

# Vaibhav Hemant Dixit

Philadelphia, PA 19103 | 480-410-0993

[@vaibhavhd](mailto:@vaibhavhd) | [vaibhav.hemant@gmail.com](mailto:vaibhav.hemant@gmail.com) | [www.vaibhavdixit.com](http://www.vaibhavdixit.com) | [www.linkedin.com/in/vaibhavhd](https://www.linkedin.com/in/vaibhavhd)

## EDUCATION

Master of Science, Computer Science, Arizona State University, Tempe, AZ

June 2018, GPA 3.67

Bachelor of Technology, Information Technology, Vellore Institute of Technology, India.

May 2013, GPA 3.6

## SKILLS

**Languages** - Proficient - C, Java; Familiar - Python, JavaScript, Shell, Yang. **Tools**: Gdb, Wireshark, Objdump, IDA, Scapy.

**Others** - Pentesting, OpenFlow, OpenStack, TCP/IP, WLAN, ELK, NETCONF, Git, Docker, Jenkins, Android, ROBOT FW.

## PROFESSIONAL EXPERIENCE

Software Engineer 2, Comcast, Philadelphia PA

Jul 2018 to present

- Working with network architecture team to automate the programmability and certification of complex infrastructures.

Software Engineer, Samsung, India

Jul 2013 to Jun 2016

- Built advanced features** like 802.11w, secret SSID and multiband support. Patched Android supplicant at user space.
- Implemented and improved** WEP, WPA, WPA2 secured connection procedures at driver's control plane level.
- Worked **beyond assigned duties to automate the process** of build, sanity and stress testing: linked scripts with Gerrit. **Reduced overall bug fixing time** and made a direct impact in winning agile deadlines by a minimum profit of 3-6 days.

## RESEARCH EXPERIENCE

Graduate Research Assistant, Center for Cybersecurity and Digital Forensics, ASU

Dec 2016 to June 2018

- Credited by Linux Networking Foundation for **reporting and helping** to fix vulnerabilities in SDN controllers:  
**CVE-2017-1000406** (Web cache), **CVE-2017-1000411** (DoS), **CVE-2018-1078** (Advance Persistent Threat)
- PUBLICATIONS († First author) (‡ Co-author)
  - † Challenges and Preparedness of SDN-based **Firewalls** at ACM SDNNFV Workshop **2018**, Tempe, Arizona.
  - ‡ Science **DMZ**: Software Defined Networking based **Secured Cloud Testbed** at IEEE NFV-SDN **2017**, Berlin.
  - ‡ HONEYPROXY: Design and Implementation of Next-Generation **Honeynet** via SDN at IEEE CNS **2017**, Vegas.

## ACADEMIC PROJECTS

- Evolutionary mutational fuzzer:** Jan 2018 to Mar 2018  
Developed a Python based automatic binary fuzzer to find the vulnerabilities in the executable programs. Used Gdb and Valgrind for tracing the basic blocks. Mutated the input seed using bit manipulation techniques to cover infinite branches.
- Advanced software firewall for SDN:** Jun 2017 to Nov 2017  
Single handedly designed a centralized Java application for policy conflict detection and dynamic resolution which pulled topology information using OpenFlow APIs and generated a **complex logical graph of flow rules** to validated **security compliance**. Research findings are published in ACM security workshop.
- Cloud framework for securing campus networks:** Jan 2017 to Jul 2017  
Strengthened ASU campus network security by formulating **adaptive security** mechanism on the perimeter network. **Deployed a countermeasure** generation algorithm on ELK Cluster. Results of **research proved useful** in blacklisting IPs.
- Framework for exploit detection and patching in Capture the Flag competition:** Feb 2017 to Apr 2017  
Participated in a project based CTF game. Contributed to defense framework to reverse engineer the binaries, patch web vulnerabilities in real time and included an attack reflector using Python, Scapy. Won the project based CTF competition.
- Embedded programming in Intel Quark based Galileo board:** Sep 2016 to Nov 2016  
Project aimed to provide an understanding of internals of Linux and RTOS kernel architecture by implementing device drivers for ultrasonic sensor and GPIO pins. Programmed **ioctl**s, **syscall**, **static**, **dynamic probes**, **MISC drivers**, etc.

## ACTIVITIES

- Competed with ASU's blue team in **Collegiate Cyber Defense Competition**. Scored 3rd position in Best-Defense Category.
- DIY projects on Raspberry Pi – Making Python recipes for smart home security and control.