Gregoire Courtine

List of Publications by Year
in descending order

128 papers	14,540 citations	22132 59 h-index	21521 114 g-index
142 all docs	142 docs citations	142 times ranked	10526 citing authors

#	Article	IF	Citations
1	Electronic dura mater for long-term multimodal neural interfaces. Science, 2015, 347, 159-163.	6.0	845
2	Targeted neurotechnology restores walking in humans with spinal cord injury. Nature, 2018, 563, 65-71.	13.7	708
3	Restoring Voluntary Control of Locomotion after Paralyzing Spinal Cord Injury. Science, 2012, 336, 1182-1185.	6.0	701
4	Recovery of supraspinal control of stepping via indirect propriospinal relay connections after spinal cord injury. Nature Medicine, 2008, 14, 69-74.	15.2	690
5	Transformation of nonfunctional spinal circuits into functional states after the loss of brain input. Nature Neuroscience, 2009, 12, 1333-1342.	7.1	620
6	A brainâ€“spine interface alleviating gait deficits after spinal cord injury in primates. Nature, 2016, 539, 284-288.	13.7	492
7	Materials and technologies for soft implantable neuroprostheses. Nature Reviews Materials, 2016, 1, .	23.3	485
8	Can experiments in nonhuman primates expedite the translation of treatments for spinal cord injury in humans?. Nature Medicine, 2007, 13, 561-566.	15.2	403
9	Extensive spontaneous plasticity of corticospinal projections after primate spinal cord injury. Nature Neuroscience, 2010, 13, 1505-1510.	7.1	346
10	Required growth facilitators propel axon regeneration across complete spinal cord injury. Nature, 2018, 561, 396-400.	13.7	341
11	Confronting false discoveries in single-cell differential expression. Nature Communications, 2021, 12, 5692.	5.8	332
12	Spinal cord repair: advances in biology and technology. Nature Medicine, 2019, 25, 898-908.	15.2	323
13	A Computational Model for Epidural Electrical Stimulation of Spinal Sensorimotor Circuits. Journal of Neuroscience, 2013, 33, 19326-19340.	1.7	320
14	Spatiotemporal neuromodulation therapies engaging muscle synergies improve motor control after spinal cord injury. Nature Medicine, 2016, 22, 138-145.	15.2	274
15	Training locomotor networks. Brain Research Reviews, 2008, 57, 241-254.	9.1	268
16	Muscle Spindle Feedback Directs Locomotor Recovery and Circuit Reorganization after Spinal Cord Injury. Cell, 2014, 159, 1626-1639.	13.5	257
17	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
18	Human walking along a curved path. I. Body trajectory, segment orientation and the effect of vision. European Journal of Neuroscience, 2003, 18, 177-190.	1.2	238

#	Article	IF	Citations
19	Corticoâ€“reticuloâ€“spinal circuit reorganization enables functional recovery after severe spinal cord contusion. Nature Neuroscience, 2018, 21, 576-588.	7.1	228
20	Wireless Neurosensor for Full-Spectrum Electrophysiology Recordings during Free Behavior. Neuron, 2014, 84, 1170-1182.	3.8	200
21	Plasticity of Spinal Cord Reflexes After a Complete Transection in Adult Rats: Relationship to Stepping Ability. Journal of Neurophysiology, 2006, 96, 1699-1710.	0.9	189
22	Activity-dependent spinal cord neuromodulation rapidly restores trunk and leg motor functions after complete paralysis. Nature Medicine, 2022, 28, 260-271.	15.2	174
23	Closed-loop neuromodulation of spinal sensorimotor circuits controls refined locomotion after complete spinal cord injury. Science Translational Medicine, 2014, 6, 255ra133.	5.8	170
24	Human walking along a curved path. II. Gait features and EMG patterns. European Journal of Neuroscience, 2003, 18, 191-205.	1.2	158
25	Step Training Reinforces Specific Spinal Locomotor Circuitry in Adult Spinal Rats. Journal of Neuroscience, 2008, 28, 7370-7375.	1.7	157
26	Differential effects of anti-Nogo-A antibody treatment and treadmill training in rats with incomplete spinal cord injury. Brain, 2009, 132, 1426-1440.	3.7	149
27	Pronounced species divergence in corticospinal tract reorganization and functional recovery after lateralized spinal cord injury favors primates. Science Translational Medicine, 2015, 7, 302ra134.	5.8	148
28	Epidural Stimulation Induced Modulation of Spinal Locomotor Networks in Adult Spinal Rats. Journal of Neuroscience, 2008, 28, 6022-6029.	1.7	147
29	Facilitation of Stepping with Epidural Stimulation in Spinal Rats: Role of Sensory Input. Journal of Neuroscience, 2008, 28, 7774-7780.	1.7	144
30	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
31	Personalized Neuroprosthetics. Science Translational Medicine, 2013, 5, 210rv2.	5.8	141
32	Kinematic and EMG Determinants in Quadrupedal Locomotion of a Non-Human Primate (Rhesus). Journal of Neurophysiology, 2005, 93, 3127-3145.	0.9	135
33	Tuning of a Basic Coordination Pattern Constructs Straight-Ahead and Curved Walking in Humans. Journal of Neurophysiology, 2004, 91, 1524-1535.	0.9	134
34	Spinal cord reflexes induced by epidural spinal cord stimulation in normal awake rats. Journal of Neuroscience Methods, 2006, 157, 253-263.	1.3	134
35	Controlling Specific Locomotor Behaviors through Multidimensional Monoaminergic Modulation of Spinal Circuitries. Journal of Neuroscience, 2011, 31, 9264-9278.	1.7	132
36	Long-term usability and bio-integration of polyimide-based intra-neural stimulating electrodes. Biomaterials, 2017, 122, 114-129.	5.7	132

#	Article	IF	Citations
37	Epidural Spinal Cord Stimulation Plus Quipazine Administration Enable Stepping in Complete Spinal Adult Rats. Journal of Neurophysiology, 2007, 98, 2525-2536.	0.9	130
38	Performance of locomotion and foot grasping following a unilateral thoracic corticospinal tract lesion in monkeys (Macaca mulatta). Brain, 2005, 128, 2338-2358.	3.7	121
39	Neck Muscle Vibration and Spatial Orientation During Stepping in Place in Humans. Journal of Neurophysiology, 2002, 88, 2232-2241.	0.9	115
40	Modulation of multisegmental monosynaptic responses in a variety of leg muscles during walking and running in humans. Journal of Physiology, 2007, 582, 1125-1139.	1.3	115
41	Wearable Sensor-Based Real-Time Gait Detection: A Systematic Review. Sensors, 2021, 21, 2727.	2.1	110
42	Brain-controlled modulation of spinal circuits improves recovery from spinal cord injury. Nature Communications, 2018, 9, 3015.	5.8	108
43	Undirected compensatory plasticity contributes to neuronal dysfunction after severe spinal cord injury. Brain, 2013, 136, 3347-3361.	3.7	102
44	Development of a Database for Translational Spinal Cord Injury Research. Journal of Neurotrauma, 2014, 31, 1789-1799.	1.7	100
45	Configuration of electrical spinal cord stimulation through real-time processing of gait kinematics. Nature Protocols, 2018, 13, 2031-2061.	5.5	96
46	Cell type prioritization in single-cell data. Nature Biotechnology, 2021, 39, 30-34.	9.4	96
47	Neuroprosthetic baroreflex controls haemodynamics after spinal cord injury. Nature, 2021, 590, 308-314.	13.7	96
48	Versatile robotic interface to evaluate, enable and train locomotion and balance after neuromotor disorders. Nature Medicine, 2012, 18, 1142-1147.	15.2	94
49	Recruitment of upper-limb motoneurons with epidural electrical stimulation of the cervical spinal cord. Nature Communications, 2021, 12, 435.	5.8	92
50	Lack of additive role of ageing in nigrostriatal neurodegeneration triggered by Î±-synuclein overexpression. Acta Neuropathologica Communications, 2015, 3, 46.	2.4	88
51	Stance- and Locomotion-Dependent Processing of Vibration-Induced Proprioceptive Inflow From Multiple Muscles in Humans. Journal of Neurophysiology, 2007, 97, 772-779.	0.9	87
52	Animal Models of Neurologic Disorders: A Nonhuman Primate Model of Spinal Cord Injury. Neurotherapeutics, 2012, 9, 380-392.	2.1	80
53	Cbp-dependent histone acetylation mediates axon regeneration induced by environmental enrichment in rodent spinal cord injury models. Science Translational Medicine, 2019, 11, .	5.8	79
54	Coordinated modulation of locomotor muscle synergies constructs straight-ahead and curvilinear walking in humans. Experimental Brain Research, 2006, 170, 320-335.	0.7	78

#	Article	IF	Citations
55	Biodegradable scaffolds promote tissue remodeling and functional improvement in non-human primates with acute spinal cord injury. Biomaterials, 2017, 123, 63-76.	5.7	75
56	Phase-Dependent Modulation of Percutaneously Elicited Multisegmental Muscle Responses After Spinal Cord Injury. Journal of Neurophysiology, 2010, 103, 2808-2820.	0.9	73
57	Somatosensory control of balance during locomotion in decerebrated cat. Journal of Neurophysiology, 2012, 107, 2072-2082.	0.9	70
58	Plasticity of functional connectivity in the adult spinal cord. Philosophical Transactions of the Royal Society B: Biological Sciences, 2006, 361, 1635-1646.	1.8	68
59	Soft, Implantable Bioelectronic Interfaces for Translational Research. Advanced Materials, 2020, 32, e1906512.	11.1	67
60	Recovery of control of posture and locomotion after a spinal cord injury: solutions staring us in the face. Progress in Brain Research, 2009, 175, 393-418.	0.9	66
61	Engagement of the Rat Hindlimb Motor Cortex across Natural Locomotor Behaviors. Journal of Neuroscience, 2016, 36, 10440-10455.	1.7	60
62	Structured nanoscale metallic glass fibres with extreme aspect ratios. Nature Nanotechnology, 2020, 15, 875-882.	15.6	59
63	Gait-dependent motor memory facilitation in covert movement execution. Cognitive Brain Research, 2004, 22, 67-75.	3.3	58
64	Multi-system neurorehabilitative strategies to restore motor functions following severe spinal cord injury. Experimental Neurology, 2012, 235, 100-109.	2.0	57
65	Towards adaptive deep brain stimulation: clinical and technical notes on a novel commercial device for chronic brain sensing. Journal of Neural Engineering, 2021, 18, 042002.	1.8	56
66	Continuous, bilateral Achillesâ€™ tendon vibration is not detrimental to human walk. Brain Research Bulletin, 2001, 55, 107-115.	1.4	51
67	Guidelines to Study and Develop Soft Electrode Systems for Neural Stimulation. Neuron, 2020, 108, 238-258.	3.8	49
68	Wireless closed-loop optogenetics across the entire dorsoventral spinal cord in mice. Nature Biotechnology, 2022, 40, 198-208.	9.4	48
69	Corticospinal neuroprostheses to restore locomotion after spinal cord injury. Neuroscience Research, 2014, 78, 21-29.	1.0	47
70	Methods for Functional Assessment After C7 Spinal Cord Hemisection in the Rhesus Monkey. Neurorehabilitation and Neural Repair, 2012, 26, 556-569.	1.4	43
71	Combinatory Electrical and Pharmacological Neuroprosthetic Interfaces to Regain Motor Function After Spinal Cord Injury. IEEE Transactions on Biomedical Engineering, 2009, 56, 2707-2711.	2.5	42
72	A multidirectional gravity-assist algorithm that enhances locomotor control in patients with stroke or spinal cord injury. Science Translational Medicine, 2017, 9, .	5.8	42

#	Article	IF	Citations
73	Advantages of soft subdural implants for the delivery of electrochemical neuromodulation therapies to the spinal cord. Journal of Neural Engineering, 2018, 15, 026024.	1.8	41
74	Spinal cord injury: time to move. Lancet, The, 2011, 377, 1896-1898.	6.3	35
75	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
76	Asymmetrical after-effects of prism adaptation during goal oriented locomotion. Experimental Brain Research, 2008, 185, 259-268.	0.7	33
77	Soft Printable Electrode Coating for Neural Interfaces. ACS Applied Bio Materials, 2020, 3, 4388-4397.	2.3	33
78	MRIâ€Compatible and Conformal Electrocorticography Grids for Translational Research. Advanced Science, 2021, 8, 2003761.	5.6	33
79	Brainâ€"machine interface: closer to therapeutic reality?. Lancet, The, 2013, 381, 515-517.	6.3	32
80	Decoding bipedal locomotion from the rat sensorimotor cortex. Journal of Neural Engineering, 2015, 12, 056014.	1.8	32
81	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
82	Intrafascicular peripheral nerve stimulation produces fine functional hand movements in primates. Science Translational Medicine, 2021, 13, eabg6463.	5.8	30
83	Epidural electrical stimulation of the cervical dorsal roots restores voluntary upper limb control in paralyzed monkeys. Nature Neuroscience, 2022, 25, 924-934.	7.1	30
84	Research Update: Platinum-elastomer mesocomposite as neural electrode coating. APL Materials, 2015, 3, .	2.2	29
85	Optical cuff for optogenetic control of the peripheral nervous system. Journal of Neural Engineering, 2018, 15, 015002.	1.8	29
86	Multisystem Neuroprosthetic Training Improves Bladder Function After Severe Spinal Cord Injury. Journal of Urology, 2013, 189, 747-753.	0.2	28
87	Gait-dependent integration of neck muscle afferent input. NeuroReport, 2003, 14, 2365-2368.	0.6	27
88	Defining Ecological Strategies in Neuroprosthetics. Neuron, 2015, 86, 29-33.	3.8	27
89	Neuroprosthetic technologies to augment the impact of neurorehabilitation after spinal cord injury. Annals of Physical and Rehabilitation Medicine, 2015, 58, 232-237.	1.1	26
90	Recovery of the locomotor function after prolonged microgravity exposure. I. Head-trunk movement and locomotor equilibrium during various tasks. Experimental Brain Research, 2004, 158, 86-99.	0.7	25

#	Article	IF	Citations
91	Monolayer Graphene Coating of Intracortical Probes for Longâ€Lasting Neural Activity Monitoring. Advanced Healthcare Materials, 2019, 8, e1801331.	3.9	25
92	Soft robot for gait rehabilitation of spinalized rodents. , 2013, , .		23
93	Influence of Spinal Cord Integrity on Gait Control in Human Spinal Cord Injury. Neurorehabilitation and Neural Repair, 2016, 30, 562-572.	1.4	23
94	Neurorestorative interventions involving bioelectronic implants after spinal cord injury. Bioelectronic Medicine, 2019, 5, 10.	1.0	22
95	Prioritization of cell types responsive to biological perturbations in single-cell data with Augur. Nature Protocols, 2021, 16, 3836-3873.	5.5	22
96	Prolonged exposure to microgravity modifies limb endpoint kinematics during the swing phase of human walking. Neuroscience Letters, 2002, 332, 70-74.	1.0	19
97	Engineering spinal cord repair. Current Opinion in Biotechnology, 2021, 72, 48-53.	3.3	18
98	Implanted System for Orthostatic Hypotension in Multiple-System Atrophy. New England Journal of Medicine, 2022, 386, 1339-1344.	13.9	17
99	Leveraging biomedical informatics for assessing plasticity and repair in primate spinal cord injury. Brain Research, 2015, 1619, 124-138.	1.1	16
100	Inhaling xenon ameliorates <scp>l</scp>â€dopaâ€induced dyskinesia in experimental parkinsonism. Movement Disorders, 2018, 33, 1632-1642.	2.2	15
101	Unconstrained three-dimensional reaching in Rhesus monkeys. Experimental Brain Research, 2011, 209, 35-50.	0.7	14
102	Electronic Dura Mater Meddling in the Central Nervous System. JAMA Neurology, 2017, 74, 470.	4.5	14
103	Low-Dimensional Motor Cortex Dynamics Preserve Kinematics Information During Unconstrained Locomotion in Nonhuman Primates. Frontiers in Neuroscience, 2019, 13, 1046.	1.4	14
104	Meeting Proceedings for SCI 2020: Launching a Decade of Disruption in Spinal Cord Injury Research. Journal of Neurotrauma, 2021, 38, 1251-1266.	1.7	14
105	Elezanumab, a human anti-RGMa monoclonal antibody, promotes neuroprotection, neuroplasticity, and neurorecovery following a thoracic hemicompression spinal cord injury in non-human primates. Neurobiology of Disease, 2021, 155, 105385.	2.1	14
106	A neurorobotic platform for locomotor prosthetic development in rats and mice. Journal of Neural Engineering, 2016, 13, 026007.	1.8	12
107	Rehabilitative Soft Exoskeleton for Rodents. IEEE Transactions on Neural Systems and Rehabilitation Engineering, 2017, 25, 107-118.	2.7	12
108	Response to Comment on â€œRestoring Voluntary Control of Locomotion After Paralyzing Spinal Cord Injuryâ€• Science, 2012, 338, 328-328.	6.0	11

#	Article	IF	Citations
109	Selective Recruitment of Arm Motoneurons in Nonhuman Primates Using Epidural Electrical Stimulation of the Cervical Spinal Cord. , 2018, 2018, 1424-1427.		10
110	Enabling reproducible re-analysis of single-cell data. Genome Biology, 2021, 22, 215.	3.8	9
111	A Whole-Body Musculoskeletal Model of the Mouse. IEEE Access, 2021, 9, 163861-163881.	2.6	9
112	Bayesian optimization of peripheral intraneural stimulation protocols to evoke distal limb movements. Journal of Neural Engineering, 2021, 18, 066046.	1.8	9
113	Long-term functionality of a soft electrode array for epidural spinal cord stimulation in a minipig model. , 2018, 2018, 1432-1435.		8
114	Neglected physical human-robot interaction may explain variable outcomes in gait neurorehabilitation research. Science Robotics, 2021, 6, eabf1888.	9.9	7
115	Preclinical upper limb neurorobotic platform to assess, rehabilitate, and develop therapies. Science Robotics, 2022, 7, eabk2378.	9.9	7
116	Regulation of Posture and Locomotion in Decerebrate and Spinal Animals. Neuroscience and Behavioral Physiology, 2015, 45, 229-237.	0.2	6
117	Brainâ€"spine interfaces to reverse paralysis. National Science Review, 2022, 9, .	4.6	6
118	Bioelectronic Interfaces: Soft, Implantable Bioelectronic Interfaces for Translational Research (Adv.) Tj ETQq0 0 0 rgBT /Overlock 10 Tf 50	11.1	4
119	RÃ©manence de lâ€™effet vibratoire durant la marche humaine. SociÃ©tÃ© De Biologie Journal, 2001, 195, 443-446.	0.3	3
120	Introducing a biomimetic coating for graphene neuroelectronics: toward in-vivo applications. Biomedical Physics and Engineering Express, 2021, 7, 015006.	0.6	3
121	Reducing neuronal inhibition restores locomotion in paralysed mice. Nature, 2018, 561, 317-318.	13.7	2
122	Multisystem Neurorehabilitation in Rodents with Spinal Cord Injury. , 2016, , 59-77.		1
123	A real-time platform for studying the modulatory capacity of epidural stimulation after spinal cord injury. , 2013, , .		0
124	A Computational Framework for the Design of Spinal Neuroprostheses. Biosystems and Biorobotics, 2017, , 23-27.	0.2	0
125	Multisystem Neurorehabilitation in Rodents with Spinal Cord Injury. , 2012, , 3-21.		0
126	Development of an Intraneural Peripheral Stimulation Paradigm for the Restoration of Fine Hand Control in Non-human Primates. Biosystems and Biorobotics, 2019, , 112-116.	0.2	0

#	Article	IF	Citations
127	Head position during various locomotor executions after prolonged microgravity exposure. Journal of Gravitational Physiology: A Journal of the International Society for Gravitational Physiology, 2002, 9, P163-4.	0.0	0
128	Optogenetic Interrogation of Circuits Following Neurotrauma. Frontiers in Molecular Neuroscience, 2021, 14, 803856.	1.4	0