

Kento Sato

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Team Leader, High Performance Big
Data Research Team

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Short Bio

Kento Sato is a team leader in the Center for Computational Science at RIKEN (RIKEN R-CCS). His research area is distributed systems and parallel computing, particularly in High Performance Computing (HPC). Major focuses of his research are artificial intelligence, machine learning and deep learning in HPC, application reproducibility (MPI reproducibility, and Validation), scalable fault tolerance (Scalable checkpoint/restart, Fault tolerant MPI, Resilient system design), and I/O optimization (NVRAM, Burst buffer, and Big data), co-designing and cloud computing. He received his Ph.D. in the Dept. of Mathematical & Computing Sciences at Tokyo Tech in 2014, his M.S. in the Dept. of Mathematical & Computing Sciences at Tokyo Tech in 2010, and his B.S. in the Dept. of Information Science at Tokyo Tech in 2008.

EDUCATION

- Mar., 2014 **Ph.D. in Science**, *Department of Mathematical and Computing*, Tokyo Institute of Technology, Tokyo, Japan.
- Mar., 2010 **Master of Science**, *Department of Mathematical and Computing*, Tokyo Institute of Technology, Tokyo, Japan.
- Mar., 2008 **Bachelor of Science**, *Department of Information Science*, Tokyo Institute of Technology, Tokyo, Japan.
 - Graduated top of the department

WORK EXPERIENCE

- May, 2018 **Invited Senior Researcher (Category 5 Employee)**, *RWBC-OIL*, National Institute of Advanced Industrial Science and Technology (AIST), Tokyo, Japan.
- Nov., 2017 - Jan., 2018 **Invited Senior Researcher (Category 5 Employee)**, *RWBC-OIL*, National Institute of Advanced Industrial Science and Technology (AIST), Tokyo, Japan.
- Sep., 2017 - present **Computer Scientist**, *Center for Applied Scientific Computing*, Lawrence Livermore National Laboratory, CA, USA.
- Sep., 2014 - Sep., 2017 **Postdoctoral Researcher**, *Center for Applied Scientific Computing*, Lawrence Livermore National Laboratory, CA, USA.
 - PRUNER project (Providing Reproducibility on Ubiquitously Non-deterministic Environments and Runs)
 - Extreme Scale Resilience project
- Apr., 2014 - Aug., 2014 **Postdoctoral Researcher**, *Global Scientific Information and Computing Center*, Tokyo Institute of Technology, Tokyo, Japan.
 - Extreme Scale Resilience project

- Apr., 2012 - **JSPS research fellow**, DC2, JSPS (Japan Society for the Promotion of Science),
Mar., 2014 *Tokyo, Japan.*
- I/O optimization in cluster, cluster and grid environments
- July, 2013 - **Research Intern**, *Center for Applied Scientific Computing*, Lawrence Livermore
Oct., 2013 National Laboratory, CA, USA.
- Developed a Fault tolerant Messaging Interface(FMI);
 - Developed an I/O interface(IBIO) and a resiliency model for burst buffer
- Aug., 2012 - **Research Intern**, *Center for Applied Scientific Computing*, Lawrence Livermore
Nov., 2012 National Laboratory, CA, USA.
- Developed a Fault tolerant Messaging Interface(FMI)
- Aug., 2011 - **Research Intern**, *Center for Applied Scientific Computing*, Lawrence Livermore
Nov., 2011 National Laboratory, CA, USA.
- Developed an asynchronous checkpointing system
- Oct., 2010 - **Research Staff**, *Global Scientific Information and Computing Center*, Tokyo Insti-
Mar., 2011 tute of Technology, *Tokyo, Japan.*
- I/O optimization in grid environments
- Apr., 2010 - **Associate**, *Equity Operation*, J.P.Morgan Securities Japan Co., Ltd., *Tokyo, Japan.*
Aug., 2010
- Trading system monitoring
 - FIX (Financial Information Exchange) system log analysis
 - Release of algorithm trading programs
 - In-house user service
- Oct., 2006 - **Business Intern**, *Equity Research*, Deutsche Securities Inc., *Tokyo, Japan.*
Jan., 2008
- Developed a financial chart viewer library and a web interface to SQL databases

PROFESSIONAL ACTIVITIES

- 2020 ACM International Conference on Computing Frontiers (CF), *Steering Committee*
- 2020 HPC Asia 2020 (International Conference on High Performance Computing in Asia-Pacific Region), *Track Chair (in Programming Models and Systems Software)*
- 2019 ACM/IEEE SC (Supercomputing Conference), *BoF Committee*
- 2019 ICPP 2019 (International Conference on Parallel Processing 2019), *Technical Program Committee*
- 2019 ICS 2019 (International Conference on Supercomputing), *Technical Program Committee*
- 2019 ACM International Conference on Computing Frontiers (CF), *Program Co-Chairs*
- 2019 ACM International Conference on Computing Frontiers (CF), *Poster Committee*
- 2019 R-WoNC'19 (Riken International Workshop on Neuromorphic Computing), *Public-ity Co-Chairs*
- 2019 HPC Asia 2019 (International Conference on High Performance Computing in Asia-Pacific Region), *Technical Program Committee*
- 2018 ACM/IEEE SC (Supercomputing Conference), *Posters Committee*, Also served for the best poster committee

- 2018 ACM/IEEE SC (Supercomputing Conference) workshop: The joint International Workshop on Parallel Data Storage & Data Intensive Scalable Computing Systems (PDSW-DISCS), *Program Committee*
- 2018 IEEE Cluster, *Poster Committee*
- 2018 IEEE Transactions on Parallel and Distributed Systems (TPDS-2018-02-0076), *Reviewer*
- 2018 HPC Asia (International Conference on High Performance Computing in Asia-Pacific Region), *Technical Program Committee*
- 2018 HPC Asia (International Conference on High Performance Computing in Asia-Pacific Region), *Technical Poster Committee*
- 2017 ACM/IEEE SC (Supercomputing Conference), *Posters Committee*
- 2017 ACM/IEEE SC (Supercomputing Conference), *BoF Committee*
- 2017 ACM/IEEE SC (Supercomputing Conference) workshop: The joint International Workshop on Parallel Data Storage & Data Intensive Scalable Computing Systems (PDSW-DISCS), *Program Committee*
- 2017 ACM/IEEE SC (Supercomputing Conference) workshop: The first International Workshop on Software Correctness for HPC Applications (Correctnes2017), *Program Committee*
- 2017 IEEE Cluster, *Proceedings Chair*
- 2017 IEEE Cluster, *Technical Program Committee*
- 2017 IEEE Cluster workshop: The 3rd International Workshop on Fault Tolerant Systems (FTS2017), *Technical Program Committee*
- 2017 ICPP (International Conference on Parallel Processing), *Program Committee Members*
- 2016 IEEE Cluster, *Technical Program Committee*
- 2016 IEEE/ACM CCGrid, *Technical Program Committee*
- 2016 IEEE Cluster workshop: The 2nd International Workshop on Fault Tolerant Systems (FTS2016), *Technical Program Committee*
- 2015 IEEE Cluster, *Technical Program Committee*
- 2015 IEEE Cluster workshop: The 1st International Workshop on Fault Tolerant Systems (FTS2015), *Technical Program Committee*
- 2014 IEEE Transactions on Parallel and Distributed Systems (TPDS-2014-01-0069), *Reviewer*
- 2014 Concurrency and Computation: Practice and Experience (CPE-14-0353), *Reviewer*
- 2013 IEEE Transactions on Parallel and Distributed Systems (Journal), *Reviewer*
- 2013 Parallel Computing (Journal), *Reviewer*

AWARDS & SCHOLARSHIP

- Jun., 2018 Best poster award in ISC18 on “HuronFS: Hierarchical, User-level and On-demand Burst Buffer File System”

- Nov., 2017 R&D 100 Award Finalist on “PRUNERS Toolset”
- Nov., 2017 Best poster finalist in SC17 on “A Simulation-Based Analysis on the Configuration of the Burst Buffer”
- Nov., 2017 Best poster finalist in SC17 on “Towards Capturing Nondeterminism Motifs in HPC Applications”
- Mar., 2017 Best poster award at the Computation Directorate March 2017 Postdoctoral Poster Symposium in LLNL
- Feb., 2015 Seiichi Tejima Doctoral Dissertation Award (平成26年度手島精一記念研究賞授与式 情報学関係部門) on “Design and Implementation for Optimal Checkpoint/Restart”
- May, 2014 IEEE/ACM CCGrid2014 Best Paper Award
- Apr., 2012 Japanese Society for the Promotion of Science (JSPS) scholarship for two years, (Research fund: \$10k/year)
- Mar., 2008 Graduated top of the Department of Information Science, Tokyo Institute of Technology, Awarded

GRADUATE ADVISOR

Satoshi Matsuoka, Tokyo Institute of Technology