Sandeep **Kumar**

RESEARCH SCIENTIST @ INTEL LABS, BENGALURU, INDIA

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Research Interest

Operating Systems, Architecture, Security, Distributed and Parallel Systems.

Selected Publications

1. *Perspector: Benchmarking Benchmark Suites* .
   Sandeep Kumar, Abhisek Panda, Smruti R. Sarangi. In **DATE**, Antwerp, Belgium, 2023.

2. *Hardware-Assisted Mechanisms to Enforce Control Flow Integrity: A Comprehensive Survey*.
   Sandeep Kumar, Diksha Moolchandani, Smruti R. Sarangi. In Journal of Systems Architecture (JSA)

3. *SecureLease: Maintaining Execution Control in The Wild using Intel SGX*.
   Sandeep Kumar, Abhisek Panda, and Smruti R. Sarangi. In **Middleware**, Quebec City, Canada, 2022.

4. *SGXGauge: A Comprehensive Benchmark Suite for Intel SGX*.
   Sandeep Kumar, Abhisek Panda, and Smruti R. Sarangi.. In **ISPASS**, Singapore, 2022.

5. *SecureFS: A Secure File System for Intel SGX*.
   Sandeep Kumar and Smruti R. Sarangi. In **RAID**, Spain, 2021.

6. *Page Table Management for Heterogeneous Memory Systems.*
   Sandeep Kumar, Aravinda Prasad, Smruti R. Sarangi, and Sreenivas Subramoney. In **ISMM**, Canada, 2021.

7. *F-LaaS: A Control-Flow-Attack Immune License-as-a-Service Model*.
   Sandeep Kumar, Diksha Moolchandani, Takatsugu Ono, and Smruti Sarangi. In **IEEE SCC**, Milan, Italy, 2019.

8. *Towards a Portable Human Gait Analysis & Monitoring System* .
   Sandeep Kumar, Poorna Talkad Sukumar, K. Gopinath, Dr. Jayanth Sampath, Laura Rocchi, and Suyameendra Kulkarni..In **IEEE ICSigSys**, Bali, Indonesia, 2018.

9. *Scalable Performance Tuning of Hadoop MapReduce: A Noisy Gradient Approach*.
   Sandeep Kumar, Sindhu Padakandla, Chandrashekar L, Priyank Parihar, Gopinath K, and Shalabh Bhatnagar. In **IEEE Cloud**, Hawaii, USA, 2017.

Patent

1. Methods and apparatus to profile page tables for memory management. (Patent Pending)
   Aravinda Prasad, **Sandeep Kumar**, Sreenivas Subramoney, and Andy Rudoff

Education

Indian Institute of Technology Delhi   *New Delhi, India*
DOCTOR OF PHILOSOPHY   *Jul. 2017 -*
- Advised by Prof. S. R. Sarangi

Indian Institute of Science   *Bangalore, India*
MASTER OF ENGINEERING IN COMPUTER SCIENCE   *Jul. 2011 - Aug. 2013*
- Advised by Prof. K. Gopinath

Guru Gobind Singh Indraprastha Univeristy   *New Delhi, India*
BACHELOR OF TECHNOLOGY IN COMPUTER SCIENCE   *Jul. 2007 - Aug. 2011*

Work Experience

Intel Labs   *Bangalore, Karnataka*
RESEARCH SCIENTIST   *March 2022 –*
- Working on developing methods and tools for a better synergy between the hardware and the software.

Intel Labs   *Bangalore, Karnataka*
GRADUATE RESEARCH INTERN   *July 2020- Jan 2021*
- Worked on improving the kernel support for Intel Optane DC NVMM.

Indian Institute of Science   *Bangalore, Karnataka*
RESEARCH ASSOCIATE   *Sept 2014- July 2017*
- Worked on auto tuning of Hadoop Map-reduce using Stochastic algorithms and Human gait analysis.

Dell R&D   *Bangalore, India*
SOFTWARE DEVELOPMENT ENGINEER   *Jul 2013-Jun 2014*
- Responsible for BIOS configuration and system management tools, DCC (Dell Command Configure) and OMCI (Open Manage Client Instrumentation) respectively

Selected Projects

Toy C Compiler
COURSE PROJECT FOR COMPILER DESIGN   *8*
- Implemented a Toy C Compiler using Flex Bison and LLVM as part of the Compiler Course Work. It contains LLVM IR code generation and implementation of some basic optimizations.

Distributed Computing
COURSE PROJECT
- Wrote Distributed Programs to solve TSP (Travelling sales man problem), ABP (Alpha Beta pruning search) and MST (Minimum spanning tree) using rpcgen in C++ and showed a speed up of factor 9, 6 and 2.5 respectively when the number of servers went up from 1 to 6.

Interests & Activities

Reading books
Goodreads profile:
`https://goodreads.com/sandeep007734`

Running, Cycling, and Hiking
Strava profile:
`https://www.strava.com/athletes/sandeep007734`

References

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