1. Record Nr. UNISA996635666403316

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Titolo	Biomimetic and Biohybrid Systems : 13th International Conference, Living Machines 2024, Chicago, IL, USA, July 8–11, 2024, Proceedings / / edited by Nicholas S. Szczecinski, Victoria Webster-Wood, Matthew Tresch, William R. P. Nourse, Anna Mura, Roger D. Quinn
Pubbl/distr/stampa	Cham : , : Springer Nature Switzerland : , : Imprint : Springer, , 2025
ISBN	9783031725975 3031725972
Edizione	[1st ed. 2025.]
Descrizione fisica	1 online resource (461 pages)
Collana	Lecture Notes in Artificial Intelligence, , 2945-9141 ; ; 14930
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Disciplina	006.3
Soggetti	Artificial intelligence Artificial Intelligence
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Brain Network Modeling -- BrainX3 3 0 Advancing Neuroinformatics and Artificial Brains for Living Machines -- Towards Biophysical Network Simulations of Stochastically Formed Neurospheres -- Tools for Studying Behaviors -- FlyWheel A Robotic Platform for Modeling Fly Visual Behavior -- A coupled oscillator model of human attachment dynamics evaluated in a robot dyadic interaction -- Creating an Artificial No Fly Zone with Sensory Disruptions -- Sensors and Sensing -- Maximizing robotic limb rigidity and strain sensing capabilities through localized Kevlar fiber reinforcement -- Flexible Strain Gauge Sensors as Real time Stretch Receptors for Use in Biomimetic BPA Muscle Applications -- Sensory feedback cancellation Developing resonator networks to mimic A leptorhynchus cerebellar processing of sensory feedback -- Navigational Systems -- Binocular Vision and Vector Summation Based Integration of Bilateral Innate and Learned Visual Cues in Insect Navigation -- Bioinspired Magnetic Navigation for

Exploring Celestial Bodies -- Bioinspired Navigation Based on Distributed Sensing in the Leech Using Dynamic Neural Fields -- A Comparative Study of Reinforcement Learning and Insect Inspired Visual Navigation Methods -- Control and Mechanics of Soft and Continuum Systems -- Erodium awns water transport insights for controlled swelling agent rearrangement in anisotropic structures -- Simulated Control of an Aquatic Serpentine Robot with Stable Heteroclinic Channels -- A comparison of model free controllers for trajectory tracking in a plant inspired soft arm -- Pulse Modulation in Braided Pneumatic Actuators Mimics Contractile Behavior of Biological Muscles -- System Design -- Design of a Rat Robotic Forelimb -- Cellular Plasticity Model for Bottom Up Robotic Design -- Vertical closure constraint for self replicating machines -- Mechanical Design of a Feline Robot for Dynamic Scaling Testing -- Moving Inward with Front Legs Improves Tripod Gaits for Crab like Robot Walking in Sand -- Neural Networks for Computation -- Encoding 3D Leg Kinematics using Spatially Distributed Population Coded Network Model -- Analysis Pipeline for High Dimensional Neuromechanical Model Improvement -- Bio Inspired Neural Networks for Control -- Modulation and Time history dependent Adaptation Improves the Pick and Place Control of a Bioinspired Soft Grasper -- Sequence Generator Network for Neuromechanical Control of Rat Hindlimbs -- Multilevel Synthetic Nervous System Control For Legged Locomotion -- Biohybrid Systems -- Biocompatibility of Asiga Dental Resins Using a Low Cost Printer for Biohybrid Actuator Applications -- Speed independent wall distance estimation along a given trajectory of a biohybrid Fly Robot Interface -- Larva in the loop utilizing Zebrafish larvae to control robots in real time via optokinetic response feedback -- Biomechanics -- Passive Stability of Stance is Determined by the Relationship Between Natural Frequency and Walking Frequency -- A Method to Characterize Rat Hindlimb Mechanics Using Dynamic Perturbations.

Sommario/riassunto

This proceeding constitutes the 13th International Conference on Biomimetic and Biohybrid Systems, held in Chicago, IL, USA, during July 8–11, 2024. The 27 full papers and 4 short papers were carefully reviewed and selected from 35 submissions. They were categorized under the following topics: Brain Network Modeling; Tools for Studying Behaviors; Sensors and Sensing, Navigational Systems; Control and Mechanics of Soft and Continuum Systems; System Design; Neural Networks for Computation; Bio Inspired Neural Networks for Control; Biohybrid Systems; and Biomechanics.