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Nota di contenuto	-- Workshop: AI in Drug Discovery. -- Combinatorial Library Neural Network (CoLiNN) for Combinatorial Library Visualization without Compound Enumeration. -- De novo Drug Design – Do We Really Want To Be “Original”? -- Elucidation of Molecular Substructures from Nuclear Magnetic Resonance Spectra using Gradient Boosting. -- Neural SHAKE: Geometric Constraints in Graph Generative Models. -- Scaffold Splits Overestimate Virtual Screening Performance. -- Target-Aware Drug Activity Model: A deep learning approach to virtual HTS. -- Workshop: Reservoir Computing. -- Effects of Input Structure and Topology on Input-Driven Functional Connectivity Stability. -- Non-dissipative Reservoir Computing approaches for time-series

classification. -- Onion Echo State Networks A Preliminary Analysis of Dynamics. -- Oscillation-driven Reservoir Computing for Long-Term Replication of Chaotic Time Series. -- Prediction of reaching movements with target information towards trans-humeral prosthesis control using Reservoir Computing and LSTMs. -- Reducing Reservoir Dimensionality with Phase Space Construction for Simplified Hardware Implementation. -- Restricted Reservoirs on Heterogeneous Timescales. -- Special Session: Accuracy, Stability, and Robustness in Deep Neural Networks. -- Clean-image Backdoor Attacks. -- MADE: A Universal Fine-tuning Framework to Enhance Robustness of Machine Reading Comprehension. -- Robustness of biologically grounded neural networks against image perturbations. -- Some Comparisons of Linear and Deep ReLU Network Approximation. -- Unlearnable Examples Detection via Iterative Filtering. -- Special Session: Neurorobotics. -- Action recognition system integrating motion and object detection. -- Active Vision for Physical Robots using the Free Energy Principle. -- Learning Low-Level Causal Relations using a Simulated Robotic Arm. -- Modular Reinforcement Learning In Long-Horizon Manipulation Tasks. -- Robotic Model of the Mirror Neuron System: a Revival. -- Self-organized attractoring in locomoting animals and robots: an emerging field. -- Special Session: Spiking Neural Networks. -- A Multi-modal Spiking Meta-learner With Brain-inspired Task-aware Modulation Scheme. -- Event-Based Hand Detection on Neuromorphic Hardware Using a Sigma Delta Neural Network. -- Learning in Recurrent Spiking Neural Networks with Sparse full-FORCE Training. -- Natively neuromorphic LMU architecture for encoding-free SNN-based HAR on commercial edge devices. -- Obtaining Optimal Spiking Neural Network in Sequence Learning via CRNN-SNN Conversion. -- On Reducing Activity with Distillation and Regularization for Energy Ecient Spiking Neural Networks. -- Temporal Contrastive Learning for Spiking Neural Networks.

Sommario/riassunto

The ten-volume set LNCS 15016-15025 constitutes the refereed proceedings of the 33rd International Conference on Artificial Neural Networks and Machine Learning, ICANN 2024, held in Lugano, Switzerland, during September 17–20, 2024. The 294 full papers and 16 short papers included in these proceedings were carefully reviewed and selected from 764 submissions. The papers cover the following topics: Part I - theory of neural networks and machine learning; novel methods in machine learning; novel neural architectures; neural architecture search; self-organization; neural processes; novel architectures for computer vision; and fairness in machine learning. Part II - computer vision: classification; computer vision: object detection; computer vision: security and adversarial attacks; computer vision: image enhancement; and computer vision: 3D methods. Part III - computer vision: anomaly detection; computer vision: segmentation; computer vision: pose estimation and tracking; computer vision: video processing; computer vision: generative methods; and topics in computer vision. Part IV - brain-inspired computing; cognitive and computational neuroscience; explainable artificial intelligence; robotics; and reinforcement learning. Part V - graph neural networks; and large language models. Part VI - multimodality; federated learning; and time series processing. Part VII - speech processing; natural language processing; and language modeling. Part VIII - biosignal processing in medicine and physiology; and medical image processing. Part IX - human-computer interfaces; recommender systems; environment and climate; city planning; machine learning in engineering and industry; applications in finance; artificial intelligence in education; social

network analysis; artificial intelligence and music; and software security. Part X - workshop: AI in drug discovery; workshop: reservoir computing; special session: accuracy, stability, and robustness in deep neural networks; special session: neurorobotics; and special session: spiking neural networks.