Sandeep **Kumar**

SENIOR RESEARCH SCIENTIST @ INTEL LABS, BENGALURU, INDIA
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Research Interest

Operating Systems, Architecture, Deep Neural Networks, Large Language Models, and Security.

Selected Publications

1. *TierTrain: Proactive Memory Tiering for CPU-Based DNN Training.*
   Sathvik Swaminathan, **Sandeep Kumar**, Aravinda Prasad, and Sreenivas Subramoney.
   In **ISMM**, Seoul, South Korea, 2025.

2. *A Tug-of-War between Static and Dynamic Memory in Intel SGX.*
   Sandeep Kumar, Abhisek Panda, Advait Nerlikar and Smruti R. Sarangi.
   In **VLSID**, Bangalore, India, 2025.

3. *Telescope: Telemetry for Gargantuan Memory Footprint Applications.*
   Alan Nair, **Sandeep Kumar**, Aravinda Prasad, Ying Huang, Andy Rudoff, Sreenivas Subramoney.
   In **USENIX ATC**, Santa Clara, USA, 2024.

4. *Taming Server Memory TCO with Multiple Software-Defined Compressed Tiers.*
   Sandeep Kumar, Aravinda Prasad, Sreenivas Subramoney. In **Arxiv**, 2024.

5. *Managing Large Enclaves in a Data Center.*
   Sandeep Kumar, Smruti R. Sarangi. In **Arxiv**, 2024.

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

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

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

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

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

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

12. *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.

13. *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 Granted)
   Aravinda Prasad, **Sandeep Kumar**, Sreenivas Subramoney, and Andy Rudoff

Work Experience

Intel Labs   *Bangalore, Karnataka*
Senior 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 enabling page table pages migration in Linux.

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.

Education

Indian Institute of Technology Delhi   *New Delhi, India*
Doctor of Philosophy   *Jul. 2017 - 2024*
- 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*

Interests & Activities

Goodreads profile: **Strava profile:**
Reading books   Running, Cycling, and Hiking
`https://goodreads.com/sandeep007734`   `https://www.strava.com/athletes/sandeep007734`

References

Professor   *srsarangi@cse.iitd.ac.in*
Prof. Smruti R. Sarangi   *Department of Computer Science*
Indian Institute of Technology Delhi, New Delhi, India

Professor   *gopi@iisc.ac.in*
Prof. K. Gopinath   *Computer Science and Automation*
Indian Institute of Science, Bangalore, India