in Cognitive Sciences, 2020, 24, 965-968.	4.0	13
41	Sensitivity to temporal parameters of intraneural tactile sensory feedback. Journal of NeuroEngineering and Rehabilitation, 2020, 17, 110.	2.4	15
42	Brain reactions to the use of sensorized hand prosthesis in amputees. Brain and Behavior, 2020, 10, e01734.	1.0	6
43	Intent Prediction Based on Biomechanical Coordination of EMG and Vision-Filtered Gaze for End-Point Control of an Arm Prosthesis. IEEE Transactions on Neural Systems and Rehabilitation Engineering, 2020, 28, 1471-1480.	2.7	30
44	High gamma response tracks different syntactic structures in homophonous phrases. Scientific Reports, 2020, 10, 7537.	1.6	15
45	A multimodal approach to capture post-stroke temporal dynamics of recovery. Journal of Neural Engineering, 2020, 17, 045002.	1.8	31
46	Stability of flexible thin-film metallization stimulation electrodes: analysis of explants after first-in-human study and improvement of in vivo performance. Journal of Neural Engineering, 2020, 17, 046006.	1.8	38
47	Decoding of grasping tasks from intraneural recordings in trans-radial amputee. Journal of Neural Engineering, 2020, 17, 026034.	1.8	39
48	A data-driven polynomial approach to reproduce the scar tissue outgrowth around neural implants. Journal of Materials Science: Materials in Medicine, 2020, 31, 59.	1.7	6
49	Advanced Neurotechnologies for the Restoration of Motor Function. Neuron, 2020, 105, 604-620.	3.8	69
50	Neural signal recording and processing in somatic neuroprosthetic applications. A review. Journal of Neuroscience Methods, 2020, 337, 108653.	1.3	31
51	Morphological Neural Computation Restores Discrimination of Naturalistic Textures in Trans-radial Amputees. Scientific Reports, 2020, 10, 527.	1.6	30
52	Ultrasound Stimulations Induce Prolonged Depolarization and Fast Action Potentials in Leech Neurons. IEEE Open Journal of Engineering in Medicine and Biology, 2020, 1, 23-32.	1.7	6
53	Hand Control With Invasive Feedback Is Not Impaired by Increased Cognitive Load. Frontiers in Bioengineering and Biotechnology, 2020, 8, 287.	2.0	31
54	A biomimetic electrical stimulation strategy to induce asynchronous stochastic neural activity. Journal of Neural Engineering, 2020, 17, 046019.	1.8	27

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55	Q-PINE: A quick to implant peripheral intraneural electrode. Journal of Neural Engineering, 2020, 17, 066008.	1.8	14
56	Systematic analysis of wavelet denoising methods for neural signal processing. Journal of Neural Engineering, 2020, 17, 066016.	1.8	17
57	Multisensory bionic limb to achieve prosthesis embodiment and reduce distorted phantom limb perceptions. Journal of Neurology, Neurosurgery and Psychiatry, 2019, 90, 833-836.	0.9	101
58	Spatio-temporal structure of single neuron subthalamic activity identifies DBS target for anesthetized Tourette syndrome patients. Journal of Neural Engineering, 2019, 16, 066011.	1.8	23
59	Neurotechnology-aided interventions for upper limb motor rehabilitation in severe chronic stroke. Brain, 2019, 142, 2182-2197.	3.7	138
60	High frequency shift in Carotid Sinus Nerve and Sympathetic Nerve activity in Type 2 Diabetic Rat Model. , 2019, , .		5
61	P300 in the park: feasibility of online data acquisition and integration in a Mobile Brain/Body Imaging setting. , 2019, , .		1
62	Sensory feedback restoration in leg amputees improves walking speed, metabolic cost and phantom pain. Nature Medicine, 2019, 25, 1356-1363.	15.2	174
63	Shared humanâ€“robot proportional control of a dexterous myoelectric prosthesis. Nature Machine Intelligence, 2019, 1, 400-411.	8.3	91
64	Decoding Neural Metabolic Markers From the Carotid Sinus Nerve in a Type 2 Diabetes Model. IEEE Transactions on Neural Systems and Rehabilitation Engineering, 2019, 27, 2034-2043.	2.7	24
65	Combined Rehabilitation Promotes the Recovery of Structural and Functional Features of Healthy Neuronal Networks after Stroke. Cell Reports, 2019, 28, 3474-3485.e6.	2.9	42
66	Enhancing functional abilities and cognitive integration of the lower limb prosthesis. Science Translational Medicine, 2019, 11, .	5.8	133
67	Wide-field imaging of cortical neuronal activity with red-shifted functional indicators during motor task execution. Journal Physics D: Applied Physics, 2019, 52, 074001.	1.3	10
68	Microneurography as a tool to develop decoding algorithms for peripheral neuro-controlled hand prostheses. BioMedical Engineering OnLine, 2019, 18, 44.	1.3	10
69	Detection of movement onset using EMG signals for upper-limb exoskeletons in reaching tasks. Journal of NeuroEngineering and Rehabilitation, 2019, 16, 45.	2.4	84
70	Understanding ultrasound neuromodulation using a computationally efficient and interpretable model of intramembrane cavitation. Journal of Neural Engineering, 2019, 16, 046007.	1.8	36
71	A closed-loop hand prosthesis with simultaneous intraneural tactile and position feedback. Science Robotics, 2019, 4, .	9.9	198
72	Towards in-silico robotic post-stroke rehabilitation for mice. , 2019, , .		1

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73	Implantable Neural Interfaces and Wearable Tactile Systems for Bidirectional Neuroprosthetics Systems. Advanced Healthcare Materials, 2019, 8, e1801345.	3.9	32
74	Sixâ€Month Assessment of a Hand Prosthesis with Intraneural Tactile Feedback. Annals of Neurology, 2019, 85, 137-154.	2.8	140
75	Segregation of motor and sensory axons regenerating through bicompartmental tubes by combining extracellular matrix components with neurotrophic factors. Journal of Tissue Engineering and Regenerative Medicine, 2018, 12, e1991-e2000.	1.3	6
76	Closed-loop control of trunk posture improves locomotion through the regulation of leg proprioceptive feedback after spinal cord injury. Scientific Reports, 2018, 8, 76.	1.6	30
77	Phantom somatosensory evoked potentials following selective intraneural electrical stimulation in two amputees. Clinical Neurophysiology, 2018, 129, 1117-1120.	0.7	35
78	Bilateral Tactile Input Patterns Decoded at Comparable Levels But Different Time Scales in Neocortical Neurons. Journal of Neuroscience, 2018, 38, 3669-3679.	1.7	13
79	A Wearable Multi-Site System for NMES-Based Hand Function Restoration. IEEE Transactions on Neural Systems and Rehabilitation Engineering, 2018, 26, 428-440.	2.7	39
80	Uncontrolled manifold hypothesis: Organization of leg joint variance in humans while walking in a wide range of speeds. Human Movement Science, 2018, 57, 227-235.	0.6	22
81	Electrical spinal cord stimulation must preserve proprioception to enable locomotion in humans with spinal cord injury. Nature Neuroscience, 2018, 21, 1728-1741.	7.1	247
82	Biomimetic Intraneural Sensory Feedback Enhances Sensation Naturalness, Tactile Sensitivity, and Manual Dexterity in a Bidirectional Prosthesis. Neuron, 2018, 100, 37-45.e7.	3.8	265
83	Brain-controlled modulation of spinal circuits improves recovery from spinal cord injury. Nature Communications, 2018, 9, 3015.	5.8	108
84	Data-driven bodyâ€“machine interface for the accurate control of drones. Proceedings of the National Academy of Sciences of the United States of America, 2018, 115, 7913-7918.	3.3	57
85	A Robotic System for Adaptive Training and Function Assessment of Forelimb Retraction in Mice. IEEE Transactions on Neural Systems and Rehabilitation Engineering, 2018, 26, 1803-1812.	2.7	14
86	Spatiotemporal Dynamics of the Cortical Responses Induced by a Prolonged Tactile Stimulation of the Human Fingertips. Brain Topography, 2017, 30, 473-485.	0.8	29
87	Artificial spatiotemporal touch inputs reveal complementary decoding in neocortical neurons. Scientific Reports, 2017, 7, 45898.	1.6	37
88	Giuliano Vanghetti and the innovation of â€œcineplastic operationsâ€. Neurology, 2017, 89, 1627-1632.	1.5	19
89	A somatotopic bidirectional hand prosthesis with transcutaneous electrical nerve stimulation based sensory feedback. Scientific Reports, 2017, 7, 10930.	1.6	147
90	Unidirectional brain to muscle connectivity reveals motor cortex control of leg muscles during stereotyped walking. NeuroImage, 2017, 159, 403-416.	2.1	148

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91	Control of Multifunctional Prosthetic Hands by Processing the Electromyographic Signal. Critical Reviews in Biomedical Engineering, 2017, 45, 383-410.	0.5	184
92	Preferential Enhancement of Sensory and Motor Axon Regeneration by Combining Extracellular Matrix Components with Neurotrophic Factors. International Journal of Molecular Sciences, 2017, 18, 65.	1.8	28
93	Neuroplastic Changes Following Brain Ischemia and their Contribution to Stroke Recovery: Novel Approaches in Neurorehabilitation. Frontiers in Cellular Neuroscience, 2017, 11, 76.	1.8	144
94	Delta Power Is Higher and More Symmetrical in Ischemic Stroke Patients with Cortical Involvement. Frontiers in Human Neuroscience, 2017, 11, 385.	1.0	58
95	Combining robotic training and inactivation of the healthy hemisphere restores pre-stroke motor patterns in mice. ELife, 2017, 6, .	2.8	50
96	Effective Synchronization of EEG and EMG for Mobile Brain/Body Imaging in Clinical Settings. Frontiers in Human Neuroscience, 2017, 11, 652.	1.0	25
97	Reducing GABAA-mediated inhibition improves forelimb motor function after focal cortical stroke in mice. Scientific Reports, 2016, 6, 37823.	1.6	61
98	Real-Time Neural Signals Decoding onto Off-the-Shelf DSP Processors for Neuroprosthetic Applications. IEEE Transactions on Neural Systems and Rehabilitation Engineering, 2016, 24, 993-1002.	2.7	14
99	Engagement of the Rat Hindlimb Motor Cortex across Natural Locomotor Behaviors. Journal of Neuroscience, 2016, 36, 10440-10455.	1.7	60
100	A brainâ€“spine interface alleviating gait deficits after spinal cord injury in primates. Nature, 2016, 539, 284-288.	13.7	492
101	Spatiotemporal neuromodulation therapies engaging muscle synergies improve motor control after spinal cord injury. Nature Medicine, 2016, 22, 138-145.	15.2	274
102	Mechanisms Underlying the Neuromodulation of Spinal Circuits for Correcting Gait and Balance Deficits after Spinal Cord Injury. Neuron, 2016, 89, 814-828.	3.8	144
103	Focal release of neurotrophic factors by biodegradable microspheres enhance motor and sensory axonal regeneration in vitro and in vivo. Brain Research, 2016, 1636, 93-106.	1.1	51
104	Spatial and Functional Selectivity of Peripheral Nerve Signal Recording With the Transversal Intrafascicular Multichannel Electrode (TIME). IEEE Transactions on Neural Systems and Rehabilitation Engineering, 2016, 24, 20-27.	2.7	53
105	Post-Stroke Longitudinal Alterations of Inter-Hemispheric Correlation and Hemispheric Dominance in Mouse Pre-Motor Cortex. PLoS ONE, 2016, 11, e0146858.	1.1	16
106	Intraneural stimulation elicits discrimination of textural features by artificial fingertip in intact and amputee humans. ELife, 2016, 5, e09148.	2.8	286
107	Chronic multichannel neural recordings from soft regenerative microchannel electrodes during gait. Scientific Reports, 2015, 5, 14363.	1.6	59
108	Recording properties of an electrode implanted in the peripheral nervous system: A human computational model. , 2015, , .		4

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109	Electronic dura mater for long-term multimodal neural interfaces. Science, 2015, 347, 159-163.	6.0	845
110	Quantitative Kinematic Characterization of Reaching Impairments in Mice After a Stroke. Neurorehabilitation and Neural Repair, 2015, 29, 382-392.	1.4	46
111	A Robotic System for Quantitative Assessment and Poststroke Training of Forelimb Retraction in Mice. Neurorehabilitation and Neural Repair, 2014, 28, 188-196.	1.4	49
112	Closed-loop neuromodulation of spinal sensorimotor circuits controls refined locomotion after complete spinal cord injury. Science Translational Medicine, 2014, 6, 255ra133.	5.8	170
113	Restoring Natural Sensory Feedback in Real-Time Bidirectional Hand Prostheses. Science Translational Medicine, 2014, 6, 222ra19.	5.8	805
114	RELICA: A method for estimating the reliability of independent components. NeuroImage, 2014, 103, 391-400.	2.1	76
115	MUNDUS project: MUltimodal Neuroprosthesis for daily Upper limb Support. Journal of NeuroEngineering and Rehabilitation, 2013, 10, 66.	2.4	115
116	Personalized Neuroprosthetics. Science Translational Medicine, 2013, 5, 210rv2.	5.8	141
117	Brainâ€“machine interface: closer to therapeutic reality?. Lancet, The, 2013, 381, 515-517.	6.3	32
118	A Computational Model for Epidural Electrical Stimulation of Spinal Sensorimotor Circuits. Journal of Neuroscience, 2013, 33, 19326-19340.	1.7	320
119	Combined Analysis of Cortical (EEG) and Nerve Stump Signals Improves Robotic Hand Control. Neurorehabilitation and Neural Repair, 2012, 26, 275-281.	1.4	37
120	Tracking Motor Improvement at the Subtask Level During Robot-Aided Neurorehabilitation of Stroke Patients. Neurorehabilitation and Neural Repair, 2012, 26, 822-833.	1.4	54
121	Experimental Validation of a Hybrid Computational Model for Selective Stimulation Using Transverse Intrafascicular Multichannel Electrodes. IEEE Transactions on Neural Systems and Rehabilitation Engineering, 2012, 20, 395-404.	2.7	53
122	REMOV: EEG artifacts removal methods during Lokomat lower-limb rehabilitation. , 2012, , .		21
123	Restoring Voluntary Control of Locomotion after Paralyzing Spinal Cord Injury. Science, 2012, 336, 1182-1185.	6.0	701
124	A Computational Model for the Stimulation of Rat Sciatic Nerve Using a Transverse Intrafascicular Multichannel Electrode. IEEE Transactions on Neural Systems and Rehabilitation Engineering, 2011, 19, 333-344.	2.7	97
125	Decoding of grasping information from neural signals recorded using peripheral intrafascicular interfaces. Journal of NeuroEngineering and Rehabilitation, 2011, 8, 53.	2.4	89
126	Decoding Information From Neural Signals Recorded Using Intraneural Electrodes: Toward the Development of a Neurocontrolled Hand Prosthesis. Proceedings of the IEEE, 2010, 98, 407-417.	16.4	84

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127	On the identification of sensory information from mixed nerves by using single-channel cuff electrodes. Journal of NeuroEngineering and Rehabilitation, 2010, 7, 17.	2.4	69
128	Finite element and biophysics modelling of intraneural transversal electrodes: Influence of active site shape. , 2010, 2010, 1678-81.		2
129	Control of Hand Prostheses Using Peripheral Information. IEEE Reviews in Biomedical Engineering, 2010, 3, 48-68.	13.1	308
130	Double nerve intraneural interface implant on a human amputee for robotic hand control. Clinical Neurophysiology, 2010, 121, 777-783.	0.7	367
131	Chapter 2 Bidirectional Interfaces with the Peripheral Nervous System. International Review of Neurobiology, 2009, 86, 23-38.	0.9	54
132	Comparison of intraneural electrode geometries: Preliminary guidelines for electrode design. , 2009, , .		3
133	On the use of wavelet denoising and spike sorting techniques to process electroneurographic signals recorded using intraneural electrodes. Journal of Neuroscience Methods, 2008, 172, 294-302.	1.3	105
134	On the Use of Longitudinal Intrafascicular Peripheral Interfaces for the Control of Cybernetic Hand Prostheses in Amputees. IEEE Transactions on Neural Systems and Rehabilitation Engineering, 2008, 16, 453-472.	2.7	106
135	On the Shared Control of an EMG-Controlled Prosthetic Hand: Analysis of Userâ€“Prosthesis Interaction. IEEE Transactions on Robotics, 2008, 24, 170-184.	7.3	409
136	Neurobiological evaluation of thin-film longitudinal intrafascicular electrodes as a peripheral nerve interface. , 2007, , .		20
137	Shape Memory Alloy Microactuation of tf-LIFEs: Preliminary Results. IEEE Transactions on Biomedical Engineering, 2007, 54, 1115-1120.	2.5	25
138	A critical review of interfaces with the peripheral nervous system for the control of neuroprostheses and hybrid bionic systems. Journal of the Peripheral Nervous System, 2005, 10, 229-258.	1.4	723
139	On the intersubject generalization ability in extracting kinematic information from afferent nervous signals. IEEE Transactions on Biomedical Engineering, 2003, 50, 1063-1073.	2.5	36
140	Control of Multifunctional Prosthetic Hands by Processing the Electromyographic Signal. Critical Reviews in Biomedical Engineering, 2002, 30, 459-485.	0.5	512
141	Rehabilitation Promotes the Recovery of Functional and Structural Features of Healthy Neuronal Networks after Stroke. SSRN Electronic Journal, 0, , .	0.4	0