Publication list - Kento Sato

Conference

PRICAI 2024 Haiwen Chen, Songcan Yu, Shupeng Zhao, Junbo Wang, Kaiming Zhu, **Kento Sato**, "FedSD: Cross-Heterogeneous Federated Learning Based on Self-Distillation", In 21th Pacific Rim International Conference on Artificial Intelligence, PRICAI 2024, Kyoto, Japan

SC24 Ana Luisa Veroneze Solorzano, **Kento Sato**, Devesh Tiwari, Keiji Yamamoto, Jim Brandt, Benjamin Schwaller, Sara Petra Walton, Jennifer Green, Fumiyoshi Shoji, "Toward Sustainable HPC: In-Production Deployment of Incentive-Based Power Efficiency Mechanism on the Fugaku Supercomputer", SC '24: Proceedings of the International Conference on High Performance Computing, Networking, Storage and Analysis, Atlanta, GA, USA

SC24 Xiang Fu, Weiping Zhang, Xin Huang, Wubiao Xu, Shiman Meng, Luanzheng Guo, **Kento Sato**, "AutoCheck: Automatically Identifying Variables for Checkpointing by Data Dependency Analysis", SC'24: Proceedings of the International Conference on High Performance Computing, Networking, Storage and Analysis, Atlanta, GA, USA.

Cluster 2024 Xiang Fu, Shiman Meng, Weiping Zhang, Luanzheng Guo, **Kento Sato**, Dong H. Ahn, Ignacio Laguna, Gregory L. Lee, Martin Schulz, "Distributed Order Recording Techniques for Efficient Record-and-Replay of Multi-Threaded Programs," in 2024 IEEE International Conference on Cluster Computing (CLUSTER), Kobe, Japan, 2024, pp. 27-38

ICPADS2023 Andrès Xavier Rubio Proaño, **Kento Sato**, "Understanding Power Consumption Metric on Heterogeneous Memory Systems", The 29th IEEE International Conference on Parallel and Distributed Systems (ICPADS 2023), Sentosa, Hainan, China, Dec. 2023

PDCAT2022 Takaaki Fukai, **Kento Sato** and Takahiro Hirofuchi, "Analyzing I/O Performance of a Hierarchical HPC Storage System for Distributed Deep Learning", The 23rd International Conference on Parallel and Distributed Computing, Applications and Technologies (PDCAT '22), December, 2022, Sendai, Japan

HiPC2021 Akihiro Tabuchi, Koichi Shirahata, Masafumi Yamazaki, Akihiko Kasagi, Takumi Honda, Kouji Kurihara, Kentaro Kawakami, Tsuguchika Tabaru, Naoto Fukumoto, Akiyoshi Kuroda, Takaaki Fukai and **Kento Sato**, "The 16,384-node Parallelism of 3D-CNN Training on An Arm CPU based Supercomputer", 28th IEEE International Conference on High Performance Computing, Data, and Analytics (HiPC2021), Nov, 2021

CCGrid2021 Rupak Roy, **Kento Sato**, Subhadeep Bhattacharya, Xingang Fang, Yasumasa Joti, Takaki Hatsui, Toshiyuki Hiraki, Jian Guo and Weikuan Yu, "Compression of Time Evolutionary Image Data through Predictive Deep Neural Networks", In the proceedings of the 21 IEEE/ACM International Symposium on Cluster, Cloud and Internet Computing (CCGrid 2021), May, 2021

ICPADS2018 Tianqi Xu, **Kento Sato** and Satoshi Matsuoka, "Explorations of Data Swapping on Burst Buffer", The 24th IEEE International Conference on Parallel and Distributed Systems (ICPADS 2018), Sentosa, Singapore, Dec, 2018. (Acceptance rate: 37.7%, 97/257) (Selected poster presentation: 18.6%, 18/97)

MASCOT 2018 Yue Zhu, Fahim Chowdhury, Huansong Fu, Adam Moody, Kathryn Mohror, **Kento Sato** and Weikuan Yu, "Entropy-Aware I/O Pipelining for Large-Scale Deep Learning on HPC Systems", IEEE International Symposium on the Modeling, Analysis, and Simulation of Computer and Telecommunication Systems (MASCOTS 2018), Milwaukee, WI, September 2018.

IPDPS2017 Teng Wang, Adam Moody, Yue Zhu, Kathryn Mohror, **Kento Sato**, Tanzima Islam and Weikuan Yu, "MetaKV: A Key-Value Store for Metadata Management of Distributed Burst Buffers", In Proceedings of the International Conference on Parallel and Distributed Processing Symposium 2017 (IPDPS2017), Orlando, USA, May, 2017.

PPoPP2017 **Kento Sato**, Dong H. Ahn, Ignacio Laguna, Gregory L. Lee, Martin Schulz and Christopher M. Chambreau, "Noise Injection Techniques for Reproducing Subtle and Unintended Message Races", Proceedings of the 20th ACM SIGPLAN Symposium on Principles and Practice of Parallel Programming (PPoPP17), Austin, USA, Feb, 2017. (Acceptance rate: 22.0%, 29/132)

ICPADS2016 Tianqi Xu, **Kento Sato** and Satoshi Matsuoka, "CloudBB: Scalable I/O Accelerator for Shared Cloud Storage", The 22nd IEEE International Conference on Parallel and Distributed Systems (ICPADS 2016), Wuhan, China, Dec, 2016. (Acceptance rate: 29.9%, 123/412)

SC16 Teng Wang, Kathryn Mohror, Adam Moody, **Kento Sato** and Weikuan Yu "An Ephemeral Burst-Buffer File System for Scientific Applications", In Proceedings of the International Conference on High Performance Computing, Networking, Storage and Analysis 2016 (SC16), Salt Lake City, USA, Nov, 2016. (Acceptance rate: 18.4%, 82/446)

SC15 **Kento Sato**, Dong H. Ahn, Ignacio Laguna, Gregory L. Lee and Martin Schulz, "Clock Delta Compression for Scalable Order-Replay of Non-Deterministic Parallel Applications", In Proceedings of the International Conference on High Performance Computing, Networking, Storage and Analysis 2015 (SC15), Austin, USA, Nov, 2015. (Acceptance rate: 22.1%, 79/358)

IPDPS2015 Naoto Sasaki, **Kento Sato**, Toshio Endo and Satoshi Matsuoka, "Exploration of Lossy Compression for Application-level Checkpoint/Restart", In Proceedings of the International Conference on Parallel and Distributed Processing Symposium 2015 (IPDPS2015), Hyderabad, INDIA, May, 2015. (Acceptance rate: 21.8%, 108/496)

CCGrid2014 **Kento Sato**, Kathryn Mohror, Adam Moody, Todd Gamblin, Bronis R. de Supinski, Naoya Maruyama and Satoshi Matsuoka, "A User-level InfiniBand-based File System and Checkpoint Strategy for Burst Buffers", In Proceedings of the 14th IEEE/ACM International Symposium on Cluster, Cloud and Grid Computing (CCGrid2014), Chicago, USA, May, 2014. (Acceptance rate: 19.1%, 54/283) **(Best Paper Award, 1/54)**

IPDPS2014 **Kento Sato**, Adam Moody, Kathryn Mohror, Todd Gamblin, Bronis R. de Supinski, Naoya Maruyama and Satoshi Matsuoka, "FMI: Fault Tolerant Messaging Interface for Fast and Transparent Recovery", In Proceedings of the International Conference on Parallel and Distributed Processing Symposium 2014 (IPDPS2014), Phoenix, USA, May, 2014. (Acceptance rate: 21.1%, 114/541)

SC12 **Kento Sato**, Adam Moody, Kathryn Mohror, Todd Gamblin, Bronis R. de Supinski, Naoya Maruyama and Satoshi Matsuoka, "Design and Modeling of a Non-blocking Checkpointing System", In Proceedings of the International Conference on High Performance Computing, Networking, Storage and Analysis 2012 (SC12), Salt Lake, USA, Nov, 2012. (Acceptance rate: 21.2%, 100/472)

SC12 Akira Nukada, **Kento Sato** and Satoshi Matsuoka, "Scalable Multi-GPU 3-D FFT for TSUBAME 2.0 Supercomputer", In Proceedings of the International Conference on High Performance Computing, Networking, Storage and Analysis 2012 (SC12), Salt Lake, USA, Nov, 2012. (Acceptance rate: 21.2%, 100/472)

SC11 Naoya Maruyama, Tatsuo Nomura, **Kento Sato**, and Satoshi Matsuoka, "Physis: An Implicitly Parallel Programming Model for Stencil Computations on Large-Scale GPU-Accelerated Supercomputers", In Proceedings of the International Conference on High Performance Computing, Networking, Storage and Analysis 2011 (SC11), Seattle, USA, Nov 2011. (Acceptance rate: 21.0%, 74/352)

Journal (Refereed)

FGCS Franck Cappello, Sheng Di, Robert Underwood, Dingwen Tao, Jon Calhoun, Yoshii Kazutomo, **Kento Sato**, Amarjit Singh, Luc Giraud, Emmanuel Agullo, Xavier Yepes, Mario Acosta, Sian Jin, Jiannan Tian, Frédéric Vivien, Boyuan Zhang, Kentaro Sano, Tomohiro Ueno, Thomas Grützmacher, Hartwig Anzt, Multifacets of lossy compression for scientific data in the Joint-Laboratory of Extreme Scale Computing, Future Generation Computer Systems, 2024, ISSN 0167-739X

IEEE TIFS 2023 Taiyu Wang, Qinglin Yang, Kaiming Zhu, Junbo Wang, Chunhua Su, **Kento Sato**, "LDS-FL: Loss Differential Strategy based Federated Learning for Privacy Preserving," in IEEE Transactions on Information Forensics and Security, doi: 10.1109/TIFS.2023.3322328., 2023

STAM 2023 Satoru Hamamoto, Masaki Oura, Atsuomi Shundo, Daisuke Kawaguchi, SatoruYamamoto, Hidekazu Takano, Masayuki Uesugi, Akihisa Takeuchi, TakahiroIwai, Yasuo Seto, Yasumasa Joti, **Kento Sato**, Keiji Tanaka & Takaki Hatsui, Demonstration of efficient transfer learning in segmentation problem in synchrotron radiation X-ray CT data for epoxy resin, Science and Technology of Advanced Materials: Methods, DOI: 10.1080/27660400.2023.2270529, 2023 (Selected as Editor's Choice Collection)

ELSEVIER 2022 Xi Zhu, Junbo Wang, Wuhui Chen, **Kento Sato**, "Model compression and privacy preserving framework for federated learning", Future Generation Computer Systems, 2022, ISSN 0167-739X, https://doi.org/10.1016/j.future.2022.10.026

IEEE TBD 2022 Amitangshu Pal, Junbo Wang, Yilang Wu, Krishna Kant, Zhi Liu, **Kento Sato**, " Social Media Driven Big Data Analysis for Disaster Situation Awareness: A Tutorial ", in IEEE Transactions on Big Data, doi: 10.1109/TBDATA.2022.3158431, Mar., 2022

IEEE TVT 2022 Feiyuan Liang, Qinglin Yang, Ruiqi Liu, Junbo Wang, **Kento Sato**, Jian Guo, " Semi-Synchronous Federated Learning Protocol with Dynamic Aggregation in Internet of Vehicles, " in IEEE Transactions on Vehicular Technology, doi: 10.1109/TVT.2022.3148872, Feb., 2022

IJHPCA 2019 **Kento Sato**, Ignacio Laguna, Gregory L Lee, Martin Schulz, Christopher M Chambreau, Simone Atzeni, Michael Bentley, Ganesh Gopalakrishnan, Zvonimir Rakamaric, Geof Sawaya, Joachim Protze, and Dong H Ahn. 2019. Pruners: Providing reproducibility for uncovering non-deterministic errors in runs on supercomputers. Int. J. High Perform. Comput. Appl. 33, 5 (Sep 2019), 777–783. DOI:https://doi.org/10.1177/1094342019834621

IJHPCA 2019 Chapp, D., Rorabaugh, D., **Kento Sato**, Ahn, D. H., & Taufer, M. (2019). A three-phase workflow for general and expressive representations of nondeterminism in HPC applications. The International Journal of High Performance Computing Applications, 33(6), 1175–1184.

JSFI 2018 Dylan Chapp, **Kento Sato**, Dong H. Ahn and Michela Taufer, "Record-and-Replay Techniques for HPC Systems: A Survey", Supercomputing Frontiers and Innovations (180102) 2018

Workshops (Refereed)

EPSOUQ-HPC 2024 (in SC24) Xin Huang, Weiping Zhang, Shiman Meng, Wubiao Xu, Xiang Fu, Luanzheng Guo, **Kento Sato**, " Scrutinizing Variables for Checkpoint Using Automatic Differentiation ", The Second Workshop on Enabling Predictive Science with Optimization and Uncertainty Quantification in HPC (EPSOUQ-HPC) in conjunction with SC24

IXPUG 2024 (in SC24) Wubiao Xu, Xin Huang, Shiman Meng, Weiping Zhang, Luanzheng Guo and **Kento Sato**, " An Efficient Checkpointing System for Large Machine Learning Model Training ", The Intel eXtreme Performance Users Group (IXPUG) Workshop in conjunction with SC24

ESSA 2024 (in IPDPS2024) Xiang Fu, Xin Huang, Wubiao Xu, Shiman Meng, Weiping Zhang, Luanzheng Guo, **Kento Sato**, " Benchmarking variables for checkpointing in HPC Applications ", The 5th Workshop on Extreme-Scale Storage and Analysis (ESSA2024) in 2023 IEEE International Parallel and Distributed Processing Symposium Workshops (IPDPSW), June, San Francisco, USA , 2024

APDCM 2023 (in IPDPS2023) Fu Xiang, Hao Tang, Huimin Liao, Xin Huang, Wubiao Xu, Shimeng Meng, Weiping Zhang, Luanzheng Guo and **Kento Sato**, " A High-dimensional Algorithm-Based Fault Tolerance Scheme, " APDCM 2023, IEEE International Parallel and Distributed Processing Symposium Workshops (IPDPSW), St. Petersburg, Florida USA, 2023, DOI: 10.1109/IPDPSW59300.2023.00061

MLHPC 2021 (in SC21) Steven Farrell, Murali Emani, Jacob Balma, Lukas Drescher, Aleksandr Drozd, Andreas Fink, Geoffrey Fox, David Kanter, Thorsten Kurth, Peter Mattson, Dawei Mu, Amit Ruhela, **Kento Sato**, Koichi Shirahata, Tsuguchika Tabaru, Aristeidis Tsaris, Jan Balewski, Ben Cumming, Takumi Danjo, Jens Domke, Takaaki Fukai, Naoto Fukumoto, Tatsuya Fukushi, Balazs Gerofi, Takumi Honda, Toshiyuki Imamura, Akihiko Kasagi, Kentaro Kawakami, Shuhei Kudo, Akiyoshi Kuroda, Maxime Martinasso, Satoshi Matsuoka, Kazuki Minami, Prabhat Ram, Takashi Sawada, Mallikarjun Shankar, Tom St. John, Akihiro Tabuchi, Venkatram Vishwanath, Mohamed Wahib, Masafumi Yamazaki, Junqi Yin and Henrique Mendonca, "MLPerf HPC: A Holistic Benchmark Suite for Scientific Machine Learning on HPC Systems", The Workshop on Machine Learning in High Performance Computing Environments (MLHPC) 2021 in conjunction with SC21, Nov, 2021

HPS'20 (in IPDPS2020) Tonmoy Dey, **Kento Sato**, Bogdan Nicolae, Jian Guo, Jens Domke, Weikuan Yu, Franck Cappello, and Kathryn Mohror. 2020. "Optimizing Asynchronous Multi-Level Checkpoint/Restart Configurations with Machine Learning." The IEEE International Workshop on High-Performance Storage, May, 2020

ROSS 2018 (in HPDC 2018) Yue Zhu, Teng Wang, Kathryn Mohror, Adam Moody, **Kento Sato**, Muhib Khan and Weikuan Yu, "Direct-FUSE: Removing the Middleman for High-Performance FUSE File System Support", The 8th International Workshop on Runtime and Operating Systems for Supercomputers (ROSS 2018) in conjunction with the 27th International Symposium on High-Performance Parallel and Distributed Computing (HPDC 2018), Tempe, Arizona, USA, 2018.

CRE2017 (in SC17) **Kento Sato**, Ignacio Laguna, Gregory L. Lee, Martin Schulz, Christopher M. Chambreau, Dong H. Ahn, Simone Atzeni, Michael Bentley, Genesh Gopalakrishnan, Zvonimir Rakamaric, Geof Sawaya and Joachim Protze, "PRUNERS: Providing Reproducibility for Uncovering Non-deterministic Errors in Runs on Supercomputers" (WIP talk), Computational Reproducibility at Exascale (CRE) at Supercomputing 2017 (SC17), Denver, USA, Nov, 2017.

PDSW-DISCS 2017 (in SC17) Yue Zhu, Teng Wang, Kathryn Mohror, Adam Moody, **Kento Sato**, Muhib Khan and Weikuan Yu, "Direct-FUSE: Removing the Middleman for High-Performance FUSE File System Support" (WIP talk), 2nd Joint International Workshop on Parallel Data Storage and data Intensive Scalable Computing Systems (PDSW-DISCS) at Supercomputing 2017 (SC17), Denver, USA, Nov, 2017.

Workshop (in ICDCS2017) Kevin Brown, Tianqi Xu, Keita Iwabuchi, **Kento Sato**, Adam Moody, Kathryn Mohror, Nikhil Jain, Abhinav Bhatele, Martin Schulz, Roger Pearce, Maya Gokhale and Satoshi Matsuoka, "Accelerating Big Data Infrastructure and Applications (Ongoing collaboration)", The 1st US-Japan Workshop on Collaborative Global Research on Applying Information Technology in conjunction with The 37th IEEE International Conference on Distributed Computing Systems (ICDCS 2017), Atlanta, USA, June, 2017

ExaMPI15 (in SC15) Aiman Fang, Ignacio Laguna, **Kento Sato**, Tanzima Islam and Kathryn Mohror, "Fault Tolerance Assistant (FTA): An Exception Handling Approach for MPI Programs" (Hot topic), Workshop on Exascale MPI (ExaMPI15) at Supercomputing 2015 (SC15), Austin, USA, Nov, 2015.

EPForDM2015 (in EDBT) Moshe Gabel, **Kento Sato**, Daniel Keren, Satoshi Matsuoka and Assaf Schuster, "Latent Fault Detection With Unbalanced Workloads", Event Processing, Forecasting and Decision-Making in the Big Data Era 2015 (EPForDM2015) in conjunction with the 18th International Conference on Extending Database Technology (EDBT), Brussels, Belgium, March, 2015.

FTXS2013 (in HPDC2013) Takafumi Saito, **Kento Sato**, Hitoshi Sato and Satoshi Matsuoka, "Energy-aware I/O Optimization for Checkpoint and Restart on a NAND Flash Memory System", In the Workshop on Fault-Tolerance for HPC at Extreme Scale 2013 (FTXS2013) in conjunction with the International Symposium on High Performance Parallel and Distributed Computing (HPDC13), New York, USA, June, 2013.

Cloud2009 (in CCGrid2009) **Kento Sato**, Hitoshi Sato and Satoshi Matsuoka, "A Model-Based Algorithm for Optimizing I/O Intensive Applications in Clouds using VM-Based Migration", In the International Workshop On Cloud Computing (Cloud2009) in conjunction with the International Symposium on Cluster Computing and the Grid 2009 (CCGrid2009), Shanghai, China, May, 2009.

Poster (Refereed)

SC24 Alexis Amoyo, Amarjit Singh, **Kento Sato**, Weikuan Yu, "Exploration of Super Resolution Techniques for Image Compression", In Proceedings of the International Conference on High Performance Computing, Networking, Storage and Analysis 2024 (SC24), Research Posters, Atlanta, USA, Nov, 2024

SC24 Akshay Nambudiripad, Amarjit Singh, **Kento Sato**, Weikuan Yu, "Development of TEZip in PyTorch: Integrating New Prediction Models into an Existing Compression Framework", In Proceedings of the International Conference on High Performance Computing, Networking, Storage and Analysis 2024 (SC24), Research Posters, Atlanta, USA, Nov, 2024

R-CCSIS'24 Andrès Rubio Proaño and **Kento Sato**, "Power Consumption Metric on Heterogeneous Memory Systems", the 6th R-CCS International Symposium (RCCS-IS6), Kobe, Japan, Feb. 2024

R-CCSIS'24 Amarjit Singh and **Kento Sato**, "Research and Development of an Infrastructure for Big Data Collection, Analysis, and Utilization in Large Scale Research Facilities", the 6th R-CCS International Symposium (RCCS-IS6), Kobe, Japan, Feb. 2024

SC23 Isita Talukdar, Amarjit Singh, Robert Underwood, **Kento Sato**, Weikuan Yu, "Integrating TEZIP into LibPressio: A Case Study of Integrating a Dynamic Application into a Static C Environment", In Proceedings of the International Conference on High Performance Computing, Networking, Storage and Analysis 2023 (SC23), Research Poster, Denver, USA, Nov, 2023 (Poster).

APNet'23 Steven W. D. Chien, **Kento Sato**, Artur Podobas, Niclas Jansson, Stefano Markidis and Michio Honda, "Improving Cloud Storage Network Bandwidth Utilization of Scientific Applications", 7th Asia-Pacific Workshop on Networking, June, 2023

ISC23 Amarjit Singh and **Kento Sato**, "Development of an Infrastructure for Big Data Collection, Analysis, and Utilization in Large Scale Research Facilities", 9th IEEE International Smart Cities Conference 2023 (ISC23), May, 2023

R-CCSIS'23 Andrès Rubio Proaño and **Kento Sato**, " Power Consumption Metric on Heterogeneous Memory Systems ", the 5th R-CCS International Symposium (RCCS-IS5), Kobe, Japan, Feb. 2023

R-CCSIS'23 Amarjit Singh and **Kento Sato**, " Research and Development of an Infrastructure for Big Data Collection, Analysis, and Utilization in Large Scale Research Facilities", the 5th R-CCS International Symposium (RCCS-IS5), Kobe, Japan, Feb. 2023

R-CCSIS'22 Takaki Fukai, **Kento Sato** " Measurement of I/O Performance on a Hierarchical File System for Distributed Deep Neural Network ", the 4th R-CCS International Symposium (RCCS-IS4), Kobe, Japan, Feb. 2021 (Lightning Presentation)

R-CCSIS'21 Takaaki Fukai, **Kento Sato**, " Measurement of I/O performance for distributed deep neural networks on Fugaku ", The 3rd R-CCS International Symposium, Feb, 2021

SC19 Tonmoy Dey, **Kento Sato**, Jian Guo, Bogdan Nicolae, Jens Domke, Weikuan Yu, Franck Cappello and Kathryn Mohror, "Optimizing Asynchronous Multi-level Checkpoint/Restart Configurations with Machine Learning", In Proceedings of the International Conference on High Performance Computing, Networking, Storage and Analysis 2019 (SC19), Regular Poster, Denver, USA, Nov, 2019.

SC19 Rupak Roy, **Kento Sato**, Jian Guo, Jens Domke and Weikuan Yu, "Improving Data Compression with Deep Predictive Neural Network for Time Evolutional Data", In Proceedings of the International Conference on High Performance Computing, Networking, Storage and Analysis 2019 (SC19), Regular Poster, Denver, USA, Nov, 2019.

SC18 Yue Zhu, Fahim Chowdhury, Huansong Fu, Adam Moody, Kathryn Mohror, **Kento Sato** and Weikuan Yu, "Multi-Client DeepIO for Large-Scale Deep Learning on HPC Systems", In Proceedings of the International Conference on High Performance Computing, Networking, Storage and Analysis 2018 (SC18), Regular Poster, Dallas, USA, Nov, 2018. (Acceptance rate: 56%, 93/165)

ISC 2018 Tianqi Xu, **Kento Sato** and Satoshi Matsuoka, "HuronFS: Hierarchical, User-level and On-demand Burst Buffer File System", In Proceedings of the International Supercomputing Conference (ISC 2018), Frankfurt, Germany, USA, June, 2018

SC17 Tianqi Xu, **Kento Sato** and Satoshi Matsuoka, " A Simulation-Based Analysis on the Configuration of the Burst Buffer", In Proceedings of the International Conference on High Performance Computing, Networking, Storage and Analysis 2017 (SC17), Regular Poster, Denver, USA, Nov, 2017. (Acceptance rate: 58%, 98/169) **(Best Poster Finalist, 9/98)**

SC17 Dylan Chapp, **Kento Sato**, Dong H. Ahn and Michela Taufer, "Towards Capturing Nondeterminism Motifs in HPC Applications", In Proceedings of the International Conference on High Performance Computing, Networking, Storage and Analysis 2017 (SC17), ACM Student Research Competition Poster, Denver, USA, Nov, 2017. (Acceptance rate: 47%, 28/59)

SC15 Tianqi Xu, **Kento Sato** and Satoshi Matsuoka, "Design and Modelling of Cloud-based Burst Buffers", In Proceedings of the International Conference on High Performance Computing, Networking, Storage and Analysis 2015 (SC15), Austin, USA, Nov, 2015. (Acceptance rate: 44%, 112/253)

SC15 Teng Wang, Kathryn Mohror, Adam Moody, Weikuan Yu and **Kento Sato**, "BurstFS: A Distributed Burst Buffer File System for Scientific Applications", In Proceedings of the International Conference on High Performance Computing, Networking, Storage and Analysis 2015 (SC15), Austin, USA, Nov, 2015. (Acceptance rate: 44%, 112/253)

ISC'15 Tianqi Xu, **Kento Sato** and Satoshi Matsuoka, "Towards Cloud-based Burst Buffers for I/O Intensive Computing in Cloud", In HPC in Asia Workshop in conjunction with the International Supercomputing Conference (ISC'15), Frankfurt, Germany, July, 2015.

ISC'14 Naoto Sasaki, **Kento Sato**, Toshio Endo and Satoshi Matsuoka, "Exploration of Application-level Lossy Compression for Fast Checkpoint/Restart", In HPC in Asia Workshop in conjunction with the International Supercomputing Conference (ISC'14), Leipzig, Germany, June, 2014.

GTC2014 **Kento Sato**, Akira Nukada, Naoya Maruyama and Satoshi Matsuoka , "I/O acceleration with GPU for I/O-bound Applications", GPU Technology Conference 2014, Mar. 2014.

ISC'12 **Kento Sato**, Adam Moody, Kathryn Mohror, Todd Gamblin, Bronis R. de Supinski, Naoya Maruyama and Satoshi Matsuoka, "Towards a Light-weight Non-blocking Checkpointing System", In HPC in Asia Workshop in conjunction with the International Supercomputing Conference (ISC'12), Hamburg, Germany, June, 2012.

Grid2008 **Kento Sato**, Hitoshi Sato and Satoshi Matsuoka, "Model-based Optimization for Data-Intensive Application on Virtual Cluster", In the International Conference on Grid Computing (Grid 2008), Tsukuba, Sep, 2008.

SACSIS2008 **佐藤 賢斗**, 佐藤仁, 松岡聡, "仮想クラスタを用いた Data-Intensive Application 実行環境の性能モデル構築と最適化に向けて", 先進的計算基盤システムシンポジウム (SACSIS2008), Tsukuba, June, 2008.

Workshops (Non-refereed)

Tech Report 2024 Ryubu Hosoki, **Kento Sato**, Toshio Endo, Julien Bigot, Edouard Audit. "An optimization pass for training speed-up and strategy search in 3D parallelism", IPSJ SIG Technical Report, 2024-HPC-194, No.7, May 8, 2024

Tech report 2021 深井 貴明, 広渕 崇宏, 高野 了成, Akram Ben Ahmed, **佐藤 賢斗**, "FPGA による次世代メモリのエミュレーション機構", 第 180 回 研究報告ハイパフォーマンスコンピューティング（HPC 研究会）, July 2021.

Tech report 2020 Atsushi Nukariya, Kazutoshi Akao, Jin Takahashi, Naoto Fukumoto, Kentaro Kawakami, Akiyoshi Kuroda, Kazuo Minami, **Kento Sato** and Satoshi Matsuoka, "HPC and AI Initiatives for Supercomputer Fugaku and Future Prospects", Fujitsu Technical Review, November, 2020

Tech report 2015 Tianqi Xu, **Kento Sato** and Satoshi Matsuoka, "Cloud-based Burst Buffers for I/O Acceleration", IPSJ SIG Technical Reports 2015-HPC-150, Beppu, Japan, Aug, 2015.

Tech report 2014 — Tianqi Xu, **Kento Sato** and Satoshi Matsuoka, "Towards Cloud Bursting for Extreme Scale Supercomputers", IPSJ SIG Technical Reports 2014-HPC-145, Nigata, Jul, 2014.

Tech report 2014 — 佐々木尚人, **佐藤 賢斗**, 遠藤敏夫, 松岡聡, "実アプリケーションにおけるウェーブレット変換を用いたチェックポイントデータの非可逆圧縮手法", IPSJ SIG Technical Reports 2014-HPC-145, Nigata, Jul, 2014

Tech report 2013 — **Kento Sato**, Satoshi Matsuoka, Adam Moody, Kathryn Mohror, Todd Gamblin, Bronis R. de Supinski and Naoya Maruyama, "Burst SSD Buffer: Checkpoint Strategy at Extreme Scale", IPSJ SIG Technical Reports 2013-HPC-141, Okinawa, Sep, 2013.

Tech report 2013 — 松岡 聡, **佐藤 賢斗**, 遠藤敏夫 "エクサスケールスパコンに向けた耐故障性の評価 — TSUBAME2.0 を例にして —", IPSJ SIG Technical Reports 2013-HPC-141, Okinawa, Sep, 2013.

SWoPP 2012 — **Kento Sato**, Adam Moody, Kathryn Mohror, Todd Gamblin, Bronis R. de Supinski, Naoya Maruyama and Satoshi Matsuoka, "Design and Modeling of an Asynchronous Checkpointing System", IPSJ SIG Technical Reports 2012-HPC-135 (SWoPP 2012), Tottori, Aug, 2012.

HOKKE-19 — **Kento Sato**, Adam Moody, Kathryn Mohror, Todd Gamblin, Bronis R. de Supinski, Naoya Maruyama and Satoshi Matsuoka, "Towards an Asynchronous Checkpointing System", IPSJ SIG Technical Reports 2011-ARC-197 2011-HPC-132 (HOKKE-19), Hokkaido, Nov, 2011.

SWoPP2008 — **佐藤 賢斗**, 佐藤仁, 松岡聡, "仮想クラスタを用いた Data-Intensive Application 実行環境の性能モデル構築と最適化", 並列／分散／協調処理に関するサマーワークショップ (SWoPP2008), Saga, Aug, 2008.

Poster (Non-refereed)

2012 — **Kento Sato**,Adam Moody,Kathryn Mohror,Todd Gamblin,Bronis R. de Supinski, Naoya Maruyama and Satoshi Matsuoka, "Design and Modeling of a Non-Blocking Checkpoint System", In ATIP - A*CRC Workshop on Accelerator Technologies in High Performance Computing, Singapore, March, 2012.

2011 — **Kento Sato**, Hitoshi Sato and Satoshi Matsuoka "Orchestrated Data Processing Acceleration for Data-Intensive Applications by using VM-based Migration", The 1st Data Intensive Science Workshop, Tokyo, March, 2011.

Preprint Archive

arXiv 2024 — Steven W. D. Chien, **Kento Sato**, Artur Podobas, Niclas Jansson, Stefano Markidis and Michio Honda, "Accelerating Scientific Application through Transparent I/O Interposition", arXiv/2401.14576, Jan., 2024

arXiv 2023 — Takahiro Hirofuchi, Takaaki Fukai, Akram Ben Ahmed, Ryousei Takano and **Kento Sato**, "METICULOUS: An FPGA-based Main Memory Emulator for System Software Studies", Sep., 2023, arXiv:2309.06565

Invited Talks

2024 佐藤 賢斗, “富岳 NEXT がもたらす科学の革新: AI for Science”, データサイエンスの研究と教育の将来：「富岳」NEXT の展望, 兵庫県立大学大学院情報科学研究科, 2024 年 12 月 26 日

2024 佐藤 賢斗, “「富岳」、「富岳 Next」でシンカする AI — 国産 LLM 構築技術のしくみと AI for Science”, 第 6 回 中高生のためのオンライン特別授業 「今、神戸でアツい科学」, 2024 年 11 月 2 日

2024 佐藤 賢斗, “AI for Science のためのシステムソフトウェアと次世代計算基盤”, CEATEC2024 - AI for All 特設ステージ, 2024 年 10 月 18 日

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