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Scalable Differentiable Physics for Learning and Control

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Generalization to New Actions in Reinforcement Learning

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Randomized Block-Diagonal Preconditioning for Parallel Learning

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Stochastic Flows and Geometric Optimization on the Orthogonal Group

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PackIt: A Virtual Environment for Geometric Planning

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Soft Threshold Weight Reparameterization for Learnable Sparsity

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Fractional Underdamped Langevin Dynamics: Retargeting SGD with Momentum under Heavy-Tailed Gradient Noise

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Context Aware Local Differential Privacy

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A Mean Field Analysis Of Deep ResNet And Beyond: Towards Provably Optimization Via Overparameterization From Depth

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Provable Smoothness Guarantees for Black-Box Variational Inference

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DRWR: A Differentiable Renderer without Rendering for Unsupervised 3D Structure Learning from Silhouette Images

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Hybrid Stochastic-Deterministic Minibatch Proximal Gradient: Less-Than-Single-Pass Optimization with Nearly Optimal Generalization

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Learning Binary Neurons with Noisy Supervision

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Optimal Continual Learning has Perfect Memory and is NP-hard

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Clinician-in-the-Loop Decision Making: Reinforcement Learning with Near-Optimal Set-Valued Policies

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Learning the Valuations of a k -demand Agent

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The many Shapley values for model explanation

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Linear Convergence of Randomized Primal-Dual Coordinate Method for Large-scale Linear Constrained Convex Programming

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Universal Asymptotic Optimality of Polyak Momentum

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The Complexity of Finding Stationary Points with Stochastic Gradient

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Sample Complexity Bounds for 1-bit Compressive Sensing and Binary Stable Embeddings with Generative Priors

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Parallel Machine Translation with Disentangled Context Transformer

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More Information Supervised Probabilistic Deep Face Embedding Learning

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Parameter-Free Learning for Evolving Markov Decision Processes: The Blessing of (More) Optimism

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Improved Sleeping Bandits with Stochastic Action Sets and Adversarial Rewards

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From PAC to Instance-Optimal Sample Complexity in the Plackett-Luce Model

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Reliable Fidelity and Diversity Metrics for Generative Models

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Learning Factorized Weight Matrix for Joint Image Filtering

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Likelihood-free MCMC with Amortized Approximate Ratio Estimators

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Attacks Which Do Not Kill Training Make Adversarial Learning Stronger

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GradientDICE: Rethinking Generalized Offline Estimation of Stationary Values

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Provably Convergent Two-Timescale Off-Policy Actor-Critic with Function Approximation

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Adversarial Attacks on Probabilistic Autoregressive Forecasting Models

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Graph Convolutional Network for Recommendation with Low-pass Collaborative Filters

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SoftSort: A Differentiable Continuous Relaxation of the argsort Operator

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Too Relaxed to Be Fair

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Lorentz Group Equivariant Neural Network for Particle Physics

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Channel Equilibrium Networks for Learning Deep Representation

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Optimal Non-parametric Learning in Repeated Contextual Auctions with Strategic Buyer

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Topological Autoencoders

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An Accelerated DFO Algorithm for Finite-sum Convex Functions

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The Shapley Taylor Interaction Index

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Privately detecting changes in unknown distributions

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CAUSE: Learning Granger Causality from Event Sequences using Attribution Methods

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WaveFlow: A Compact Flow-based Model for Raw Audio

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Revisiting Spatial Invariance with Low-Rank Local Connectivity

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Tensor denoising and completion based on ordinal observations

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Learning Human Objectives by Evaluating Hypothetical Behavior

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Counterfactual Cross-Validation: Stable Model Selection Procedure for Causal Inference Models

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Learning Efficient Multi-agent Communication: An Information Bottleneck

Approach

Rundong Wang (Nanyang Technological University) · Xu He (Nanyang Technological University) · Runsheng Yu (Nanyang Technological University) · Wei Qiu (Nanyang Technological University) · Bo An (Nanyang Technological University) · Zinovi Rabinovich (Nanyang Technological University)

MoNet3D: Towards Accurate Monocular 3D Object Localization in Real Time

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S2GA: Robust Deep Learning with Noisy Labels without Early Stopping

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Multinomial Logit Bandit with Low Switching Cost

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Uncertainty-Aware Lookahead Factor Models for Improved Quantitative Investing

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Stronger and Faster Wasserstein Adversarial Attacks

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Optimizing Multiagent Cooperation via Policy Evolution and Shared Experiences

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Why are learned indexes so effective?

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Fast OSCAR and OWL with Safe Screening Rules

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Which Tasks Should Be Learned Together in Multi-task Learning?

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Inertial Block Proximal Methods for Non-Convex Non-Smooth Optimization

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Adversarial Neural Pruning with Latent Vulnerability Suppression

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Lifted Disjoint Paths with Application in Multiple Object Tracking

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Being Bayesian, Even Just a Bit, Fixes Overconfidence in ReLU Networks

Agustinus Kristiadi (University of Tuebingen) · Matthias Hein (University of Tuebingen) · Philipp Hennig (University of Tuebingen)

SCAFFOLD: Stochastic Controlled Averaging for Federated Learning

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Statistically Preconditioned Accelerated Gradient Method for Distributed Optimization

Hadrien Hendrikx (INRIA) · Lin Xiao (Microsoft Research) · Sebastien Bubeck (Microsoft Research) · Francis Bach (INRIA - Ecole Normale Supérieure) · Laurent Massoulié (MSR-INRIA Joint Center)

Pretrained Generalized Autoregressive Model with Adaptive Probabilistic Label Cluster for Extreme Multi-label Text Classification

Hui Ye (Lehigh University) · Zhiyu Chen (Lehigh University) · Da-Han Wang (Xiamen University of Technology) · Brian Davison (Lehigh University)

Frequentist Uncertainty in Recurrent Neural Networks via Blockwise Influence Functions

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Disentangling Trainability and Generalization in Deep Neural Networks

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Moniqua: Modulo Quantized Communication in Decentralized SGD

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Expectation Maximization with Bias-Corrected Calibration is Hard-To-Beat at Label Shift Adaptation

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Expert Learning through Generalized Inverse Multiobjective Optimization: Models, Insights and Algorithms

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Random Matrix Theory Proves that Deep Learning Representations of GAN-data Behave as Gaussian Mixtures

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Optimizing Data Usage via Differentiable Rewards

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Optimistic Policy Optimization with Bandit Feedback

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Maximum-and-Concatenation Networks

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Learning Adversarial Markov Decision Processes with Bandit Feedback and Unknown Transition

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Kernelized Stein Discrepancy Tests of Goodness-of-fit for Time-to-Event Data

Wenkai Xu (Gatsby Unit, UCL) · Tamara Fernandez (University College London) · Nicolas Rivera (University of Cambridge) · Arthur Gretton (Gatsby Computational Neuroscience Unit)

Efficient Intervention Design for Causal Discovery with Latents

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Certified Data Removal from Machine Learning Models

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Analytic Marching: An Analytic Meshing Solution from Deep Implicit Surface Networks

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Anderson Acceleration of Proximal Gradient Methods

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Interpretable, Multidimensional, Multimodal Anomaly Detection with Negative Sampling for Detection of Device Failure

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Certified Robustness to Label-Flipping Attacks via Randomized Smoothing

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Responsive Safety in Reinforcement Learning

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Deep k-NN for Noisy Labels

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Learning the piece-wise constant graph structure of a varying Ising model

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Stabilizing Transformers for Reinforcement Learning

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An Explicitly Relational Neural Network Architecture

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Harmonic Decompositions of Convolutional Networks

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Discriminative Jackknife: Quantifying Uncertainty in Deep Learning via Higher-Order Influence Functions

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Robust Graph Representation Learning via Neural Sparsification

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Semiparametric Nonlinear Bipartite Graph Representation Learning with Provable Guarantees

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Scalable Identification of Partially Observed Systems with Certainty-Equivalent EM

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Super-efficiency of automatic differentiation for functions defined as a minimum

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Rethinking Batch Normalization in Transformers

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Invertible generative models for inverse problems: mitigating representation error and dataset bias

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GraphOpt: Learning Optimization Models of Graph Formation

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Constrained Markov Decision Processes via Backward Value Functions

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Adding seemingly uninformative labels helps in low data regimes

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When are Non-Parametric Methods Robust?

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Parameter-free, Dynamic, and Strongly-Adaptive Online Learning

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PENNI: Pruned Kernel Sharing for Efficient CNN Inference

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Optimal transport mapping via input convex neural networks

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Optimal Robust Learning of Discrete Distributions from Batches

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BoXHED: Boosted eXact Hazard Estimator with Dynamic covariates

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Coresets for Data-efficient Training of Machine Learning Models

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Finite-Time Convergence in Continuous-Time Optimization

Orlando Romero (Rensselaer Polytechnic Institute) · mouhacine Benosman (MERL)

Feature Quantization Improves GAN Training

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Hallucinative Topological Memory for Zero-Shot Visual Planning

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Learning Attentive Meta-Transfer

Jaesik Yoon (sap labs korea) · Gautam Singh (Rutgers University) · Sungjin Ahn (Rutgers University)

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Abbas Abdolmaleki (Google DeepMind) · Sandy Huang (DeepMind) · Leonard Hasenclever (DeepMind) · Michael Neunert (Google DeepMind) · Martina Zambelli (DeepMind) · Murilo Martins (DeepMind) · Francis Song (DeepMind) · Nicolas Heess (DeepMind) · Raia Hadsell (DeepMind) · Martin Riedmiller (DeepMind)

On the Sample Complexity of Adversarial Multi-Source PAC Learning

Nikola Konstantinov (IST Austria) · Elias Frantar (TU Vienna) · Dan Alistarh (IST Austria & NeuralMagic) · Christoph H. Lampert (IST Austria)

Inducing and Exploiting Activation Sparsity for Fast Inference on Deep Neural Networks

Mark Kurtz (Neural Magic) · Justin Kopinsky (Neural Magic) · Rati Gelashvili (Neural Magic) · Alexander Matveev (Neural Magic) · John Carr (Neural Magic) · Michael Goin (Neural Magic) · William Leiserson (Neural Magic) · Sage Moore (Neural Magic) · Nir Shavit (Neural Magic) · Dan Alistarh (IST Austria & NeuralMagic)

Constructive universal distribution generation through deep ReLU networks

Dmytro Perekrestenko (ETH Zurich) · Stephan Müller (ETH Zurich) · Helmut Bölcskei (ETH Zurich)

Reliable evaluation of adversarial robustness with an ensemble of diverse parameter-free attacks

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Multiclass Neural Network Minimization via Tropical Newton Polytope Approximation

Georgios Smyrnis (National Technical University of Athens) · Petros Maragos (National Technical University of Athens)

Finding trainable sparse networks through Neural Tangent Transfer

Tianlin Liu (Friedrich Miescher Institute) · Friedemann Zenke (Friedrich Miescher Institute)

Towards a General Theory of Infinite-Width Limits of Neural Classifiers

Eugene Golikov (Moscow Institute of Physics and Technology)

Controlling Overestimation Bias with Truncated Mixture of Continuous Distributional Quantile Critics

Arsenii Kuznetsov (Samsung) · Pavel Shvechikov (Samsung Artificial Intelligence Center) · Alexander Grishin (Higher School of Economics) · Dmitry Vetrov (Higher School of Economics, Samsung AI Center Moscow)

Learning to Learn Kernels with Variational Random Features

Xiantong Zhen (Inception Institute of Artificial Intelligence) · Haoliang Sun (Shandong University) · Yingjun Du (University of Amsterdam) · Jun Xu (Nankai University) · Yilong Yin (Shandong University) · Ling Shao (Inception Institute of Artificial Intelligence) · Cees Snoek (University of Amsterdam)

Efficient Robustness Certificates for Graph Neural Networks via Sparsity-Aware Randomized Smoothing

Aleksandar Bojchevski (Technical University of Munich) · Johannes Klicpera (Technical University Munich) · Stephan Günnemann (Technical University of Munich)

Learning to Simulate Complex Physics with Graph Networks

Alvaro Sanchez (DeepMind) · Jonathan Godwin (DeepMind) · Tobias Pfaff (DeepMind) · Rex (Zhitao) Ying (Stanford University) · Jure Leskovec (Stanford University) · Peter Battaglia (DeepMind)

Small Data, Big Decisions: Model Selection in the Small-Data Regime

Jorg Bornschein () · Francesco Visin (Deepmind) · Simon Osindero (DeepMind)

PolyGen: An Autoregressive Generative Model of 3D Meshes

Charlie Nash (DeepMind) · Yaroslav Ganin (DeepMind) · S. M. Ali Eslami (DeepMind) · Peter Battaglia (DeepMind)

XtarNet: Learning to Extract Task-Adaptive Representation for Incremental Few-Shot Learning

Sung Whan Yoon (Ulsan National Institute of Science and Technology (UNIST)) · Jun Seo (Korea Advanced Institute of Science and Technology(KAIST)) · Doyeon Kim (Korea Advanced Institute of Science and Technology) · Jaekyun Moon (KAIST)