MLSys 2020

Austin, Texas

AUSTIN CONVENTION CENTER
500 E Cesar Chavez St, Austin, TX 78701

March 2nd - 4th

MLSys 2020 Sponsors

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Qualcomm   IBM   databricks

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DeepMind   λ Lambda   (intel)

Demonstrations: Monday 6 – 9 pm

#100 Fairness Indicators Demo: Scalable Infrastructure for Fair ML Systems

#101 Demonstration of Ballet: A Framework for Open-Source Collaborative Feature Engineering

#102 PlaidML EDSL: Combining Programmability and Portability

#103 Skyline: Interactive In-editor Performance Visualizations and Debugging for DNN Training

#104 Air Learning: An End To End Learning Gym For Aerial Robots

#105 Visual Face Re Identification on a Battery-Powered Multi-Core Edge Processor

#106 3D Adversarial Object against MSF-based Perception in Autonomous Driving

| 100 | 101 | 102 | 103 |

Demos

Sponsors   Food & Beverage   104

105 106
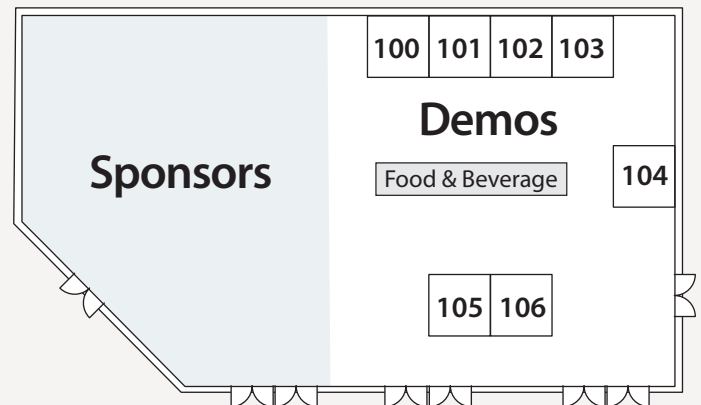
MLSys Agenda: Monday March 2nd

7:00 - 7:45 am	Breakfast & Registration
7:45 - 8:00 am	Opening Remarks
8:00 - 10:05 am	**Session 1: Distributed and Parallel Learning Algorithms** • A System for Massively Parallel Hyperparameter Tuning • PLink: Discovering and Exploiting Locality for Accelerated Distributed Training on the public Cloud • Federated Optimization in Heterogeneous Networks • BPPSA: Scaling Back-propagation by Parallel Scan Algorithm • Distributed Hierarchical GPU Parameter Server for Massive Scale Deep Learning Ads Systems
10:05 - 10:30 am	Coffee Break
10:30 - 12:10 pm	**Session 2: Efficient Model Training** • Resource Elasticity in Distributed Deep Learning • SLIDE: Training Deep Neural Networks with Large Outputs on a CPU faster than a V100-GPU • FLEET: Flexible Efficient Ensemble Training for Heterogeneous Deep Neural Networks • Breaking the Memory Wall with Optimal Tensor Rematerialization
12:10 - 1:30 pm	Lunch Provided
1:30 - 2:30 pm	**Keynote: Chris Ré: Theory and Systems for Weak Supervision**
2:30 - 4:00 pm	**Session 3: Efficient Inference and Model Serving** • What is the State of Neural Network Pruning? • SkyNet: a Hardware-Efficient Method for Object Detection and Tracking on Embedded Systems • MNN: A Universal and Efficient Inference Engine • Willump: A Statistically-Aware End-to-end Optimizer for Machine Learning Inference
4:10 - 4:30 pm	Coffee Break
4:30 - 6:10 pm	**Session 4: Model/Data Quality and Privacy** • Attention-based Learning for Missing Data Imputation in HoloClean • Privacy-Preserving Bandits • Understanding the Downstream Instability of Word Embeddings • Model Assertions for Monitoring and Improving ML Models
6:10 - 9:00 pm	Demonstrations
6:30 - 9:00 pm	Posters & Reception (dinner + drinks)

MLSys Agenda: Tuesday March 3rd

7:00 - 8:00 am	Breakfast & Registration
8:00 - 10:05 am	**Session 5 : ML programming models and abstractions & ML applied to systems** • AutoPhase: Juggling HLS Phase Orderings in Random Forests with Deep Reinforcement Learning • Automatically batching control-intensive programs for modern accelerators • Predictive Precompute with Recurrent Neural Networks • Sense & Sensitivities: The Path to General-Purpose Algorithmic Differentiation • Ordering Chaos: Memory-Aware Scheduling of Irregularly Wired Neural Networks for Edge Devices
10:05 - 10:30 am	Coffee Break
10:30 - 12:10 pm	**Session 6: Efficient Inference and Model Serving** • Fine-Grained GPU Sharing Primitives for Deep Learning Applications • Improving the Accuracy, Scalability, and Performance of Graph Neural Networks with Roc • OPTIMUS: OPTImized matrix MUltiplication Structure for Transformer neural network accelerator • PoET-BiN: Power Efficient Tiny Binary Neurons
12:10 - 1:30 pm	Lunch Provided
1:30 - 2:30 pm	**Keynote: Shafi Goldwasser: The Emerging Role of Cryptography in Trustworthy AI**
2:30 - 4:10 pm	**Session 7: Quantization of Deep Neural Networks** • Memory-Driven Mixed Low Precision Quantization for Enabling Deep Network Inference on Microcontrollers • Trained Quantization Thresholds for Accurate and Efficient Fixed-Point Inference of Deep Neural Networks • Riptide: Fast End-to-End Binarized Neural Networks • Searching for Winograd-aware Quantized Networks
4:10 - 4:30 pm	Coffee Break
4:30 - 6:10 pm	**Session 8: Efficient Model Training 2** • Blink: Fast and Generic Collectives for Distributed ML • A Systematic Methodology for Analysis of Deep Learning Hardware and Software Platforms • MotherNets: Rapid Deep Ensemble Learning • MLPerf Training Benchmark
6:10 - 6:15 pm	Closing Remarks & MLSys 2021

MLSys Workshops: Wednesday March 4th
9:00 am - 5:30 pm

7 am - 8 am   Breakfast & Registration

8 am - 5:30 pm   Workshops (Check the schedule for each workshop start time)

Benchmarking Machine Learning Workloads on Emerging Hardware
Tom St John · Murali Emani
Level 3, Room 6

Automated Machine Learning For Networks and Distributed Systems
Behnaz Arzani · Bita Darvish Rouhani
Level 3, Room 10

SARA: Secure and Resilient Autonomy
Pradip Bose · Nandhini Chandramoorthy · Augusto Vega · Karthik Swaminathan
Level 1, Room 3

Resource-Constrained Machine Learning
Yaniv Ben Itzhak · Nina Narodytska · Christopher Aberger
Level 3, Room 8

MLOps Systems
Debo Dutta · Matei Zaharia · Ce Zhang
Level 3, Room 5

Software-Hardware Codesign for Machine Learning Workloads
Ritwik Gupta · John Wohlbier · Tze Meng Low
Level 3, Room 9

On-Device Intelligence
Vikas Chandra · Pete Warden · Ganesh Venkatesh · Yingyan Lin
Ballroom A

10 am - 10:30 am   Coffee Break
12 pm - 2 pm   Lunch on your own
3:30 pm - 4 pm   Coffee Break