Parjanya Vyas

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EDUCATION

University of Waterloo — **Waterloo, Ontario, Canada**
PhD in Computer Science, Current CGPA: 94 / 100 — *September 2021 - Present*

Indian Institute of Technology (IIT) Bombay - Silver Medalist — **Mumbai, Maharashtra, India**
Master of Technology in Computer Science and Engineering, GPA: 9.88 / 10 — *July 2016 - August 2019*

Nirma University of Technology — **Ahmedabad, Gujarat, India**
Bachelor of Technology in Computer Engineering, GPA: 8.34 / 10 — *August 2011 - May 2015*

RESEARCH PUBLICATIONS

SPLinux — **Intl Conf on Security, Privacy & Anonymity in Computation, Communication & Storage**
SPLinux: An Information Flow Secure Linux — *Septemer, 2021*

- Vyas, Parjanya, R. K. Shyamasundar, Bhagyesh Patil, Snehal Borse, and Satyaki Sen. "SPLinux: An Information Flow Secure Linux." In 2021 IEEE Intl Conf on Security, Privacy, and Anonymity in Computation, Communication, and Storage (SpaCCS), pp. 1603-1612. 2021.

SecSDN — **International Conference on Security and Cryptography (SECRYPT)**
SecSDN: A Novel Architecture For A Secure SDN — *July, 2021*

- Vyas, Parjanya and Shyamasundar, R. K. "SecSDN: A Novel Architecture for a Secure SDN." In Proceedings of the 18th International Conference on Security and Cryptography - SECRYPT, ISBN 978-989-758-524-1; ISSN 2184-7711, pages 587-594. DOI: 10.5220/0010575505870594

Group Correlations and MPC — **Conference on Information-Theoretic Cryptography (ITC)**
Group Structure in Correlations and its Applications in Cryptography — *July, 2021*

- Policharla, Guru-Vamsi, Manoj Prabhakaran, Rajeev Raghunath, and Parjanya Vyas. "Group Structure in Correlations and Its Applications in Cryptography." Cryptology ePrint Archive (2021).

App2SecApp — **ACM/SIGAPP Symposium On Applied Computing (SAC)**
App2SecApp: Privacy Protection from Android Applications — *March, 2021*

- Vyas, Parjanya, R. K. Shyamasundar, and Bhagyesh Patil. "App2SecApp: privacy protection from Android applications." In Proceedings of the 36th Annual ACM Symposium on Applied Computing, pp. 908-911. 2021.

SELinux Consistency Analysis — **Computers & Security**
Consistency analysis and flow secure enforcement of SELinux policies — *July, 2020*

- Radhika, B. S., NV Narendra Kumar, R. K. Shyamasundar, and Parjanya Vyas. "Consistency Analysis and Flow Secure Enforcement of SELinux Policies." Computers & Security (2020): 101816

AppAmigo — **Innovations in Software Engineering Conference (ISEC)**
An Android library that provides automatic remote assistance — *February, 2019*

- Vyas, Parjanya, Bhagyesh Patil, Shubham Singh, and Vinayak Naik. "AppAmigo: An Efficient Middleware to Record and Control Remote Users' Interactions with their Smartphone Apps." In Proceedings of the 12th Innovations on Software Engineering Conference (formerly known as India Software Engineering Conference), pp. 1-11. 2019

SecSmartLock — **International Conference on Information Systems Security (ICISS)**
An Architecture and Protocol for designing secure smart locks — *December, 2018*

- Patil, Bhagyesh, Parjanya Vyas, and R. K. Shyamasundar. "SecSmartLock: An Architecture and Protocol for Designing Secure Smart Locks." In International Conference on Information Systems Security, pp. 24-43. Springer, Cham, 2018

Secure File System — **IEEE TrustCom**
An Experimental Flow Secure File System — *August, 2018*

- Rudrapatna Shyamasundar, NV Narendra Kumar, Abhijit Taware, and Parjanya Vyas. "An Experimental Flow Secure File System." In 2018 17th IEEE International Conference On Trust, Security And Privacy In Computing And Communications/12th IEEE International Conference On Big Data Science And Engineering (TrustCom/BigDataSE), pp. 790-799. IEEE, 2018

Improving CPU and GPU parallel computing — **International Journal of Advanced Research(IJARET)**

Performance Evaluation of Parallel Computing Systems *Volume 5, Issue 5 - May, 2014*

- Joshi, Dr Narayan, and Parjanya Vyas. "Performance Evaluation of Parallel Computing Systems." International Journal of Advanced Research in Engineering & Technology, ISSN Print (2014): 0976-6480

WORK EXPERIENCE

University of Waterloo **Waterloo, ON, Canada**
Teaching Assistant *September 2021 - Present*

- Help instructors design and implement assignments for the CS458/658 course on security and privacy.
- Assist students in solving the assignments by helping them understand security related concepts such as cross-site scripting, CSRF, SQL Injection, etc.

University of Waterloo **Waterloo, ON, Canada**
Summer Intern *June 2021 - September 2021*

- Worked under the supervision of Prof Yousra Aafer to explore static analysis based approaches to evaluate the security of Android Framework

General Motors Canada **Toronto, ON, Canada**
Software Developer *September 2020 - May 2021*

- Explore the workings of Android Open Source Project (AOSP) code and maintain and implement features for Audio Framework team

Stack Fintech Inc - later acquired by Credit Sesame Inc **Toronto, ON, Canada**
Android Engineer *November 2019 - September 2020*

- Developed and maintained Sesame Cash feature in Credit Sesame Android application
- Interviewed and trained new Android developers along with managing a team

ISRDC Lab under ISEA project of Government of India **IIT Bombay, Mumbai, India**
Research Assistant *July 2016 - June 2019*

- Developed an *Information Flow Secure* file system and extended it into a fully functional information flow secure Linux

Samsung R&D Institute **Noida, India**
Intern - later promoted to full-time Software Engineer *January 2015 - July 2016*

- Worked as an Android application developer and a part of Accessibility, Settings, Smart Manager and Bike Mode teams to help develop and maintain functionalities of the respective modules in Samsung smartphones

SELECTED ACADEMIC PROJECTS

A Simple Onion Routing Protocol

- Developed an anonymity system using onion routing, which consisted of a predefined message structure and different modules for onion servers, clients and routers, coded in Java

Results on Tension Region of OLE

- A theoretical research project on computing the tension region of simple MPC constructions such as Oblivious Linear function Evaluation (OLE)
- Additionally, derived functionalities based on the computed tension region of various cryptographic primitives

2PC Protocol using JustGarble and SimpleOT

- A secure 2 party computation protocol written in C that can evaluate 2 party functions defined by arithmetic circuits
- JustGarble system was used to create garbled circuits whereas SimpleOT to perform oblivious transfers

An Application depicting Security Issues in Android

- A simple looking android gaming application which included a number of intentional security loopholes. A guide that illustrates attacks exploiting these loopholes and their preventive measures

A Website Demonstrating Security Vulnerabilities in Web Based Applications

- Developed a website having intentional security loopholes such as SQL injection, XSS, session hijacking, etc.
- Also developed a version of the same website with all the vulnerabilities prevented using various measures

ACHIEVEMENTS

- Received institute silver medal for securing first merit rank in the graduating batch of M.Tech computer science, IIT Bombay, Mumbai, India - 2019