

Research Interests

Building privacy-enhancing technologies and contributing in the broad area of privacy, security and networks.

Education

- **Indraprastha Institute of Information Technology (IIIT)** Delhi, India
PhD in Computer Science 2016 - 2021
Title: Building Performant, Privacy-Enhancing, and Blocking-Resistant Communication Systems
– CGPA: 10/10
- **Indraprastha Institute of Information Technology (IIIT)** Delhi, India
Master of Technology in Computer Science 2016 - 2018
– CGPA: 9.6/10
- **Ambedkar Institute of Technology, GGSIPU** Delhi, India
Bachelor of Technology in Electronics & Communication 2012 - 2016
– Percentage: 83.5/100

Publications

1. **Piyush Kumar Sharma**, Rishi Sharma, Kartikey Singh, Mukulika Maity and Sambuddho Chakravarty. “**Dolphin: A Cellular Voice Bases Internet Shutdown Resistance System**”, conditionally accepted in Proceedings of Privacy Enhancing Technologies (**PETS**) 2023.
2. **Piyush Kumar Sharma**, Devashish Gosain, Sambuddho Chakravarty. “**Camoufler: Accessing The Censored Web By Utilizing Instant Messaging Channels**”, to appear in Proceedings of Asia Conference on Computer and Communications Security (**ASIACCS**) 2021.
3. **Piyush Kumar Sharma**, Devashish Gosain, Himanshu Sagar, Chaitanya Kumar, Aneesh Dogra, Vinayak Naik, H.B. Acharya, Sambuddho Chakravarty. “**SiegeBreaker: An SDN Based Practical Decoy Routing System**”, in Proceedings of Privacy Enhancing Technologies (**PETS**) 2020.
4. **Piyush Kumar Sharma**, Shashwat Chaudhary, Nikhil Hassija, Mukulika Maity, Sambuddho Chakravarty. “**The Road Not Taken: Re-thinking The Feasibility of Anonymous Voice Calling Over Tor**”, in Proceedings of Privacy Enhancing Technologies (**PETS**) 2020.
5. Devashish Gosain, Madhur Rawat, **Piyush Kumar Sharma**, H.B. Acharya. “**Maginot Lines and Tourniquets : On the Defendability of National Cyberspace**”, Accepted for publication in Proceedings of Local Computer Network (**LCN**) Symposium 2020.
6. Tarun Kumar Yadav, Akshat Sinha, Devashish Gosain, **Piyush Kumar Sharma**, Sambuddho Chakravarty. “**Where The Light Gets In: Analyzing Web Censorship Mechanisms in India.**”, in proceedings of ACM Internet Measurement Conference (**IMC**), 2018.
7. **Piyush Kumar Sharma**, Chaitanya Kumar, Aneesh Dogra, Vinayak Naik, H.B. Acharya and Sambuddho Chakravarty. “**SiegeBreaker: An SDN Based Practical Decoy Routing System**”, Accepted as a poster in Annual Computer Security Applications Conference (**ACSAC**), 2017.

Professional Experience

- **Pentester Academy**

R & D Intern

Pune, India

Three months

- My main work included research and development in VoIP and telephony technologies (SIP, RTP, RTCP, etc.). Built custom Wireshark plugins (packet dissectors) in Lua to display various VoIP characteristics. Additionally, I also built some Wireshark plugins for characterizing and displaying details of network protocols such as DHCP, ARP, etc.
- I also worked on TLS and PKI certificates and developed novel techniques to retrieve important information such as identifying self-signed certificates, retrieving chain of trust of Certifying Authorities (CAs), etc.
- Additionally, I also developed plugins to detect Tor traffic in Wireshark itself.

- **CODEC Networks**

Information Security Intern

Delhi, India

12 months

- Enforced network-wide security policies for different organizations using a centralized network security solution product “McAfee epo”. The policies enforced included rules for Solidcore (Application Security), Drive Encryption, Removable Devices management, and DLP (Data Leakage Prevention).
- Implemented a next-generation firewall UNTANGLE UTM on the network of various organizations. Further, I also worked on CISCO ASA Firewall and enforced security policies on a production network.
- Being actively involved as an instructor, I delivered corporate training for security certifications like CEH, ECSA, CND, *etc.*

Teaching Experience

- Gave a lecture for the *Privacy Technologies* course at ESAT, KU Leuven in Fall 2021. The lecture was designed to provide a detailed and systematic overview of various (anti) censorship techniques.
- Gave an invited talk for the University of Michigan’s security group during March 2021. I presented my research work on SDN based decoy routing system (which was published at PETS 2020).
- Served as a teaching assistant for different courses during my PhD. The courses included Systems Management, Numerical Methods, Network Security and Security Engineering.
- Served as the course instructor for multiple industrial certifications during my internship/part-time employment at CODEC Networks, including EC-Council’s CND, CEH, ECSA and Cisco’s CCNA. I taught students as well as corporate professionals for the aforementioned certifications for a duration of an year.

Academic Service

- *Program Committee member:* PETS 2023, ESORICS 2022
- *External Reviewer:* PETS 2021, PETS 2022

Skills

- *Programming Languages:* C, C++, Python, Lua
- *Emulators/Simulators:* Mininet, DeterLab

- *Hardware:* Arduino, Raspberry pi, Intel Galileo, Zodiac-fx, HP3500yl SDN switch, Cisco networking devices
- *Certification:* EC-Council Certified Network Defender (CND)

Awards

- Doctoral dissertation award for the PhD thesis (similar to summa cum laude).
- First prize in research showcase in IIIT Delhi (RIISE) for the research on Decoy routing and anonymous voice calls.