

Education

- **PhD in Computer Science** Current
Stony Brook University, Stony Brook, NY, USA *Advisor – Dr. Michalis Polychronakis*
- **Masters in Computer Science** August 2015
Stony Brook University, Stony Brook, NY, USA *GPA – 3.88/4.0*
- **Bachelor of Engineering in Computer Engineering** May 2009
Ramrao Adik Institute of Technology, University of Mumbai, India *Percentage: 73.38*

Research Interests

- **Defenses against Data-only and Speculative Execution Attacks**
Data-only attacks and speculative-execution attacks are two novel attacks that are resilient against most widely deployed security defenses. We built Selective Data Protection (SDP), a system that provides an annotation-based compiler primitive to ensure the confidentiality and integrity of annotated memory objects.
- **Attack Surface Reduction**
Software *bloat* results in a larger “attack surface” for attackers. We developed two techniques to reduce this attack surface, and applied them to the Docker containers and server applications.
- **Static Analysis Techniques**
Static Analysis techniques, such as pointer analysis, and data-flow analysis, impact the scalability and precision of any defenses against data-only attacks, as well as attack surface reduction techniques. To this end, we are working on developing novel techniques that improve the scalability and precision of static analysis techniques.

Publications

- Palit, Tapti, Fabian Monrose, and Michalis Polychronakis. “Mitigating Data-only Attacks by Protecting Memory-resident Sensitive Data.” In ACM Digital Threats: Research and Practice (DTRAP) (2020) (*Journal Version*)
- Ghavamnia, Seyedhamed, Tapti Palit, Shachee Mishra, and Michalis Polychronakis. “Temporal system call specialization for attack surface reduction.” In 29th USENIX Security Symposium (USENIX Security 20). 2020.
- Ghavamnia, Seyedhamed, Tapti Palit, Azzedine Benameur, and Michalis Polychronakis. “Confine: Automated system call policy generation for container attack surface reduction.” In Proceedings of the International Conference on Research in Attacks, Intrusions, and Defenses (RAID). 2020.
- Palit, Tapti, Fabian Monrose, and Michalis Polychronakis. “Mitigating data leakage by protecting memory-resident sensitive data.” In Proceedings of the 35th Annual Computer Security Applications Conference. 2019. (*Conference Version*)
- Cho, Shenghsun, Amoghavarsha Suresh, Tapti Palit, Michael Ferdman, and Nima Honarmand. “Taming the killer microsecond.” In 2018 51st Annual IEEE/ACM International Symposium on Microarchitecture (MICRO). IEEE, 2018.
- Palit, Tapti, Yongming Shen, and Michael Ferdman. “Demystifying cloud benchmarking.” In 2016 IEEE international symposium on performance analysis of systems and software (ISPASS). IEEE, 2016.
- Agrawal, Varun, Abhiroop Dabral, Tapti Palit, Yongming Shen, and Michael Ferdman. “Architectural support for dynamic linking.” In Proceedings of the Twentieth International Conference on Architectural Support for Programming Languages and Operating Systems. 2015.

Work Experience

- **Zeropoint Dynamics** (*Research Engineer Intern*) May 2018 – August 2018
- **CA Technologies** (*Senior Research Aide*) Nov 2013 – Feb 2014
- **Tata Consultancy Services (India)** (*Systems Engineer*) Dec 2009 – Jul 2013
- **Bhabha Atomic Research Center (India)** (*Research Trainee*) Aug 2008 – Jun 2009

Other Activities

- **Instructor at High School WISE Program** Aug 2018 – Apr 2020
As part of the Stony Brook WISE (Women in Science and Engineering) Program, I taught Computer Science Fundamentals to high school students who identify as female.
- **Newsletter Editor at Anti-racism Non-profit Organization** Jan 2020 – Current
I performed monthly newsletter editing and other technical support for “Multi-cultural Solidarity on Long Island”, a registered non-profit, that works towards eradicating racism.