Heike Vallery

List of Publications by Year in descending order

90 papers	3,463 citations	279701 23 h-index	168321 53 g-index
94 all docs	94 docs citations	94 times ranked	3181 citing authors

#	Article	IF	Citations
1	Control strategies for active lower extremity prosthetics and orthotics: a review. Journal of NeuroEngineering and Rehabilitation, 2015, 12, 1.	2.4	773
2	Compliant actuation of rehabilitation robots. IEEE Robotics and Automation Magazine, 2008, 15, 60-69.	2.2	380
3	Towards more effective robotic gait training for stroke rehabilitation: a review. Journal of NeuroEngineering and Rehabilitation, 2012, 9, 65.	2.4	197
4	Reference Trajectory Generation for Rehabilitation Robots: Complementary Limb Motion Estimation. IEEE Transactions on Neural Systems and Rehabilitation Engineering, 2009, 17, 23-30.	2.7	183
5	Passive and accurate torque control of series elastic actuators. , 2007, , .		111
6	Wearable Sensor-Based Real-Time Gait Detection: A Systematic Review. Sensors, 2021, 21, 2727.	2.1	110
7	Model-Based Estimation of Knee Stiffness. IEEE Transactions on Biomedical Engineering, 2012, 59, 2604-2612.	2.5	108
8	Versatile robotic interface to evaluate, enable and train locomotion and balance after neuromotor disorders. Nature Medicine, 2012, 18, 1142-1147.	15.2	94
9	Rolling in the Deep â€“ Hybrid Locomotion for Wheeled-Legged Robots Using Online Trajectory Optimization. IEEE Robotics and Automation Letters, 2020, 5, 3626-3633.	3.3	69
10	Multidirectional transparent support for overground gait training. , 2013, 2013, 6650512.		66
11	Reducing the Energy Consumption of Robots Using the Bidirectional Clutched Parallel Elastic Actuator. IEEE Transactions on Robotics, 2016, 32, 1512-1523.	7.3	59
12	Brain activity during stepping: A novel MRI-compatible device. Journal of Neuroscience Methods, 2011, 201, 124-130.	1.3	58
13	Complementary limb motion estimation for the control of active knee prostheses. Biomedizinische Technik, 2011, 56, 45-51.	0.9	55
14	Feasibility and effects of patient-cooperative robot-aided gait training applied in a 4-week pilot trial. Journal of NeuroEngineering and Rehabilitation, 2012, 9, 31.	2.4	55
15	Self-Sensing of Deflection, Force, and Temperature for Joule-Heated Twisted and Coiled Polymer Muscles via Electrical Impedance. IEEE/ASME Transactions on Mechatronics, 2017, 22, 1268-1275.	3.7	55
16	Actuator With Angle-Dependent Elasticity for Biomimetic Transfemoral Prostheses. IEEE/ASME Transactions on Mechatronics, 2015, 20, 1384-1394.	3.7	54
17	Generalized elasticities improve patient-cooperative control of rehabilitation robots. , 2009, , .		52
18	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

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19	Influence of body weight unloading on human gait characteristics: a systematic review. Journal of NeuroEngineering and Rehabilitation, 2018, 15, 53.	2.4	42
20	Series Viscoelastic Actuators Can Match Human Force Perception. IEEE/ASME Transactions on Mechatronics, 2011, 16, 853-860.	3.7	41
21	Design and Evaluation of a Balance Assistance Control Moment Gyroscope. Journal of Mechanisms and Robotics, 2017, 9, .	1.5	35
22	Robot-supported assessment of balance in standing and walking. Journal of NeuroEngineering and Rehabilitation, 2017, 14, 80.	2.4	34
23	A tendon-based parallel robot applied to motor learning in sports. , 2010, , .		31
24	Effects of added inertia and body weight support on lateral balance control during walking. , 2011, 2011, 5975415.		30
25	The Effect of Haptic Guidance on Learning a Hybrid Rhythmic-Discrete Motor Task. IEEE Transactions on Haptics, 2015, 8, 222-234.	1.8	29
26	Augmenting Clinical Outcome Measures of Gait and Balance with a Single Inertial Sensor in Age-Ranged Healthy Adults. Sensors, 2019, 19, 4537.	2.1	28
27	Design of RYSEN: An Intrinsically Safe and Low-Power Three-Dimensional Overground Body Weight Support. IEEE Robotics and Automation Letters, 2018, 3, 2253-2260.	3.3	27
28	Effects of sensory augmentation on postural control and gait symmetry of transfemoral amputees: a case description. Medical and Biological Engineering and Computing, 2016, 54, 1579-1589.	1.6	26
29	Biarticular muscles are most responsive to upper-body pitch perturbations in human standing. Scientific Reports, 2019, 9, 14492.	1.6	26
30	Gyroscopic assistance for human balance. , 2012, , .		25
31	The role of skill level and motor task characteristics on the effectiveness of robotic training: first results. , 2015, , .		25
32	Model-Plant Mismatch Compensation Using Reinforcement Learning. IEEE Robotics and Automation Letters, 2018, 3, 2471-2477.	3.3	25
33	Assistance or challenge? Filling a gap in user-cooperative control. , 2011, , .		22
34	An actuated transfemoral prosthesis with optimized polycentric knee joint. , 2012, , .		22
35	Directional Singularity-Robust Torque Control for Gyroscopic Actuators. IEEE/ASME Transactions on Mechatronics, 2016, 21, 2755-2763.	3.7	21
36	Design and evaluation of the Bi-directional Clutched Parallel Elastic Actuator (BIC-PEA). , 2015, , .		20

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37	Directional Singularity Escape and Avoidance for Single-Gimbal Control Moment Gyroscopes. Journal of Guidance, Control, and Dynamics, 2018, 41, 1095-1107.	1.6	20
38	Complementary Limb Motion Estimation based on Interjoint Coordination: Experimental Evaluation. , 2007, , .		19
39	Controller synthesis and clinical exploration of wearable gyroscopic actuators to support human balance. Scientific Reports, 2020, 10, 10412.	1.6	19
40	Benchmarking model-free and model-based optimal control. Robotics and Autonomous Systems, 2017, 92, 81-90.	3.0	18
41	Closed-Loop Control Through Self-Sensing of a Joule-Heated Twisted and Coiled Polymer Muscle. Soft Robotics, 2019, 6, 621-630.	4.6	18
42	Optimized passive dynamics improve transparency of haptic devices. , 2009, , .		17
43	Complementary limb motion estimation based on interjoint coordination using Principal Components Analysis. , 2006, , .		16
44	Cooperative Control Design for Robot-Assisted Balance During Gait. Automatisierungstechnik, 2012, 60, 715-720.	0.4	16
45	Cardiovascular control and stabilization via inclination and mobilization during bed rest. Medical and Biological Engineering and Computing, 2014, 52, 53-64.	1.6	16
46	Preserved gait kinematics during controlled body unloading. Journal of NeuroEngineering and Rehabilitation, 2017, 14, 25.	2.4	16
47	Mechanical Aspects of Robot Hands, Active Hand Orthoses, and Prostheses: A Comparative Review. IEEE/ASME Transactions on Mechatronics, 2021, 26, 955-965.	3.7	16
48	Knee stiffness estimation in physiological gait. , 2014, 2014, 1607-10.		14
49	Hiding robot inertia using resonance. , 2010, 2010, 1271-4.		13
50	Bio-cooperative robotics: Controlling mechanical, physiological and mental patient states. , 2009, , .		12
51	Forward kinematics of redundantly actuated, tendon-based robots. , 2010, , .		12
52	Non-linear adaptive controllers for an over-actuated pneumatic MR-compatible stepper. Medical and Biological Engineering and Computing, 2013, 51, 799-809.	1.6	12
53	A neurorobotic platform for locomotor prosthetic development in rats and mice. Journal of Neural Engineering, 2016, 13, 026007.	1.8	12
54	Use of Passively Guided Deflection Units and Energy-Storing Elements to Increase the Application Range of Wire Robots. Mechanisms and Machine Science, 2013, , 167-184.	0.3	11

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55	Adaptive position anticipation in a support robot for overground gait training enhances transparency. , 2013, 2013, 6650483.		10
56	A body weight support system extension to control lateral forces: Realization and validation. , 2014, , .		10
57	Observing the State of Balance with a Single Upper-Body Sensor. Frontiers in Robotics and AI, 2016, 3, .	2.0	10
58	Bio-Inspired Adaptive Control for Active Knee Exoprosthetics. IEEE Transactions on Neural Systems and Rehabilitation Engineering, 2017, 25, 2355-2364.	2.7	10
59	Model-based estimation of active knee stiffness. , 2011, 2011, 5975474.		8
60	Assisting gait with free moments or joint moments on the swing leg. , 2019, 2019, 1079-1084.		8
61	A MUltidimensional Compliant Decoupled Actuator (MUCDA) for Pelvic Support During Gait. IEEE/ASME Transactions on Mechatronics, 2019, 24, 164-174.	3.7	8
62	Neglected physical human-robot interaction may explain variable outcomes in gait neurorehabilitation research. Science Robotics, 2021, 6, eabf1888.	9.9	7
63	Automation in Rehabilitation: How to Include the Human into the Loop. IFMBE Proceedings, 2009, , 180-183.	0.2	6
64	A novel body weight support system extension: Initial concept and simulation study. , 2013, 2013, 6650489.		6
65	Reinforcement Learning of Potential Fields to achieve Limit-Cycle Walking. IFAC-PapersOnLine, 2016, 49, 113-118.	0.5	6
66	Quantification of clinical scores through physiological recordings in low-responsive patients: a feasibility study. Journal of NeuroEngineering and Rehabilitation, 2012, 9, 30.	2.4	5
67	Human balance responses to perturbations in the horizontal plane. , 2014, 2014, 4058-61.		5
68	Design and Evaluation of Pint-Sized Gyroscopic Actuators. , 2021, , .		5
69	BewegungsintentionsschÃtzung auf Basis von Gelenkkoordination (Motion Intention Estimation) Tj ETQq1 1 0.784314 rgBT /Overloc	0.4	4
70	Adaptive PatientenunterstÃ¼tzung fÃ¼r Rehabilitationsroboter. Automatisierungstechnik, 2010, 58, 260-268.	0.4	4
71	Guidance in the nullspace reduces task difficulty in robot-assisted coordination training. , 2015, , .		4
72	Evaluation of physical damage associated with action selection strategies in reinforcement learning * *I. Koryakovskiy, H. Vallery and R.BabuÅ¡ka were supported by the European project KOROIBOT FP7-ICT-2013-10/611909.. IFAC-PapersOnLine, 2017, 50, 6928-6933.	0.5	4

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73	Simulation of human gait with body weight support: benchmarking models and unloading strategies. Journal of NeuroEngineering and Rehabilitation, 2020, 17, 81.	2.4	4
74	Force sensing for compliant actuators using coil spring inductance. , 2015, , .		3
75	Influence of Internal Oscillations on Force Sensing in Coil Springs. IEEE Robotics and Automation Letters, 2017, 2, 1466-1471.	3.3	3
76	Control of Motion and Compliance. , 2017, , 135-346.		3
77	Do we need complex rehabilitation robots for training complex tasks?. , 2019, 2019, 1085-1090.		3
78	Feasibility Analysis of a Self-Reinforcing Electroadhesive Rotational Clutch. , 2021, , .		3
79	Work Life in the Light of the Demographic Change: Case Study Force Assistive Device for Craftsmen. Advanced Technologies and Societal Change, 2012, , 45-60.	0.8	2
80	Assistance or challenge? Filling a gap in user-cooperative control. , 2011, , .		1
81	KÃ¼nstliches Feedback fÃ¼r Oberschenkelamputierte â€“ Theoretische Analyse / Artificial Feedback for Transfemoral Amputees â€“ Theoretical Analysis. Automatisierungstechnik, 2013, 61, 621-629.	0.4	1
82	Robotic Devices for Overground Gait and Balance Training. , 2016, , 483-492.		1
83	Automatisierungstechnische Verfahren und Systeme fÃ¼r die Medizin â€” Teil 2. Automatisierungstechnik, 2011, 59, 659-660.	0.4	0
84	A preliminary study into the effects of pelvic rotations on upper body lateral translation. , 2013, 2013, 6650490.		0
85	14. Verfahren in der neurologischen Bewegungstherapie. , 2014, , 357-374.		0
86	Guest Editorial: Focused Section on Inaugural Edition of TMECH/AIM Emerging Topics. IEEE/ASME Transactions on Mechatronics, 2020, 25, 1695-1697.	3.7	0
87	Compliant Multi-DOF Actuation. Studies in Computational Intelligence, 2021, , 45-54.	0.7	0
88	Design and Evaluation of a Series-Elastic Gyroscopic Actuator for Balance Assistance. , 2021, , .		0
89	Automatisierungstechnische Verfahren und Systeme fÃ¼r die Medizin. Automatisierungstechnik, 2011, 59, 611-612.	0.4	0
90	Passive autonomy: hygromorphic rotational actuators. Smart Materials and Structures, 0, , .	1.8	0