Vignesh S Rao

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EDUCATION

Amrita Vishwa Vidyapeetham
Amritapuri, Kerala
Bachelor of Technology in Computer Science and Engineering; CGPA: 9.36/10
Jun. 2016 – Jun. 2020

Navy Children School
New Delhi
AISSCE; Percentage Obtained : 94%
Apr. 2014 – Apr. 2016

AREAS OF INTEREST

Application Security, Vulnerability Research, Dynamic Instrumentation and Application Fuzzing

EXPERIENCE

Member of Team bi0s, CTF Team, Amrita University
Amritapuri
Top ranked team in India for the past three years, as per CTFtime
Oct. 2016 - Present

- **Binary Exploitation**: Focused on security of ELF executables and was in charge of detecting and exploiting vulnerabilities in binary code.
- **Browser Security**: Learned about the internals of JS interpreter and the basics of JIT compilers. Specifically, focused on learning the basics about Spidermonkey, the Javascript engine used by Mozilla.
- **Cyber Forensics**: Experience with memory forensics techniques and familiarity with the use of the Volatility framework to analyze Windows memory dumps.

InCTF
Amritapuri
Attack-Defense CTF Conducted to raise Cyber Security awareness among students
Dec. 2018

- **Challenge Development**: Part of the team responsible for developing and testing challenges.
- **Infrastructure Deployment**: In charge of deploying the CTF infrastructure and testing its functionalities.

InCTF international
Amritapuri
International jeopardy style CTF. Conducted along with Team bi0s
Oct. 2018

- **Challenge Development**: Was in-charge of the challenge development and deployment team.

Workshop at Model Engineering College
Kochi
Workshop on Cyber Security conducted along with Team bi0s
Sep. 2017

- Workshop on Cyber Forensics, Android Security and Web Application Security as a part of team bi0s
- Assisted the trainers and helped create the necessary material for the workshop

ACHIEVEMENTS

Awarded BlackHat Student Scholarship for Attending BlackHat Asia 2018
Singapore
Cyber Security Conference. Awarded a complimentary Academic Briefings Pass
Mar. 2018

Winner of the Write-up Competition at Google CTF 2019
International
Write-up on a challenge in the CTF quals was one of the winners. Awarded a prize of 100 USD.
Sep. 2019

Champions at CSAW CTF 2019 India region as a part of Team bi0s
India
CTF Conducted as a part of the Cyber Security Awareness Week by NYU
Sep. 2019

Champions at ISITDTU CTF 2019 as a part of Team bi0s
Vietnam
CTF Conducted by ISITDTU, the ethical hacking team at Duy Tan University, Da Nang
Jul. 2019

Champions at HackLu on-site CTF 2018 as a part of Team bi0s
Luxembourg
CTF Conducted as a part of the Hack.Lu Cyber Security Conference
Sep. 2018

Awarded 90% Merit Scholarship at Amrita School of Engineering
India
Tuition fees waiver to pursue B.Tech. awarded based on performance in the University's Entrance Exam
Jun. 2016

PROJECTS

- **Navarint: A Simple Interpreter** [Link]
  Implemented a basic interpreter to better understand compiler concepts   *Jun. 2019*
  - Interpreter written in C and uses a recursive-decent parser.
  - It's syntax is similar to JavaScript and is a loosely typed language.

- **Python Module for Assistance in File Structure Exploitation** [Link]
  Python Library to Emulate the C File Structure.   *Dec. 2017*
  - Payload generation for FILE structure exploits, difficult due to their lengthy and complicated layout.
  - Module written in Python and emulates the file structure to assist in exploit development.
  - Can also generate automatic payloads for arbitrary read and write and supports amd64 and i386 architectures.

- **Software Implementation of a Dynamic Memory Allocator** [Link]
  Implemented a Dynamic Memory Allocator to understand it better   *Jan. 2018*
  - Allocator written and implemented in C language and uses segregated freelists combined with the first fit selection algorithm.

- **Home Appliance Automation** [Link]
  Framework to control home appliances with voice using the Google Assistant   *Dec. 2018*
  - A trivial master-slave model based implementation of appliance automation.
  - Uses Google Assistant as a voice interface for communicating with the IoT device to send commands.
  - Can control home appliances by voice and a web-based UI. Also displays the current temperature on the web interface and sends out a fire alert if temperature crosses a threshold.

Non Technical

- **Student Social Responsibility**
  Extra Curricular Activity done along with the CIR Department, Amritapuri   *Jul. 2018*
  - Conducted with the aim of educating school students about staying safe in Cyber Space. Students were taught about Phishing/Scamming attacks, cyberbullying and lessons on how to stay safe online.

SKILLS

- **Tools**: GDB (peda, gef), IDA, radare, Wireshark, VirtualBox, Vagrant
- **Languages**: C, C++, Python, Java, JavaScript, x86 Assembly
- **Frameworks**: Pwntools, Volatility
- **Platform**: GNU/Linux

ONLINE PROFILES

- **GitHub**: vigneshsrao
- **Twitter**: sherl0ck__
- **LinkedIn**: vigneshsrao
- **Blog**: vigneshsrao.github.io
- **Wargame/CTF Handle**: sherl0ck