1. Record Nr. UNINA9910633924103321

Titolo	Biomimetic and Biohybrid Systems : 11th International Conference, Living Machines 2022, Virtual Event, July 19–22, 2022, Proceedings / / edited by Alexander Hunt, Vasiliki Vouloutsi, Kenneth Moses, Roger Quinn, Anna Mura, Tony Prescott, Paul F. M. J. Verschure
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2022
ISBN	9783031204708 3031204700
Edizione	[1st ed. 2022.]
Descrizione fisica	1 online resource (419 pages)
Collana	Lecture Notes in Artificial Intelligence, , 2945-9141 ; ; 13548
Disciplina	006.3 660.6
Soggetti	Artificial intelligence Computer networks Computers, Special purpose Computer systems Computer engineering Artificial Intelligence Computer Communication Networks Special Purpose and Application-Based Systems Computer System Implementation Computer Engineering and Networks
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Unit cell based artificial Venus flytrap -- Ten Years of Living Machines Conferences: Transformers-based Automated Topic Grouping -- Multi-material FDM 3D printed arm with integrated pneumatic actuator -- SNS-Toolbox: A Tool for Efficient Simulation of Synthetic Nervous Systems -- Scaling a hippocampus model with GPU parallelisation and test-driven refactoring -- Application-Oriented Comparison of Two 3D Printing Processes for the Manufacture of Pneumatic Bending Actuators for Bioinspired Macroscopic Soft Gripper Systems -- Integrating Spiking

Neural Networks and Deep Learning Algorithms on the Neurorobotics Platform -- Quasi-static modeling of feeding behavior in Aplysia Californica -- Conversion of Elastic Energy Stored in the Legs of a Hexapod Robot into Propulsive Force -- The shaker: a platform for active perturbations in neuromechanical studies of small animals -- The modelling of different dog breeds on the basis of a validated model -- Analyzing 3D limb kinematics of Drosophila melanogaster for robotic platform development -- Gut feelings: Towards Robotic Personality Generation with Microbial Fuel Cells -- Load Feedback from a Dynamically Scaled Robotic Model of Carausius morosus Middle Leg -- A Computational Approach for Contactless Muscle Force and Strain Estimations in Distributed Actuation Biohybrid Mesh Constructs -- DEVELOPMENT AND CHARACTERIZATION OF A SOFT BENDING ACTUATOR -- Evaluation of Gait Generation in Quadrupedal Legged Locomotion with Changing Anterior/Posterior Extreme Positions -- Active Inference for Artificial Touch: A Biologically-Plausible Tactile Control Method -- SLUGBOT, an Aplysia-inspired Robotic Grasper for Studying Control -- Robotic Platform for Testing a Simple Stereopsis Network -- A Scalable Soft Robotic Cellbot -- A Robotic Implementation of Neurally-Based Animal Magnetic Reception and Navigation -- Design of a Biomolecular Neuristor Circuit for Bioinspired Control -- GymSlug: Deep Reinforcement Learning toward Bio-inspired Control based on Aplysia californica Feeding -- A Synthetic Nervous System with Coupled Oscillators Controls Peristaltic Locomotion -- Simple reactive head motion control enhances adaptability to rough terrain in centipede walking -- Surrogate Modeling for Optimizing the Wing Design of a Hawk Moth Inspired Flapping-Wing Micro Air Vehicle -- A Novel Multi-Vision Sensor Dataset for Insect-Inspired Outdoor Autonomous Navigation -- Using DeepLabCut To Predict Locations of Subdermal Landmarks From Video -- Underwater light modulators: iridescent structures of the seagrass Posidonia oceanica -- Canonical Motor Microcircuit for Control of a Rat Hindlimb -- Direct Assembly and Tuning of Dynamical Neural Networks for Kinematics -- Homeostatic and allostatic principles for behavioral regulation in desert reptiles: a robotic evaluation -- Cognitive architecture as a Service: Scaffolded integration of heterogeneous models through event streams -- A Synthetic Nervous System Controls a Biomechanical Model of Aplysia Feeding -- AnimalAcceptance of an Autonomous Pasture Sanitation Robot -- A Functional Subnetwork Approach to Multistate Central Pattern Generator Phase Difference Control -- Time-Evolution Characterization of Behavior Class Prototypes.

Sommario/riassunto

This book constitutes the proceedings of the 11th International Conference on Biomimetic and Biohybrid Systems, Living Machines 2022, held as virtual event, in July 19–22, 2022. The conference was held virtually due to the COVID-19 crisis. The 30 full papers and 8 short papers presented were carefully reviewed and selected from 48 submissions. They deal with research on novel life-like technologies inspired by the scientific investigation of biological systems; biomimetics; and research that seeks to interface biological and artificial systems to create biohybrid systems. .