2022 USENIX Annual Technical Conference July 11–13, 2022

Monday, July 11

| Storage 1 ZNSwap: un-Block your Swap |
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| Building a High-performance Fine-grained Deduplication Framework for Backup Storage with High Deduplication Ratio |
| Secure and Lightweight Deduplicated Storage via Shielded Deduplication-Before-Encryption |
| Containers RunD: A Lightweight Secure Container Runtime for High-density Deployment and High-concurrency Startup in Serverless Computing |
| Help Rather Than Recycle: Alleviating Cold Startup in Serverless Computing Through Inter-Function Container Sharing |
| RRC: Responsive Replicated Containers |
| Distributed Systems 1 |
| uKharon: A Membership Service for Microsecond Applications .101 Rachid Guerraoui and Antoine Murat, École Polytechnique Fédérale de Lausanne (EPFL); Javier Picorel, Huawei Technologies; Athanasios Xygkis, EPFL; Huabing Yan and Pengfei Zuo, Huawei Technologies |
| KRCORE: A Microsecond-scale RDMA Control Plane for Elastic Computing |
| Zero-Change Object Transmission for Distributed Big Data Analytics |
| Sift: Using Refinement-guided Automation to Verify Complex Distributed Systems |
| Machine Learning 1 |
| Faith: An Efficient Framework for Transformer Verification on GPUs |

| DVABatch: Diversity-aware Multi-Entry Multi-Exit Batching for Efficient Processing of DNN Services on GPUs. 183 Weihao Cui, Han Zhao, Quan Chen, Hao Wei, and Zirui Li, <i>Shanghai Jiao Tong University;</i> Deze Zeng, <i>China University of Geosciences;</i> Chao Li and Minyi Guo, <i>Shanghai Jiao Tong University</i> |
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| PilotFish: Harvesting Free Cycles of Cloud Gaming with Deep Learning Training |
| Operating Systems 1 |
| Privbox: Faster System Calls Through Sandboxed Privileged Execution |
| BBQ: A Block-based Bounded Queue for Exchanging Data and Profiling |
| Disaggregated Systems |
| Sibylla: To Retry or Not To Retry on Deep Learning Job Failure |
| Speculative Recovery: Cheap, Highly Available Fault Tolerance with Disaggregated Storage |
| Direct Access, High-Performance Memory Disaggregation with DirectCXL |
| Networking 1 |
| Not that Simple: Email Delivery in the 21st Century |
| AddrMiner: A Comprehensive Global Active IPv6 Address Discovery System |
| Co-opting Linux Processes for High-Performance Network Simulation |
| Finding Bugs |
| KSG: Augmenting Kernel Fuzzing with System Call Specification Generation |
| DLOS: Effective Static Detection of Deadlocks in OS Kernels |
| Modulo: Finding Convergence Failure Bugs in Distributed Systems with Divergence Resync |
| Models |

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Security

| SoftTRR: Protect Page Tables Against Rowhammer Attacks Using Software-Only Target Row Refresh 399 Zhi Zhang, CSIRO's Data61, Australia; Yueqiang Cheng, NIO Security Research; Minghua Wang, Baidu Security; Wei He and Wenhao Wang, State Key Laboratory of Information Security, Institute of Information Engineering, CAS, and University of Chinese Academy of Sciences; Surya Nepal, CSIRO's Data61, Australia; Yansong Gao, Nanjing University of Science and Technology, China; Kang Li, Baidu Security; Zhe Wang and Chenggang Wu, State Key Laboratory of Computer Architecture, Institute of Computing Technology, CAS, and University of Chinese Academy of Sciences |
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| Hardening Hypervisors with Ombro |
| HyperEnclave: An Open and Cross-platform Trusted Execution Environment |
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| Tetris: Memory-efficient Serverless Inference through Tensor Sharing |
| PetS: A Unified Framework for Parameter-Efficient Transformers Serving |
| Campo: Cost-Aware Performance Optimization for Mixed-Precision Neural Network Training |
| Primo: Practical Learning-Augmented Systems with Interpretable Models |
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| Meces: Latency-efficient Rescaling via Prioritized State Migration for Stateful Distributed Stream |
| Processing Systems |
| DepFast: Orchestrating Code of Quorum Systems |
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| Operating Systems 2 |
| CBMM: Financial Advice for Kernel Memory Managers |
| EPK: Scalable and Efficient Memory Protection Keys |

| Memory Harvesting in Multi-GPU Systems with Hierarchical Unified Virtual Memory |
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| Deployed Systems 1 |
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| CRISP: Critical Path Analysis of Large-Scale Microservice Architectures |
| Whale: Efficient Giant Model Training over Heterogeneous GPUs |
| Machine Learning 3 |
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| CoVA: Exploiting Compressed-Domain Analysis to Accelerate Video Analytics |
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Wednesday, July 13

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| VINTER: Automatic Non-Volatile Memory Crash Consistency Testing for Full Systems | 3 |
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