Priyal Shah

3405 NW Orchard Avenue Unit 282, Corvallis, OR. 97330 | http://people.oregonstate.edu/~shahpri/

Email: [shahpri@oregonstate.edu](mailto:shahpri@oregonstate.edu) | Cell: +1 (541) 602-8064 | LinkedIn: https://www.linkedin.com/in/spriyal/

## Education

|  |  |  |  |
| --- | --- | --- | --- |
| **Master of Science in Computer Science** | **Oregon State University** | **March 2019** | **3.60 Current GPA** |
| Bachelor of Engineering in Computer Engineering | Gujarat Technological University | May 2016 | 6.85 CGPA |

**Concentration:** Cybersecurity, Security Protocols, Computer System Networks, Intrusion Detection/Prevention Systems

**Graduate Courses:** System Security; Network Security; Cyber Attack and Defense; Cyber Security; Applied Cryptography; Advanced Computer Networking; Parallel Programming with OpenMP, OpenCL and OpenGL; Computer Architecture; Error Correcting Codes; Operating System; Data Analysis and Algorithms; Theory of Computation; Compiler Design.

## Work Experience

**Oregon State University** Research towards MS Thesis Sep 2017 – present

* Pursuing research on **IDS/IPS** like **Bro** and **Snort** with Elastic Search and Kibana to make them work together efficiently.

**Oregon State University – EECS** Graduate Teaching Assistant Sep 2017 – present

* So far worked with over **300 students** as GTA of “Introduction to Computer Networks” (**Wireshark** Labs and **OSI** Model) and Software Engineering-1 (Basic **SDLC**, **UML** Diagrams, Group projects applying **Agile** software development)

**Oregon State University – Information Services** Student Technician Mar 2017 – Sep 2017

* Worked as student **Network administrator**, InfoSec Lab Assistant (**phishing attack** detection, good troubleshooting skills).

## Projects

Denial of Service (**DoS**) Mitigation May 2018 – present

* Implementation with C; Using **client-server puzzle**, a Proof of Work (**PoW**) concept

**Automatic Vulnerability Discovery** May 2018 – present

* Applying fuzzing (**afl-fuzz**) and symbolic execution (**KLEE**), exploits using python (**pwntools)**

**Post-Quantum Signature** using C language and MIRACL library May 2018 – present

* Implementing Merkle-hash tree, HORS signature and d-time O(1) key-size HORS/Merkle-tree Mini Post-Quantum Signature.

**Digital Forensic Tool** using C language and MIRACL library May 2018 – present

* Implementing Huffman Compression and Rabin Information Dispersal for Mini Forensic Tool for Wireless Sensor Networks

Experiment: Can **malware** be detected without having to **decrypt** the traffic? April 2018 – present

* Working with multiple VMs, tcpreplay and .pcap files; IPsec, TLS Tunnelling for encryption; VPN; Bro and Snort as IDS.

Experiment: Prevent **control flow hijacking** April 2018 – present

* Prevent “system(/bin/sh)” calls on network using Bro IDS.

Experiment: Detection of **cryptocurrency mining** on network using Bro as Network Intrusion Detector. Jan 2018 – March 2018

* Working with **Mininet** Simulations, tcpreplay and .pcap files; Bro as IDS.

**CTF** Competition Jan 2018 – Mar 2018

* Exploited **Buffer Overflow**, Arbitrary R/W, **Format String** vulnerabilities with **Shell** scripting; SQL Injection; **R**eturn **O**riented **P**rogramming employing **pwntools**, Burp Suite etc. practicing reverse engineering of x86, x86-64 **assembly** with gdb.

**Network Analysis in TLS Protocol Versions** Jan 2017 – Mar 2017

* **Python** implementation to measure throughput and communication delay in a simple topology.

Tweaked certain aspects of the **iOS** by testing **Jailbreaking** techniques. Jan 2014 – Dec 2016

## Seminars

Detecting **Credential Spearphishing** Attacks in Enterprise Settings: Using Bro as IDS Mar 2018

**Bitcoin-NG** Analysis: Next Generation Bitcoin Protocol to address the issue of scalability. Feb 2018

**KRACK** Analysis: Key Reinstallation Attacks Analysis to understand how WPA2 works. Jan 2018

**Error Correcting Codes** and **Cryptography**: Showed the connection between these two fields. Nov 2017

Cloud Computing: **iCloud** – The basic working of the cloud service and security aspect of the same. Jan 2016

## Other Experiences and Personal Skills

* Served as Event Coordinator and the Central committee member at National Level Technical Festival.
* Won 1st prize in relay coding competition at National Technical Symposium.
* Undertook volunteering work at Private Educational Institute.
* Worked as a cashier at University Housing and Dining Services at Oregon State University**.**
* **Polyglot:** English, Hindi, and Gujarati; Excellent grasping power; effective team-working and leadership skills.