Saurabh Kumar

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Education

Dec 2015 – Present **Ph.D., Dept. of Computer Science and Engineering, IIT Kanpur** (CGPA: 7.67)
Thesis title: *Making the Case for Stealthy, Reliable, and Low-overhead Android Malware Detection and Classification.*

July 2010 – June 2012 **M.Tech. (Information Technology), Dept. of Computer Science and Engineering, IIT Roorkee** (CGPA: 7.36)
Thesis title: *Efficient and Secure Routing for MANETs.*

July 2007 – June 2010 **MCA, Uttarakhand Technical University, Dehradun** (71.23%)

Experiences

Dec 2015 – Present **Teaching Assistance.** Department of Computer Science and Engineering, IIT Kanpur.

1. CS962: Operating System Principles, eMasters in Cyber Security Program — Quarter-1 2022
2. CS330: Operating Systems — 2020-21 (I)
3. CS730: Topics in Operating Systems — 2019-20 (II)
4. CS665: Secure Memory Systems — 2018-19 (I), 2019-20 (I)
5. CS628A: Computer Systems Security — 2016-17 (II), 2017-18 (II), 2018-19 (II)
6. CS698Y: Modern Memory Systems — 2017-18 (I)
7. CS252: Computing Laboratory - II — 2016-17 (I)
8. CS251: Computing Laboratory - I — 2015-16 (II)

Feb 2013 – Dec 2015 **Assistant Programmer.** Central Bureau of Investigation, Government of India.

Research Publications

Journal Articles

1. **Kumar**, **S.**, Mishra, D., Panda, B., & Shukla, S. K. (n.d.). InviSeal: A Stealthy Dynamic Analysis Framework for Android Systems. *ACM Digital Threats: Research and Practice*. **(Under major revision)**.
2. Maurya, V., Agarwal, R., **Kumar**, **S.**, & Shukla, S. K. (n.d.). EPASAD: Ellipsoid Decision Boundary Based Process-Aware Stealthy Attack Detector. *ACM Transactions on Cyber-Physical Systems*. **(Under submission)**.

Conference Proceedings

1. KP, A., **Kumar**, **S.**, Mishra, D., & Panda, B. (2022). SniP: An Efficient Stack Tracing Framework for Multi-threaded Programs. In *2022 IEEE/ACM 19th International Conference on Mining Software Repositories (MSR)*. **[Core: A Ranked])**. doi:10.1145/3524842.3528499

2. **Kumar**, **S.**, Mishra, D., Panda, B., & Shukla, S. K. (2022). AndroOBFS: Time-tagged Obfuscated Android Malware Dataset with Family Information. In *2022 IEEE/ACM 19th International Conference on Mining Software Repositories (MSR)*. **[Core: A Ranked])**. doi:10.1145/3524842.3528493

3. **Kumar**, **S.**, Mishra, D., Panda, B., & Shukla, S. K. (2021). DeepDetect: A Practical On-device Android Malware Detector. In *2021 IEEE 21st International Conference on Software Quality, Reliability and Security (QRS)* (pp. 40–51). **[Core: B Ranked])**. doi:10.1109/QRS54544.2021.00015

4. **Kumar**, **S.**, Mishra, D., & Shukla, S. K. (2021). Android Malware Family Classification: What Works – API Calls, Permissions or API Packages? In *2021 14th International Conference on Security of Information and Networks (SIN)* (Vol. 1, pp. 1–8). **[Core: C Ranked])**. doi:10.1109/SIN54109.2021.9699322

5. **Kumar**, **S.**, Mishra, D., Panda, B., & Shukla, S. K. (2020). STDNeut: Neutralizing Sensor, Telephony System and Device State Information on Emulated Android Environments. In S. Krenn, H. Shulman, & S. Vaudenay (Eds.), *Cryptology and Network Security (CANS)* (pp. 85–106). **[Core: B Ranked])**. doi:10.1007/978-3-030-65411-5_5

6. Fatima, A., **Kumar**, **S.**, & Dutta, M. K. (2019). Host-Server-Based Malware Detection System for Android Platforms Using Machine Learning. In *Advances in Computational Intelligence and Communication Technology* (pp. 195–205). Singapore: Springer Singapore.

7. **Kumar**, **S.**, & Kumar, S. (2012). An Enhanced and Effective Encrypting Algorithm for High Volume Video Data Streaming Application on MANET. In *IJCA Proceedings on International Conference on Recent Advances and Future Trends in Information Technology* (Vol. iRAFIT, pp. 9–12).

8. **Kumar**, **S.**, & Kumar, S. (2011). Simulation based Performance Comparison of AODV, DSR and WRP Routing Protocols in MANET using Random Waypoint Mobility Model. In *Proceedings on National Conference on Artificial Intelligence and Agents: Theory & Applications* (Vol. AIATA, pp. 181–185). IIT BHU.

Books and Book Chapters

1. **Kumar**, **S.**, & Shukla, S. K. (2020). The State of Android Security. In S. K. Shukla & M. Agrawal (Eds.), *Cyber Security in India: Education, Research and Training* (pp. 17–22). (Book Chapter). doi:10.1007/978-981-15-1675-7_2

Invited Talk

- **Mobile Security: Android Malware Analysis**.
  9th edition of Cyber Jagrukta Diwas. At Indian Institute of Technology (ISM) Dhanbad, June 2022
- **Mobile Security: Android**.
  Workshop on Network Security for National Informatics Center personnel. At Indian Institute of Technology Roorkee, March 2022
- **Mobile Forensics and Challenges**.
  Workshop on Network Security for National Informatics Center personnel. At Indian Institute of Technology Roorkee, March 2022
- **Mobile Forensics and Challenges: Perspective of Indian Investigators**.
  Faculty Development Program (FDP) on Recent Trends in Cyber Security and Forensics, At E & ICT Academy, NIT Warangal in association with Indra Ganesan College of Engineering, October 2021
- **Security of Mobile Platforms: - Android Security**.
  Workshop at Techkrity, Indian Institute of Technology Kanpur, March 2019

Achievements

2018 Cleared UGC-NET exam for Assistant Professors.

Achievements (continued)

2012 — Selected as Assistant Programmer (Gazetted Officer) in Central Bureau of Investigation, Government of India through UPSC.

Professional Services

Artifact Evaluation Committee
- USENIX Symposium on Operating Systems Design and Implementation **(OSDI)**, 2022.
- USENIX Annual Technical Conference **(ATC)**, 2022.

Organizer
- DRDO Cyber Challenge (CTF) for Defence Research and Development Organization **(DRDO)**, 2018.
- CTF for the Global Conference on Cyber Space **(GCCS)**, 2017.

Regional Challenge Lead
- Capture the Flag (CTF) event at Cyber Security Awareness Week **(CSAW)**, 2017 and 2018.

Sub-reviewer
- 14th ACM-IEEE International Conference on Formal Methods and Models for System Design **(MEMOCODE)**, 2016.

References

1. Prof. Sandeep Kumar Shukla
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2. Prof. Biswabandan Panda
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