

Soramichi Akiyama, Ph.D.

Assistant Professor (JP: 助教), Department of Creative Informatics,
Graduate School of Information Science and Technology, The University of Tokyo

+ Short Bio

I received my Ph.D. from Department of Creative Informatics, The University of Tokyo in 2015, after obtaining a B.Eng. from Kyoto University in 2010. Since June 2018, I have been an assistant professor at Department of Creative Informatics, The University of Tokyo. Before that, I experienced an internship in Microsoft Research and then worked for National Institute of Advanced Industrial Science and Technology (AIST) and Nippon Telegraph and Telephone (NTT) as a researcher. My research interest centers on how to efficiently execute large scale workloads in the AI and HPC fields with as little programmer effort as possible, by leveraging knowledge of operating systems, virtualization techniques, memory systems, and performance analysis.

+ General Info

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Web <http://www.soramichi.jp/>

Research Interest Operating Systems, Virtualization Techniques, Memory Systems, Performance Analysis

Languages Japanese (native), English (very fluent)

+ Full-time Working Experiences

2018/06 – Today **Assistant Professor**, Department of Creative Informatics, The University of Tokyo, Japan

2015/11 – 2018/05 **Researcher**, Artificial Intelligence Research Center, National Institute of Advanced Industrial Science and Technology (AIST), Japan **I was a postdoc for a month, then worked as a researcher*

2015/04 – 2015/10 **Researcher**, Software Innovation Center, Nippon Telegraph and Telephone (NTT), Japan

+ Other Experiences

2020/04 – 2020/09 **External Lecturer**, Graduate School of Science and Technology for Future Life, Tokyo Denki University (Teaching: "Functions and Structures of Operating Systems")

2018/10 – Today **Technical Advisor**, i Smart Technologies (part-time consulting job)

2019/04 – 2019/10 **Academic Guest**, Department of Computer Science, ETH Zürich, Switzerland

2013/04 – 2015/03 **JSPS Research Fellow DC2**, Japan Society for Promotion of Science

2013/05 – 2013/08 **Research Intern**, Microsoft Research, Redmond, WA, US

2011/07 – 2011/08 **Intern**, Information Technology Research Institute, National Institute of Advanced Industrial Science and Technology (AIST), Japan

+ Education

2015/03 Ph.D., Department of Creative Informatics, The University of Tokyo, Japan

2012/03 M.Sc., Department of Creative Informatics, The University of Tokyo, Japan

2010/03 B.Eng., School of Informatics and Mathematical Science, Kyoto University, Japan

+ Academic Services

Ph.D. Forum Chair 39th IEEE International Symposium on Reliable Distributed Systems (SRDS'20)

Associate Editor IEICE Transactions on Information and Systems (2019/06 –)

PC Member ACM CF'20, SRDS'19, MCSoc'18 (Track 8)

Mentor The First Young Architect Workshop (Yarch), co-located with HPCA'19

Program Co-Chair	The 7th IEEE Non-Volatile Memory Systems and Application Symposium (NVMSA'18)
Publicity (Co-)Chair	APSys'20, EuroSys'18, SRDS'18
Committee Member	Special Interest Group on Operating Systems, Information Processing Society of Japan (2017/04 -)
External Reviewer	IEEE TDSC (2020), IEEE TCC (2017, 2016, 2015), IEICE Trans. on Information and Systems (2019, 2018), IEICE Trans. on Communications (2018, 2017), ISCC'19, NVMSA'17, eScience'17

+ Awards and Honors

2019/03	Excellent Presentation Award, IEICE Technical Committee on Computer Systems (CPSY)
2018/08	Computer Science Research Award for Young Scientists, Information Processing Society of Japan
2015/06	Endorsement to my Ph.D. thesis by IPSJ Special Interest Group on Operating Systems
2015/03	Dean's Award, Graduate School of Information Science and Technology, The University of Tokyo
2013/04 - 2015/03	Research Fellowship for Young Scientists, Japan Society for the Promotion of Science (JSPS)
2012/07	Computer Science Research Award for Young Scientists, Information Processing Society of Japan
2011/12	Best Paper Award, 23rd Computer Systems Symposium (ComSys'11)
2011/12	Best Student Poster Award, 23rd Computer Systems Symposium (ComSys'11)

+ Grants

2020/04 - 2022/03	ACT-I (Accelerarion Phase), Strategic Basic Research Programs, Japan Science and Technology Agency, 13000 K JPY
2018/10 - 2020/03	ACT-I, Strategic Basic Research Programs, Japan Science and Technology Agency, 3000 K JPY
2013/04 - 2015/03	Grant-in-Aid for JSPS Research Fellow, Japan Society for the Promotion of Science, 2000 K JPY

+ Refereed Publications

- [MASCOTS'20] C. Helm, S. Akiyama, K. Taura: "Reliable Reverse Engineering of Intel DRAM Addressing Using Performance Counters", IEEE International Symposium on Modeling, Analysis, and Simulation of Computer and Telecommunication Systems, 2020 (to appear).
- [MSR'20] T. Nakamaru, T. Matsunaga, T. Yamazaki, S. Akiyama, S. Chiba: "An Empirical Study of Method Chaining in Java", The 17th International Conference on Mining Software Repositories, pp. 1 – 10, 2020.
- [SPMA'20] S. Akiyama: "Assessing Impact of Data Partitioning for Approximate Memory in C/C++ Code", The 10th Workshop on Systems for Post-Moore Architectures, pp. 1 – 7, 2020. **Co-located with EuroSys'20*
- [IEICE Trans] S. Akiyama: "A Lightweight Method to Evaluate Effect of Approximate Memory with Hardware Performance Monitors", IEICE Transactions on Information and Systems, Vol. E102-D, No. 12, pp. 2354 - 2365, 2019.
- [IPDPSW'18] S. Akiyama, T. Hirofuchi, R. Takano: "Diagnosing Performance Fluctuations of High-throughput Software for Multi-core CPUs", 32nd IEEE International Parallel and Distributed Processing Symposium Workshops, pp. 1293 – 1302, 2018.
- [SFMA'18] S. Hamada, S. Akiyama, M. Namiki: "Reactive NaN Repair for Applying Approximate Memory to Numerical Applications", The 8th Workshop on Systems for Multi-core and Heterogeneous Architectures, pp. 1 – 6, 2018. **Co-located with EuroSys'18*
- [NVMSA'17] A. Koshiha, T. Hirofuchi, S. Akiyama, R. Takano, M. Namiki: "Towards Write-back Aware Software Emulator for Non-Volatile Memory", The 6th IEEE Non-Volatile Memory Systems and Applications Symposium, pp. 1 – 6, 2017.
- [ROSS'17] S. Akiyama, T. Hirofuchi: "Quantitative Evaluation of Intel PEBS Overhead for Online System-Noise Analysis", 7th International Workshop on Runtime and Operating Systems for Supercomputers, pp. 3:1 – 3:8, 2017. **Co-located with HPDC'17*
- [IEICE Trans] S. Akiyama, T. Hirofuchi, R. Takano, S. Honiden: "Fast Live Migration for IO-Intensive VMs with Parallel and Adaptive Transfer of Page Cache via SAN", IEICE Transactions on Information and Systems, Vol. E99-D, No. 12, pp. 3024 – 3034, 2016.
- [CloudCom'16] S. Akiyama, T. Hirofuchi, H. Ogawa: "Performance Prediction of Memory Access Intensive Apps with Delay Insertion: A Vision", 8th IEEE International Conference on Cloud Computing Technology and Science, pp. 492 – 496, 2016.
- [EuroSys'16] A. Newell, G. Klot, I. Menache, A. Gopalan, S. Akiyama, M. Silberstein: "Optimizing Distributed Actor Systems for Dynamic Interactive Services", The European Conference on Computer Systems, pp. 38:1 – 38:15, 2016. **Cited more than 10 times*

- [CloudCom'14] S. Akiyama, T. Hirofuchi, S. Honiden: "Evaluating Impact of Live Migration on Data Center Energy Saving", 6th IEEE International Conference on Cloud Computing Technology and Science, pp. 759 – 762, 2014.
- [IEEE CLOUD'14] S. Akiyama, T. Hirofuchi, R. Takano, S. Honiden: "Fast Live Migration with Small IO Performance Penalty by Exploiting SAN in Parallel", The 2014 IEEE 7th International Conference on Cloud Computing, pp. 40 – 47, 2014.
- [CCGrid'13] S. Akiyama, T. Hirofuchi, R. Takano, S. Honiden: "Fast Wide Area Live Migration with a Low Overhead Through Page Cache Teleportation", The 13th IEEE/ACM International Symposium on Cluster, Cloud and Grid Computing, pp. 78 – 82, 2013. ****Cited more than 10 times***
- [IEEE CLOUD'12] S. Akiyama, T. Hirofuchi, R. Takano, S. Honiden: "MiyakoDori: A Memory Reusing Mechanism for Dynamic VM Consolidation", The 2012 IEEE 5th International Conference on Cloud Computing, pp. 606 – 613, 2012. ****Cited more than 40 times***

+ Talks in Community Events

- [ContainerCon'15] S. Akiyama: "Goplane: Open Source BUM-less Networking for Large Scale Docker Deployment", ContainerCon 2015
- [LinuxCon Japan'14] S. Akiyama: "Fast Live Migration for Data-intensive VMs by Exploiting Storage Area Network in Datacenter", LinuxCon Japan 2014
- [LinuxCon Japan'12] S. Akiyama: "Acceleration of Virtual Machine Live Migration on QEMU/KVM by Reusing VM Memory", LinuxCon Japan 2012