Gregoire Courtine

List of Publications by Citations

129 papers	9,761 citations	51 h-index	98 g-index
142 ext. papers	12,577 ext. citations	15.3 avg, IF	6.1 L-index

#	Paper	IF	Citations
129	Biomaterials. Electronic dura mater for long-term multimodal neural interfaces. *Science*, **2015**, 347, 159-63	33.3	640
128	Recovery of supraspinal control of stepping via indirect propriospinal relay connections after spinal cord injury. *Nature Medicine*, **2008**, 14, 69-74	50.5	542
127	Restoring voluntary control of locomotion after paralyzing spinal cord injury. *Science*, **2012**, 336, 1182-5	33.3	536
126	Transformation of nonfunctional spinal circuits into functional states after the loss of brain input. *Nature Neuroscience*, **2009**, 12, 1333-42	25.5	508
125	Targeted neurotechnology restores walking in humans with spinal cord injury. *Nature*, **2018**, 563, 65-71	50.4	386
124	A brain-spine interface alleviating gait deficits after spinal cord injury in primates. *Nature*, **2016**, 539, 284-288	50.4	328
123	Can experiments in nonhuman primates expedite the translation of treatments for spinal cord injury in humans?. *Nature Medicine*, **2007**, 13, 561-6	50.5	322
122	Materials and technologies for soft implantable neuroprostheses. *Nature Reviews Materials*, **2016**, 1,	73.3	308
121	Extensive spontaneous plasticity of corticospinal projections after primate spinal cord injury. *Nature Neuroscience*, **2010**, 13, 1505-10	25.5	283
120	Training locomotor networks. *Brain Research Reviews*, **2008**, 57, 241-54		229
119	Human walking along a curved path. I. Body trajectory, segment orientation and the effect of vision. *European Journal of Neuroscience*, **2003**, 18, 177-90	3.5	198
118	A computational model for epidural electrical stimulation of spinal sensorimotor circuits. *Journal of Neuroscience*, **2013**, 33, 19326-40	6.6	193
117	Required growth facilitators propel axon regeneration across complete spinal cord injury. *Nature*, **2018**, 561, 396-400	50.4	184
116	Spatiotemporal neuromodulation therapies engaging muscle synergies improve motor control after spinal cord injury. *Nature Medicine*, **2016**, 22, 138-45	50.5	177
115	Muscle spindle feedback directs locomotor recovery and circuit reorganization after spinal cord injury. *Cell*, **2014**, 159, 1626-39	56.2	175
114	Spinal cord repair: advances in biology and technology. *Nature Medicine*, **2019**, 25, 898-908	50.5	161
113	Plasticity of spinal cord reflexes after a complete transection in adult rats: relationship to stepping ability. *Journal of Neurophysiology*, **2006**, 96, 1699-710	3.2	147

112	Wireless neurosensor for full-spectrum electrophysiology recordings during free behavior. *Neuron*, **2014**, 84, 1170-82	13.9	143
111	Electrical spinal cord stimulation must preserve proprioception to enable locomotion in humans with spinal cord injury. *Nature Neuroscience*, **2018**, 21, 1728-1741	25.5	138
110	Step training reinforces specific spinal locomotor circuitry in adult spinal rats. *Journal of Neuroscience*, **2008**, 28, 7370-5	6.6	137
109	Human walking along a curved path. II. Gait features and EMG patterns. *European Journal of Neuroscience*, **2003**, 18, 191-205	3.5	134
108	Cortico-reticulo-spinal circuit reorganization enables functional recovery after severe spinal cord contusion. *Nature Neuroscience*, **2018**, 21, 576-588	25.5	130
107	Differential effects of anti-Nogo-A antibody treatment and treadmill training in rats with incomplete spinal cord injury. *Brain*, **2009**, 132, 1426-40	11.2	128
106	Closed-loop neuromodulation of spinal sensorimotor circuits controls refined locomotion after complete spinal cord injury. *Science Translational Medicine*, **2014**, 6, 255ra133	17.5	125
105	Tuning of a basic coordination pattern constructs straight-ahead and curved walking in humans. *Journal of Neurophysiology*, **2004**, 91, 1524-35	3.2	122
104	Epidural stimulation induced modulation of spinal locomotor networks in adult spinal rats. *Journal of Neuroscience*, **2008**, 28, 6022-9	6.6	111
103	Kinematic and EMG determinants in quadrupedal locomotion of a non-human primate (Rhesus). *Journal of Neurophysiology*, **2005**, 93, 3127-45	3.2	111
102	Personalized neuroprosthetics. *Science Translational Medicine*, **2013**, 5, 210rv2	17.5	110
101	Facilitation of stepping with epidural stimulation in spinal rats: role of sensory input. *Journal of Neuroscience*, **2008**, 28, 7774-80	6.6	108
100	Epidural spinal cord stimulation plus quipazine administration enable stepping in complete spinal adult rats. *Journal of Neurophysiology*, **2007**, 98, 2525-36	3.2	108
99	Controlling specific locomotor behaviors through multidimensional monoaminergic modulation of spinal circuitries. *Journal of Neuroscience*, **2011**, 31, 9264-78	6.6	105
98	Performance of locomotion and foot grasping following a unilateral thoracic corticospinal tract lesion in monkeys (Macaca mulatta). *Brain*, **2005**, 128, 2338-58	11.2	102
97	Neck muscle vibration and spatial orientation during stepping in place in humans. *Journal of Neurophysiology*, **2002**, 88, 2232-41	3.2	102
96	Spinal cord reflexes induced by epidural spinal cord stimulation in normal awake rats. *Journal of Neuroscience Methods*, **2006**, 157, 253-63	3	101
95	Pronounced species divergence in corticospinal tract reorganization and functional recovery after lateralized spinal cord injury favors primates. *Science Translational Medicine*, **2015**, 7, 302ra134	17.5	99

94	Mechanisms Underlying the Neuromodulation of Spinal Circuits for Correcting Gait and Balance Deficits after Spinal Cord Injury. *Neuron*, **2016**, 89, 814-28	13.9	92
93	Long-term usability and bio-integration of polyimide-based intra-neural stimulating electrodes. *Biomaterials*, **2017**, 122, 114-129	15.6	91
92	Modulation of multisegmental monosynaptic responses in a variety of leg muscles during walking and running in humans. *Journal of Physiology*, **2007**, 582, 1125-39	3.9	86
91	Versatile robotic interface to evaluate, enable and train locomotion and balance after neuromotor disorders. *Nature Medicine*, **2012**, 18, 1142-7	50.5	82
90	Undirected compensatory plasticity contributes to neuronal dysfunction after severe spinal cord injury. *Brain*, **2013**, 136, 3347-61	11.2	76
89	Stance- and locomotion-dependent processing of vibration-induced proprioceptive inflow from multiple muscles in humans. *Journal of Neurophysiology*, **2007**, 97, 772-9	3.2	71
88	Coordinated modulation of locomotor muscle synergies constructs straight-ahead and curvilinear walking in humans. *Experimental Brain Research*, **2006**, 170, 320-35	2.3	66
87	Lack of additive role of ageing in nigrostriatal neurodegeneration triggered by □synuclein overexpression. *Acta Neuropathologica Communications*, **2015**, 3, 46	7.3	65
86	Animal models of neurologic disorders: a nonhuman primate model of spinal cord injury. *Neurotherapeutics*, **2012**, 9, 380-92	6.4	65
85	Brain-controlled modulation of spinal circuits improves recovery from spinal cord injury. *Nature Communications*, **2018**, 9, 3015	17.4	61
84	Development of a database for translational spinal cord injury research. *Journal of Neurotrauma*, **2014**, 31, 1789-99	5.4	59
83	Biodegradable scaffolds promote tissue remodeling and functional improvement in non-human primates with acute spinal cord injury. *Biomaterials*, **2017**, 123, 63-76	15.6	58
82	Plasticity of functional connectivity in the adult spinal cord. *Philosophical Transactions of the Royal Society B: Biological Sciences*, **2006**, 361, 1635-46	5.8	58
81	Somatosensory control of balance during locomotion in decerebrated cat. *Journal of Neurophysiology*, **2012**, 107, 2072-82	3.2	56
80	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	2.9	54
79	Phase-dependent modulation of percutaneously elicited multisegmental muscle responses after spinal cord injury. *Journal of Neurophysiology*, **2010**, 103, 2808-20	3.2	54
78	Gait-dependent motor memory facilitation in covert movement execution. *Cognitive Brain Research*, **2004**, 22, 67-75		50
77	Continuous, bilateral Achilles' tendon vibration is not detrimental to human walk. *Brain Research Bulletin*, **2001**, 55, 107-15	3.9	50

76	Configuration of electrical spinal cord stimulation through real-time processing of gait kinematics. *Nature Protocols*, **2018**, 13, 2031-2061	18.8	50
75	Multi-system neurorehabilitative strategies to restore motor functions following severe spinal cord injury. *Experimental Neurology*, **2012**, 235, 100-9	5.7	49
74	Cbp-dependent histone acetylation mediates axon regeneration induced by environmental enrichment in rodent spinal cord injury models. *Science Translational Medicine*, **2019**, 11,	17.5	39
73	Soft, Implantable Bioelectronic Interfaces for Translational Research. *Advanced Materials*, **2020**, 32, e1906512	24	38
72	Corticospinal neuroprostheses to restore locomotion after spinal cord injury. *Neuroscience Research*, **2014**, 78, 21-9	2.9	38
71	Combinatory electrical and pharmacological neuroprosthetic interfaces to regain motor function after spinal cord injury. *IEEE Transactions on Biomedical Engineering*, **2009**, 56, 2707-11	5	38
70	Methods for functional assessment after C7 spinal cord hemisection in the rhesus monkey. *Neurorehabilitation and Neural Repair*, **2012**, 26, 556-69	4.7	37
69	A multidirectional gravity-assist algorithm that enhances locomotor control in patients with stroke or spinal cord injury. *Science Translational Medicine*, **2017**, 9,	17.5	31
68	Recruitment of upper-limb motoneurons with epidural electrical stimulation of the cervical spinal cord. *Nature Communications*, **2021**, 12, 435	17.4	31
67	Advantages of soft subdural implants for the delivery of electrochemical neuromodulation therapies to the spinal cord. *Journal of Neural Engineering*, **2018**, 15, 026024	5	30
66	Structured nanoscale metallic glass fibres with extreme aspect ratios. *Nature Nanotechnology*, **2020**, 15, 875-882	28.7	30
65	Spinal cord injury: time to move. *Lancet, The*, **2011**, 377, 1896-8	40	29
64	Engagement of the Rat Hindlimb Motor Cortex across Natural Locomotor Behaviors. *Journal of Neuroscience*, **2016**, 36, 10440-10455	6.6	29
63	Cell type prioritization in single-cell data. *Nature Biotechnology*, **2021**, 39, 30-34	44.5	27
62	Neuroprosthetic baroreflex controls haemodynamics after spinal cord injury. *Nature*, **2021**, 590, 308-314	50.4	27
61	Wearable Sensor-Based Real-Time Gait Detection: A Systematic Review. *Sensors*, **2021**, 21,	3.8	26
60	Optical cuff for optogenetic control of the peripheral nervous system. *Journal of Neural Engineering*, **2018**, 15, 015002	5	25
59	Asymmetrical after-effects of prism adaptation during goal oriented locomotion. *Experimental Brain Research*, **2008**, 185, 259-68	2.3	25

58	Defining ecological strategies in neuroprosthetics. *Neuron*, **2015**, 86, 29-33	13.9	23
57	Multisystem neuroprosthetic training improves bladder function after severe spinal cord injury. *Journal of Urology*, **2013**, 189, 747-53	2.5	23
56	Neuroprosthetic technologies to augment the impact of neurorehabilitation after spinal cord injury. *Annals of Physical and Rehabilitation Medicine*, **2015**, 58, 232-237	3.8	22
55	Brain-machine interface: closer to therapeutic reality?. *Lancet, The*, **2013**, 381, 515-7	40	22
54	Decoding bipedal locomotion from the rat sensorimotor cortex. *Journal of Neural Engineering*, **2015** , 12, 056014	5	22
53	Gait-dependent integration of neck muscle afferent input. *NeuroReport*, **2003**, 14, 2365-8	1.7	22
52	Closed-loop control of trunk posture improves locomotion through the regulation of leg proprioceptive feedback after spinal cord injury. *Scientific Reports*, **2018**, 8, 76	4.9	21
51	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	2.3	21
50	Confronting false discoveries in single-cell differential expression. *Nature Communications*, **2021**, 12, 5692	17.4	21
49	Research Update: Platinum-elastomer mesocomposite as neural electrode coating. *APL Materials*, **2015**, 3, 014701	5.7	20
48	Prolonged exposure to microgravity modifies limb endpoint kinematics during the swing phase of human walking. *Neuroscience Letters*, **2002**, 332, 70-4	3.3	18
47	Soft Printable Electrode Coating for Neural Interfaces.. *ACS Applied Bio Materials*, **2020**, 3, 4388-4397	4.1	17
46	Soft robot for gait rehabilitation of spinalized rodents **2013**,		17
45	Guidelines to Study and Develop Soft Electrode Systems for Neural Stimulation. *Neuron*, **2020**, 108, 238-258	13.9	17
44	Monolayer Graphene Coating of Intracortical Probes for Long-Lasting Neural Activity Monitoring. *Advanced Healthcare Materials*, **2019**, 8, e1801331	10.1	16
43	Influence of Spinal Cord Integrity on Gait Control in Human Spinal Cord Injury. *Neurorehabilitation and Neural Repair*, **2016**, 30, 562-72	4.7	15
42	Electronic Dura Mater Meddling in the Central Nervous System. *JAMA Neurology*, **2017**, 74, 470-475	17.2	14
41	Unconstrained three-dimensional reaching in rhesus monkeys. *Experimental Brain Research*, **2011**, 209, 35-50	2.3	14

40	Neurorestorative interventions involving bioelectronic implants after spinal cord injury. *Bioelectronic Medicine*, **2019**, 5, 10	5.4	13
39	Leveraging biomedical informatics for assessing plasticity and repair in primate spinal cord injury. *Brain Research*, **2015**, 1619, 124-38	3.7	12
38	Activity-dependent spinal cord neuromodulation rapidly restores trunk and leg motor functions after complete paralysis.. *Nature Medicine*, **2022**,	50.5	12
37	Rehabilitative Soft Exoskeleton for Rodents. *IEEE Transactions on Neural Systems and Rehabilitation Engineering*, **2017**, 25, 107-118	4.8	11
36	A neurorobotic platform for locomotor prosthetic development in rats and mice. *Journal of Neural Engineering*, **2016**, 13, 026007	5	11
35	Comment on "Restoring voluntary control of locomotion after paralyzing spinal cord injury". *Science*, **2012**, 338, 328; author reply 328	33.3	10
34	Towards adaptive deep brain stimulation: clinical and technical notes on a novel commercial device for chronic brain sensing. *Journal of Neural Engineering*, **2021**, 18,	5	10
33	MRI-Compatible and Conformal Electrocorticography Grids for Translational Research. *Advanced Science*, **2021**, 8, 2003761	13.6	9
32	Inhaling xenon ameliorates l-dopa-induced dyskinesia in experimental parkinsonism. *Movement Disorders*, **2018**, 33, 1632-1642	7	9
31	Wireless closed-loop optogenetics across the entire dorsoventral spinal cord in mice. *Nature Biotechnology*, **2021**,	44.5	9
30	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	17.4	7
29	Confronting false discoveries in single-cell differential expression		7
28	Long-term functionality of a soft electrode array for epidural spinal cord stimulation in a minipig model. *Annual International Conference of the IEEE Engineering in Medicine and Biology Society IEEE Engineering in Medicine and Biology Society Annual International Conference*, **2018**, 2018, 1432-1435	0.9	7
27	Selective Recruitment of Arm Motoneurons in Nonhuman Primates Using Epidural Electrical Stimulation of the Cervical Spinal Cord. *Annual International Conference of the IEEE Engineering in Medicine and Biology Society IEEE Engineering in Medicine and Biology Society Annual International Conference*, **2018**, 2018, 1424-1427	0.9	6
26	Motor cortical dynamics are shaped by multiple distinct subspaces during naturalistic behavior		5
25	Regulation of Posture and Locomotion in Decerebrate and Spinal Animals. *Neuroscience and Behavioral Physiology*, **2015**, 45, 229-237	0.3	4
24	A Single Cell Atlas of Spared Tissue Below a Spinal Cord Injury Reveals Cellular Mechanisms of Repair		4
23	Meeting Proceedings for SCI 2020: Launching a Decade of Disruption in Spinal Cord Injury Research. *Journal of Neurotrauma*, **2021**, 38, 1251-1266	5.4	4

22	Prioritization of cell types responsive to biological perturbations in single-cell data with Augur. *Nature Protocols*, **2021**, 16, 3836-3873	18.8	4
21	Low-Dimensional Motor Cortex Dynamics Preserve Kinematics Information During Unconstrained Locomotion in Nonhuman Primates. *Frontiers in Neuroscience*, **2019**, 13, 1046	5.1	3
20	R□hanence de l□effet vibratoire durant la marche humaine. *Soci□□ De Biologie Journal*, **2001**, 195, 443-446		3
19	Recruitment of Upper-Limb Motoneurons with Epidural Electrical Stimulation of the Primate Cervical Spinal Cord		3
18	Bioelectronic Interfaces: Soft, Implantable Bioelectronic Interfaces for Translational Research (Adv. Mater. 17/2020). *Advanced Materials*, **2020**, 32, 2070133	24	2
17	Engineering spinal cord repair. *Current Opinion in Biotechnology*, **2021**, 72, 48-53	11.4	2
16	Cell type prioritization in single-cell data		2
15	Epidural Electrical Stimulation of the Cervical Dorsal Roots Restores Voluntary Arm Control In Paralyzed Monkeys		2
14	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	7.5	2
13	Introducing a biomimetic coating for graphene neuroelectronics: towardapplications.. *Biomedical Physics and Engineering Express*, **2020**, 7,	1.5	2
12	Neglected physical human-robot interaction may explain variable outcomes in gait neurorehabilitation research. *Science Robotics*, **2021**, 6, eabf1888	18.6	2
11	A Whole-Body Musculoskeletal Model of the Mouse.. *IEEE Access*, **2021**, 9, 163861-163881	3.5	1
10	Intrafascicular peripheral nerve stimulation produces fine functional hand movements in primates. *Science Translational Medicine*, **2021**, 13, eabg6463	17.5	1
9	Principles of gait encoding in the subthalamic nucleus of people with Parkinson□ disease		1
8	Preclinical upper limb neurorobotic platform to assess, rehabilitate, and develop therapies.. *Science Robotics*, **2022**, 7, eabk2378	18.6	1
7	Implanted System for Orthostatic Hypotension in Multiple-System Atrophy.. *New England Journal of Medicine*, **2022**, 386, 1339-1344	59.2	1
6	Multisystem Neurorehabilitation in Rodents with Spinal Cord Injury **2016**, 59-77		0
5	A Computational Framework for the Design of Spinal Neuroprostheses. *Biosystems and Biorobotics*, **2017**, 23-27	0.2	

4	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
3	Multisystem Neurorehabilitation in Rodents with Spinal Cord Injury **2012**, 3-21	
2	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	
1	Optogenetic Interrogation of Circuits Following Neurotrauma.. *Frontiers in Molecular Neuroscience*, **2021**, 14, 803856	6.1